

**THE LOGIC OF
INDUSTRIAL ORGANIZATION**

Dhananjayrao Gadgil Library



GIPE-PUNE-010002

THE
LOGIC OF
INDUSTRIAL
ORGANIZATION

By

P. SARGANT FLORENCE

M.A. (CAMBRIDGE), PH.D. (COLUMBIA)

PROFESSOR OF COMMERCE, UNIVERSITY OF BIRMINGHAM
LATE UNIVERSITY LECTURER IN ECONOMICS, UNIVERSITY OF CAMBRIDGE

AUTHOR OF "ECONOMICS OF FATIGUE AND UNREST"

"THE STATISTICAL METHOD IN ECONOMICS AND POLITICAL SCIENCE". ETC.



LONDON

KEGAN PAUL, TRENCH, TRUBNER & CO. LTD.

BROADWAY HOUSE, 68-74 CARTER LANE, E.C.

1933

X:8

G3

10002

CONTENTS

CHAP.	PAGE
PREFACE	ix
I THE LOGIC OF LARGE-SCALE OPERATION	
§ 1. The Structure of Industry	I
§ 2. The Efficiency of Large-scale Operation	11
§ 3. The Degree of Efficient Integration.	20
II THE ILLOGIC OF ACTUAL OPERATION	
§ 1. Actual Scales of Production and Operation	25
§ 2. The Actual Size of Manufacturing Plants	29
§ 3. Actual Sizes of Manufacturing Firms	35
§ 4. Actual Sizes of Plants and Firms in Non- Manufacturing Industries	37
§ 5. The Discrepancy of Theory and Fact	42
III THE RELATIONS OF PRODUCER AND CONSUMER	
§ 1. Planned and Free Consumption.	49
§ 2. The Logic of Free Consumption	55
§ 3. The Vagaries of Free Production for Free Consumption	60
§ 4. Forecasting and Market Research	66
§ 5. Competition and Combination	80
§ 6. Rationalization and Nationalization	87
IV INVESTMENT, EMPLOYMENT AND MANAGEMENT RE- LATIONS	
§ 1. The Relative Growth of Investment and Employment	92
§ 2. The Inter-action of Investment and Em- ployment	97
§ 3. Investment and Employment in Depression	103
§ 4. The Policy of Short Hours and Multiple Shifts	107
§ 5. Adaptation to the Growth of Specialized Management	114
§ 6. Inefficiency of the Hierarchical System	119
§ 7. Inefficiency of the Functional System	127
§ 8. Management by the Line and Staff System.	133
§ 9. The Core of Ultimate Control	139
§ 10. Liaison	153

CONTENTS

CHAP.	PAGE
V	THE STIMULUS TO LABOUR
	§ 1. The Social Environment of the Large Plant 155
	§ 2. Pecuniary and Trans-pecuniary Incentives 167
	§ 3. Incentives and Conducives to Work 169
	§ 4. Attractives and Conducives to Mobility 171
	§ 5. Summary and Generalization 176
VI	THE STIMULUS TO INVEST 179
VII	THE STIMULUS TO ENTERPRISE AND ADMINISTRATION
	§ 1. Pecuniary and Non-pecuniary Incentives 194
	§ 2. Types of Entrepreneurs and Business Administrators 204
	§ 3. Short-period Supply Price of Administration 220
	§ 4. Long-period Supply Price of Administration 232
VIII	EDUCATION FOR BUSINESS ADMINISTRATION
	§ 1. The Requirements for Administration 239
	§ 2. Education and Inborn Qualification 242
	§ 3. Education versus Inbred Disqualification 244
	§ 4. English 'Breeding' 245
	§ 5. The English Educational System 250
	§ 6. The Public School Man 252
	§ 7. The University as Training Ground 255
IX	CONCLUSIONS 260
	INDEX 269

LIST OF TABLES

TABLE	PAGE
I The Structure of Industry by Orders, Groups, and Instances of Industries, Firms and Plants	6
II Sizes of Plants, U.S.A., 1909	30
III Growth in Size of Plants, U.S.A., 1909-23	35
IV Number and Aggregate Turnover of Retail Shops in Great Britain, 1930	38
V Percentage of Total Expenditure spent on Specified Items of Consumption (Germany, 1927-8)	74
VI Line and Staff System—Sample Organization Chart	135
VII Comparative Efficiency of Types of Entrepreneur or Administrator	207
VIII The Supply Curves of Administration	222
IX Comparison of Numbers and Percentages earning Specified Incomes among Civil Servants and Business Administrators.	236

PREFACE

THE development of the world economic crisis appears to have reached a stage when attention may again be turned to its industrial aspect. The problems of industrial incentives and control, of hours of work, wages and profits that are being so conspicuously tackled in the United States are perhaps in the long run of equal importance to the monetary factors that have occupied economists in the last few years. It must not be forgotten that before the world crisis overtook her, England had been suffering from a persistent unemployment rate of ten per cent. If this is not to be repeated in the next period of 'prosperity', changes must certainly be planned ahead in the structure of industry. No apology is needed for introducing a book on industrial organization and efficiency among the present crowd of publications on money and finance.

Industrial efficiency is not, however, assumed the be-all and end-all of the life of the community. Indeed I heartily sympathize with the type of industrialist, described in the text, who prefers to sacrifice some efficiency—and profit—for the sake of added leisure. The thesis advanced in my *Uplift in Economics* that there should be social sciences free from controversy about ends appears as necessary as ever before. In this present book efficiency duly defined and limited in its scope is taken simply as one consequence that is important enough to mankind to justify the investigation of its causes

PREFACE

THE development of the world economic crisis appears to have reached a stage when attention may again be turned to its industrial aspect. The problems of industrial incentives and control, of hours of work, wages and profits that are being so conspicuously tackled in the United States are perhaps in the long run of equal importance to the monetary factors that have occupied economists in the last few years. It must not be forgotten that before the world crisis overtook her, England had been suffering from a persistent unemployment rate of ten per cent. If this is not to be repeated in the next period of 'prosperity', changes must certainly be planned ahead in the structure of industry. No apology is needed for introducing a book on industrial organization and efficiency among the present crowd of publications on money and finance.

Industrial efficiency is not, however, assumed the be-all and end-all of the life of the community. Indeed I heartily sympathize with the type of industrialist, described in the text, who prefers to sacrifice some efficiency—and profit—for the sake of added leisure. The thesis advanced in my *Uplift in Economics* that there should be social sciences free from controversy about ends appears as necessary as ever before. In this present book efficiency duly defined and limited in its scope is taken simply as one consequence that is important enough to mankind to justify the investigation of its causes

PREFACE

in a purely indicative mood. There are undoubtedly equally if not more important ends for human beings to strive for, but the ranking of such ends in order of merit is not my present object.

A further thesis, illustrated at some length in my *Statistical Method in Economics and Political Science*, is developed in this book. Hitherto the study of industrial organization has been limited almost entirely to descriptions of existing industrial forms. I believe that knowledge how logically to plan industrial structures and functions would gain greatly if the study of industry were linked more closely with both economics and political science, provided these sciences are prepared to build upon a basis of facts accurately measured by statistical methods, and to interpret results in the light of modern psychology.

Economics deals mainly with the amounts of various goods and services provided and exchanged and the exchange values—prices, costs and other payments—so created. But it is doubtful how far these terms of exchange can usefully be studied in the abstract without reference to the persons and organizations of persons effecting production and exchange. In his *Organization of Farming*, Mr. G. T. Garratt has distinguished between clean boot and dirty boot farmers, and clearly the difference in mental attitude and in division of labour that is implied will affect the costs and output of these producers. Similarly, the several types of industrialists and of industrial organizations that I distinguish in Chapters IV and VII will affect the economics of industry. To supply a real context for economic generalizations and to see the working of economic institutions as a whole, therefore, a new political science must be developed that will

PREFACE

not be restricted to matters of State but will deal with methods of organization—methods of rule, methods of appointment, methods of sharing work, for whatever purposes these methods are instituted.

Parts of my manuscript were read by Mr. E. A. G. Robinson, Mr. James Walker, and Mr. Hugh Weeks, and I should like to express my gratitude for their helpful criticisms. Chapter IV, §§ 2-4, dealing with the insistent problem of shorter hours of work as a cure for unemployment, is part of a report that I drafted for the British Section of the International Association for Social Progress, which will be published shortly. Finally, I want to thank my wife, Lella Faye Secor, for her untiring efforts in reading manuscript and proof.

P. SARGANT FLORENCE.

BIRMINGHAM, 1933.

INDEX

- Absence, 161
 Abstinence, 180
 Accidents, 169, 171
 Accounting, 57, 129, 137, 160, 191, 217
 Accounts, 214, 242
 Administration, 7, 115, 140-53, 178, 194-259
 definition, 140
 Administrator, 153, 177, 180, 181, 187, 263, 266; see also Administration, Directors
 definition, 194
 Admiralty, 136
 Advertising, 54, 84-6, 131, 134, 191, 226, 261
 Advisory function, 133, 137
 Aeroplane making, 78
 Agriculture, 4, 7, 37, 39, 45, 97, 111, 202, 204
 Amalgamated Clothing Workers, 165
 Amalgamation, 195, 206, 210-12, 216, 217
 America, 25, 29, 30-6, 77, 84, 88, 91, 93-6, 117, 128, 131, 144, 165, 181, 186, 189, 190, 197, 257, 260
 Anderson, Sir Alan, 233
 Anthropomorphism, 179
 Appointing Trustees, 150
 Appointment, 119, 130, 140-3, 145-8, 150, 153, 154, 195, 201-3, 205, 206, 208, 212-15, 217, 220, 263, 266
 Apprenticeship, 251
 Archbishops, 120
 Archdeacons, 120
 Aristocracy, 206, 224
 Aristotle, 165
 Army, 119, 120, 122, 123, 125
 Articles of Association, 145
 Ashton, see Chapman and Ashton
 Association, 86, 88, 211, 216, 217, 261
 Attractives, 99, 171-80, 203, 232, 235, 237, 243, 244, 248, 266
Aufsichtsrat, 145
 Austen, Jane, 246
 Austria, 83
 Autocracy, 204, 205
 Automobile, see Motor Industry
 Auxiliary Services, 14, 22
 Avery's, Messrs., 258

 Babbage, C., 14, 18
 Baking, 30, 32-4, 37, 44
 Balance Sheets, 191
 Baldwin, Stanley, 159
 Balfour Committee on Industry and Trade, 27, 35, 93, 95
 Balfourier, Gen., 124
Ballyhoo, 84
 Banking, 17, 36, 37, 39, 45, 97, 147, 181, 183, 190, 195, 200, 202, 209, 234, 236, 252
 Bankruptcy, 82, 83
 Bata, 163, 164
 Bed-making Industry, 5
 Bedaux System, 166
 Belfast, 38

INDEX

- Belgium, 53
 Bimodal distribution, 32, 43
 Birmingham, 8, 38, 257
 Birth-rate, 59, 237
 Bishops, 120, 198
 Board of Directors, see Directors
 tortors
 Board of Inland Revenue, 185
 Board of Trade, 27, 76
 Body of persons, 2, 3, 138
 Bookbinding, 30
 Boots and Shoes, see Shoe
 manufacture
 Bourgeois, 205, 224
 Bowie, J. A., 237, 257
 Bradford, 38, 223
 Braithwaite and Dobbs, 38, 89
 Branding of Goods, 84
 Brewing, 29, 30, 32, 33, 94
 Brick-making, 45, 71, 72
 Britain, see England
 British Association, 40, 164
 British Thomson Houston Co.,
 8
 Broadcasting Corporation,
 British, 150
 Bryce, Lord, 10
 Building, 4, 7, 37, 39, 44, 63, 97,
 99, 111, 157
 Building Societies, 185
 Bulk transactions, principle of,
 16, 21, 52, 86
 Bureaucracy, 124, 125, 152,
 160, 195, 215, 219
 By-products, 20

 Cabinet, 140, 141, 149
 Camaraderie, 83, 158
 Cambridge, 208, 250, 255, 256
 Capital, 93-7, 99, 114, 115, 139,
 144-8, 162, 178, 186, 193,
 202, 211, 227, 237, 261,
 265
 Capitalism, 8, 9, 51, 59, 82, 91,
 140, 144-50, 152-4, 165,
 179, 182, 187, 197, 220,
 240, 261-3

 Captains, 120, 158, 240
 Carpets and rugs, 72, 168, 229
 Cartel, 87
 Catlin, G. E. G., 82, 154
 Cement, 72
 Census of Manufactures, U.S.,
 29, 30, 37, 43, 93, 144
 Census of Production, U.K., 33,
 93
 Chain of Command, principle
 of, 120, 123
 Chain Stores, 37, 38, 230
 Chamberlain, Joseph, 86
 Chapman and Ashton, 43, 151,
 152
 Cheltenham, 181
 Chemical Industry, 33, 34, 36,
 94, 95, 112
 Christmas, 64
 Church, 119, 120, 223, 239
 Churchill, Winston, 134, 136
 Civil Service, 140, 149, 152,
 218, 219, 232, 235, 236,
 242, 256
 Clark, G. C., 186
 Class production, 224
 Clay, H., 167
 Cleaning Councils, 154
 Clergy, 120
 Clerks, 117, 159, 173, 199, 215-
 17, 230, 234, 236, 239,
 251
 Clothing, 7, 29, 30, 32-4, 39, 45,
 51, 55, 58, 67, 68, 72-4, 94,
 96, 169, 171, 184
 Coal Industry, Royal Commis-
 sion, 40
 Coal Mines Act of 1929, 89
 Coal Mining, see Mining
 Coates, W. H., 185
 Coke-making, 95
 Cole, G. D. H., 180, 193
 Collective Agreements, 166
 Colonels, 120, 159
 Colwyn Committee on National
 Debt and Taxation, 183,
 185

INDEX

- Combinations, 2, 3, 36, 80-90,
 144, 201, 202, 205, 210,
 214, 230, 261, 266
 Command, line of, 130, 132, 137
 Commerce, 7, 37, 39, 40, 45, 97,
 III, 218, 234, 247, 257
 Commissions, 196
 Committees, 136-9, 141, 148,
 149
 Common Costs, 105-7
 Communism, 9, 50
 Community of Interests, 214
 Competition, 80-7, 89, 140, 151,
 195, 204, 205, 220, 239,
 245, 246, 261
 Complaint Book, 57
 Conducives, 99, 169-79, 183,
 236-8, 264
 Confédération Générale du Tra-
 vail, 164
 Conspicuous Waste, 61, 184
 Consumer's Control, 150, 152-4,
 263
 Consumer's Co-operative Move-
 ment, see Co-operative
 Societies
 Consumer's Research Inc., 84
 Consuming power, 98-100, 262
 Control, ultimate, 139-53, 228,
 262
 Conventional Necessities, 55,
 58, 66, 208
 Co-operative Societies, 38, 55,
 90, 140, 144, 148, 150, 187,
 230
 Co-operative Wholesale Soci-
 ety, 10
 Co-option, 150, 213
 Co-ordination, activity of, 132,
 140, 195, 201, 205, 208,
 209, 212, 214-16, 217, 219,
 240, 254, 262, 266
 powers of, 241-3, 267
 Corbett, Sir J., 136
 Costing, 20, 79, 131, 134, 137
 Cotton, 30, 31, 33, 35, 43, 93,
 94, 96
 Coutanceau, Gen., 125
 Couturiers, 68
 Craft, 166
 Credit, 52, 86
 Crowley, J. F., 93
 Curates, 241, 242
 Currency, 91, 190
 Cycles, 69, 70, 77
 Czecho-Slovakia, 163
 Death-rates, 170
 Debentures, 145, 146, 148, 181,
 183, 188, 195
 Decasualization, 17
 Decreasing Cost, law of, 12, 13
 Deferred Shares, 188
 Delegation (of control, or
 power), 116, 117, 133, 201
 Delivery Costs, 53, 55, 74
 Demand, definition, 50
 Democracy, 215, 249
 Department Stores, 38, 40
 Depreciation, 79, 95, 105, III
 Depression, 100, 103-7, 184,
 226
 Designs, 57, 63-5, 69, 70, 77,
 78, 85, 86, 129, 134, 137,
 241, 261
 Detroit, 88
 Dibelius, W., 252
 Dickinson, Z. C., 161
 Dictatorship, 51, 52
 Dignity, sense of, 157, 158
 Dilution of labour, 166
 Diminishing Utility, law of, 60,
 66
 Direct Costs, see Prime Costs
 Direct Sales, 55
 Directors, 115, 121, 130, 131,
 141, 145-8, 150, 152, 187,
 193, 194, 199, 213-15, 218,
 225-31, 237-40, 252, 258,
 263, 265
 Directory of Directors, 214
 Disciplinary, 128
 Discipline, 140, 157, 257
 Discount rates, 190

INDEX

- Dismissal, 104, 106, 119, 140, 160, 198
- Displacement, see Technological unemployment
- Display, 74
- Distribution (of goods), 4, 42, 51, 53, 71, 74, 76, 86, 97, 99, 173, 260, 261
- Dividends, 54, 147, 151, 180, 181, 184, 197, 209, 213, 216, 224
- Division of labour or work, 119, 133, 153, 240
- Dobbs, see Braithwaite and Dobbs
- Dock and Harbours, see Harbours
- Doctors, 234-6
- Domestic Servants, 174
- Drink, see Food, Drink and Tobacco
- Drug Trade, 54
- Dry Goods Trade, 54
- Dubail, Gen., 125
- Dubreuil, 164
- Dunlop, W. R., 54
- Dyeing and Finishing, 72
- Economic Man, 81, 198, 202
- Economics, 118, 171, 218, 222, 257
- Economists, 1, 7, 12, 13, 15, 49, 50, 81, 115, 116, 169, 172, 177, 194, 200, 204, 208, 221, 222, 224, 227, 262
- Economy, definition, 12
- Education, 74, 173, 183, 185, 215, 218, 231, 236, 242-60, 266, 267
- Efficiency, definition, 12, 13
- Efficiency earnings, 232
- Elasticity of Demand, 60, 72, 78, 79, 80, 109, 208, 228, 261
- Electorate, 148
- Electrical Engineering, 7, 8, 26, 30-3, 71, 94, 95
- Electricity Board, 150
- Electricity Commission, 150
- Electricity Supply, 42, 86, 91, 96, 150, 185
- Employment, 65, 92-107, 140, 145, 152, 261, 262
- Engel's Law, 72
- Engineering, 5, 7, 10, 27, 29, 32, 34, 94, 108, 112, 229
- Engineers, 46, 49, 50, 240, 260
- England, 33, 88, 93, 95, 96, 117, 128, 148, 150, 154, 165, 175, 181, 185, 188, 197, 213, 222, 224, 229, 231, 245-52, 260, 267
- English Electric Co., 8
- Entrepreneur, 97, 122, 140, 144, 151, 177, 181, 194-210, 211, 215, 218, 221-31, 236, 239, 240, 263, 265, 266
- Equality, 156, 157, 158, 173
- Esprit de Corps, 160, 210
- Eton, 249
- Experts, 124, 127, 128, 136, 165, 190, 201, 205, 208, 209, 214, 215, 262
- External Economies, 13, 15
- Facilitation, 133
- Factory Acts, 100
- Family, 52, 57, 162, 174, 204, 253, 261, 267
- Family budgets, 72-4
- Family business, 121, 199, 206-10, 221, 225, 227, 228, 231, 239-41, 256, 258, 265, 266
- Far East, 223
- Fashion, 55, 56, 58, 69, 70
- Fatigue, 100, 102, 103, 108, 109, 111, 113, 121, 162, 163, 171, 172, 262
- Fayol, H., 132
- Federal Trade Commission, 37, 181
- Federalism, 164, 165

INDEX

- Fees, 180, 181, 192, 196, 197,
 198, 214, 227, 231, 234
 Ferry, Gen., 124, 125
 Feudalism, 207, 210, 211
 Finance, 7, 39, 45, 129, 131,
 149, 191, 233, 235, 237
 Financier, 145, 192, 195, 210-
 13, 218, 228, 229, 231, 240,
 263, 265
 Fishing, 7
 Fixed Costs, 21, 79, 83, 89, 102,
 105-11
 Florence, P. S., 2, 5, 12, 50, 111,
 112, 169, 172, 180, 197
 Flour Mills, 94
 Fluctuations in Income, 69,
 75-80
 Food, 55, 58, 72-4, 169, 171,
 184, 238, 244
 Food, Drink and Tobacco In-
 dustries, 34, 112
 Ford, H., 61, 88
 Forecasting, 66-80, 261
 Foremen, 105, 106, 120, 123,
 126, 127, 132, 134, 141,
 143, 158, 199, 209, 215-18,
 230, 231, 236, 239, 240,
 250, 266
 Forestry, 150
 Foundries, 29-31, 33, 94
 France, 256
 Fraternity, 156, 157, 173
 Frequency Distribution, 43, 67,
 68
 Friction, 47, 81, 132
 Fry, Roger, 63, 65
 Fuel, 55, 72
 Functional Foreman, 127, 128,
 132
 Functional System, 116, 127-
 33, 139, 152, 204, 217,
 262
 Furnishings, 72
 Furniture, 71-4, 168
 Gallieni, Gen., 125
 Galsworthy, John, 147
 Gambling, 182, 204, 206
 Games, 253, 254
 Gang Boss, 128
 Gas attacks, 124, 126
 Gas Industry, 30, 32, 86, 90, 94,
 95, 150
 General Electric Co., 8, 10
 General Motors, 89
 Generals, 120
 Generalship, 217, 240, 241, 255
 Genius, 117
 Gentleman, 210, 223, 224, 246,
 247-9, 266
Gentlemanideal, 246, 249, 255,
 256, 267
 Germany, 33, 35, 73, 145, 256
 Ginsberg, M., 176
 Glass Industry, 112
 Golden Rule, the, 146
 Good Life, the, 224
 Goodwill, 81
 Gorell Committee on Art and
 Industry, 63-5
 Gramophones, 168, 188
 Greek City State, 164
 Grid System, 42, 150
 Grocery, 54
 Guerrilla warfare, 240
 Guinea pig director, 192, 193,
 213, 215, 237, 266
 Hamilton, Sir Ian, 121
 Hammock Industry, 7
 Harbours, 91, 150
 Hardware, 72
 Hart, B. H. Liddell, 125
 Harvard, 257
 Heating, 54, 72-4, 95, 105-7
 Heating and ventilating appar-
 atus, 71, 168
 Hedging, 66
 Herd instinct, 77, 265
 Hierarchical System, 116, 119-
 27, 130, 132-4, 139, 152,
 160, 240, 262
 Hiring and Firing, 161
 Hoarding, 167, 183, 184

INDEX

- Holding Company, 144, 181
 Holidays, 169, 226
 Holy Roman Empire, 11
 Home Counties, 181
 Home influences, 244
 Home Office, 171
 Hoover, C., 51, 154, 175
 Hoover, H., 25, 57
 Horse-power, 93
 Hosiery, 96, 112
 Hours of Work, 98, 100-14,
 162, 169, 171, 175, 237,
 238, 262
 Housing, 50, 55, 58, 71-4, 168,
 171, 176, 185, 238, 244,
 265 ; see also Building
 Hoyt, E. E., 64
- Identification of Interests, 156-
 60, 162, 177, 182, 264
 Imperfection of the Market,
 81
 Incentives, 153, 155-71, 176-
 80, 194-203, 265, 266
 definition, 156, 177
 Increasing Returns, law of, 1, 5,
 12, 13, 16
 Index numbers, 75, 76
 India, 233, 234
 Individualism, 206, 266
 Indivisibility, 105
 Indoctrination, 138
 Industrial Revolution, 181
 Industry, definition, 3-5, 87
 Inequality of Abilities, 243, 244
 Inequality of Hours of Work,
 100, 101, 262
 Inequality of Incomes, 52, 58,
 61
 Information, 124, 133, 136, 190,
 191, 265
 Informed Joint Control, 167, 264
 Inheritance, 59, 191, 209, 256
 Initiative, 241, 242, 243, 249,
 254, 255
 Inspector of Factories, 112
 Instincts, 155, 167, 202, 243
- Institutional Rent, 231
 Institutionalism, 160
 Insurance, 17, 54, 95, 147, 166
 Integration, 20-4, 55, 212
 diagonal, 22, 23
 horizontal, 21, 23
 lateral, 21, 23, 66, 139, 192
 vertical, 22, 23, 139, 186, 192
 Intelligence, powers of, 242, 243
 Interest, rates of, 54, 77, 95,
 111, 148, 149, 170, 180,
 181, 184, 193, 196, 203,
 265
 Interlocking, 213, 215, 237
 Inter-marriage, 199
 Internal Economies, 13, 15
 International Management In-
 stitute, 27, 78, 142, 163,
 195
 International Scientific Man-
 agement Congress, 130
 Investment, 65, 92-114, 140,
 145, 148, 152, 176-94, 201,
 261, 262
 definition, 97, 180
 Investors, 115, 145-9, 153, 177,
 179-94, 211, 239, 264
 Iron and Steel, 7, 10, 30-4, 94,
 96, 112, 229
 Ironfoundry, 7, 10 ; see also
 Foundries
 Issue Houses, 187, 191, 193
- Jantzen Knitting Mills, 28
 Jewellery Trade, 54
 Jobbing, 202
 Joffre, 124, 125
 Joint Stock Companies, 144-8,
 151, 181, 182, 195, 197,
 229, 230, 239, 263, 265
 Jones, J. H., 115
- Kensington, 181
 Keynes, J. M., 97, 180, 184,
 185, 221
 Kimball, D. S., 16
 King, W. I., 204

INDEX

- Knight, F. H., 60, 141
 Kroeber, Dr., 70
- Labour, 97, 98, 102, 114, 115,
 127, 141, 153, 155-78, 194,
 195, 221, 264
 Labour Manager, 129, 134
 Labour Party, 193
 Labour Turnover, 160, 169
 Lancashire, 43, 253
 Large-scale operation, organi-
 zation, production; defi-
 nitions and distinctions, 1,
 2, 11, 12, 26, 88, 116, 260
 Laundries, 45
 Lawyers, 236, 239, 241, 247,
 256; see also Solicitors
 Leather Industry, 5
 Legislature, 140
 Leisure, 75, 100, 168, 169, 207,
 223, 225, 227, 262, 264, 266
 Leverhulme, Lord, 110, 111
 Lever's, Messrs., 258
 Liaison, 132
 Liberal Industrial Enquiry,
 190, 192, 193
 Licensing of Shops, 89, 261
 Lieutenants, 120, 159
 Lighting, 54, 72-4, 95, 105-7
 Limit to subordinates, prin-
 ciple of, 121, 123
 Lincoln cars, 88
 Line and Staff System, 133-9,
 152, 201, 202, 204, 217,
 240, 262
 Liverpool, 38
 Local Authorities, 185
 Local Council, 149
 Localization, 2, 14
 Locomotives, 26, 27
 London, 149
 London and Cambridge Econo-
 mic Service, 76
 Lost Time, 114, 160, 168, 169,
 171
 Loyalty, 83, 84, 158, 210
 Luxury articles, 51, 72
- Machinery making, 5, 33, 99
 Macmillan Committee on Fin-
 ance and Industry, 180,
 188, 191
 McNair, M. P., 54
 Maintenance of Plant, 54, 95
 Majors, 120, 159, 240
 Malan, Admiral, 136
 Malt Liquor Industry, see
 Brewing
 Management, 87, 114-39, 148-
 53, 160, 166, 194, 195, 214,
 261, 262
 definition, 140
 Manager, see Administrator,
 Management, Directors
 Managing Director, 134, 143,
 212, 239, 240
 Manchester, 38, 257
 Manning, see Appointment
 Manufacturing, 4, 7, 29-37, 93,
 97, 111, 117, 202, 233, 235
 Marginal principle, 79
 Margins, 54, 55, 89
 Market Research, 15, 66-80, 81,
 134
 Marketing, 51, 87, 91, 261
 Marketing Cost, 54, 86
 Marquand, H. A., 181, 197, 210
 Marriage rate, 55
 Marshall, A., 13, 15, 83, 172,
 173, 178, 212, 221, 227
 Massed reserves, principle of,
 16-18, 22
 Mass-production, 2, 11, 217, 224
 Master-craftsman, 97, 157, 224
 Matriculation, 251
 Mayo, Elton, 163
 Mechanization, 2, 86, 98-100,
 155, 158
 Megalomania, 211
 Memorandum of Association,
 145
 Merchant Firms, 233; 235
 Metal Industries, 7, 8, 62, 112;
 see also Engineering, Iron
 and Steel

INDEX

- Metropolitan Vickers, 8
 Middleman, 40, 49, 54, 260
 Military System, see Hierarchical System
 Mills, F. C., 186
 Mining, 4, 7, 10, 39, 40, 45, 96, 175, 229, 254
 Ministry of Labour, 71, 76
 Ministry of Munitions, 121
 Mobility, 99, 171-8, 226, 237, 264
 Monopoly, 40, 81, 85, 86, 90, 91, 150, 261, 263
 Monotony, 155, 173
 Mooney and Reiley, 117, 133, 138, 142
 Morphology, 118
 Morrison, H., 150, 167
 Motor Industry, 30, 32, 33, 35, 72, 88, 188
 Multiples, principle of, 16, 18-21, 23
 Municipalization, 91, 150, 185, 193, 230
 Musical Instruments, 71
 Myers, C. S., 132
 National Investment Board, 193
 Nationalism, 85
 Nationalization, 39, 87-91, 140, 148-54, 185, 193, 230, 261, 263
 Natural Selection, 204
 Navy, 119, 134, 136, 144
 Need, definition, 50
 Net Advantages, 172, 265
 Newcastle, 38
 Newspaper Publishing, 30, 211
 Normal Distribution, 43, 117
 Nutritives, 170, 177
 Nystrom, P. H., 56, 67, 68, 70
 Oakum Industry, 7
 Obsolescence, 79, 105, 111
 Octopoid industries, 86
 Oligopoly, 40, 86
 Omnibus, see Tramway and Omnibus
 Optimum size of Committees, law of, 138
 Ordinary Shares, 145, 149, 181, 182, 188, 265
 Organization Chart, 119, 135
 Organizing, activity of, 142, 145, 148, 153, 195, 263
 Orient Line, 233
 Overhead Costs, 21, 24, 79, 89, 95, 104-11, 197, 262
 Overproduction, 80
 Oxford, 208, 250, 256
 Packaging, 55, 74
 Paint and Varnish Industry, 71, 72
 Paper Industry, 33, 34, 39, 112
 Paper-work, 137, 215, 220, 241
 Paris, 257
 Parkinson, H., 146
 Parliament, 148, 149, 152
 Partnerships, 144, 239, 258
 Patents, 15
 Paternalism, 158, 159
 Peasant Proprietor, 37, 97, 156
 Peerage, 211, 213
 Personal Service, 4, 7, 39, 45, 97, 99, 184, 202
 Personnel Manager, see Labour Manager
 Piece Wages, 104, 165, 168, 170, 196, 221
 Plan, Russian Five-Year, 42, 46, 85, 112
 Planned Consumption, 49-55, 260
 Planned Economy, 8-10, 99
 Planning, 131, 134, 137, 254
 Plant, Arnold, 64
 Plumber's supplies, 72
 Plutocracy, 210
 Political Science, 82, 118, 148, 153, 263
 Post Office, 149
 Postal facilities, 91
 Pottery Industry, 62

INDEX

- Poverty, 244, 255, 257, 267
 Power, love of, 206, 211
 Power, mechanical, 95, 105-7, 158
 Prefects, 253
 Preference Shares, 145, 146, 149, 181, 188
 Price-and-Output Policy, 79, 134, 140, 195, 262
 Price-cutting, 83
 Pride of ownership, 204-6
 Prime Costs, 83, 104, 105, III, 112
 Printing, 2, 7, 29, 30, 32-4, 39, 44, 78, 94, 176
 Probable Error, 18
 Producer's Goods, 56, 57, 65, 66, 91
 Production Manager, see Works Manager
 Professions, 7, 39, 45, 97, 176, 218, 232, 234, 237, 256, 257, 266, 267
 Profits, 13, 51, 54, 64, 75, 79, 80, 90, 91, 98, 99, 103, 132, 145-8, 151, 164, 170, 180, 196, 197, 204-7, 219, 225, 226, 228, 246, 265
 definition, 180
 Profit-sharing, 164, 197
 Promoter, Company, 145, 146, 188, 195, 210, 263
 Promotion, 161, 199, 201, 205, 258
 Prospectus, 188, 191, 192
 Prussia, 83
 Psychologists, 134, 165, 167, 169, 177
 Psychology, 46, 47, 100, 153, 155, 171, 178, 183, 189, 213
 Public Control, 89, 150, 151; see also Nationalization
 Public Houses, 89
 Public Schools, 207, 224, 250-6, 267
 Public Utilities, 34, 96, III, 151, 185
 Publishing, 29, 94
 Purchasing, 129, 131
 Purchasing Habits, 53, 86
 Quarrying, 7, 71
 Quartermaster, 133
 Questionnaire, 137
 Railroad repair shops, see Railway works
 Railway works, 30, 32, 33, 36, 57
 Railways, 10, 39, 90, 96, 233, 235, 236, 252
 Rates, 95, 149
 Rationalization, 12, 87-91, 107, 156, 214, 220, 229, 261
 Rationing, 51
 Rayon Industry, 5
 Real Cost, 172
 Real Incomes, 58, 74
 Records, 127, 137, 158, 160, 254
 Red Tape, 124, 125, 152, 160, 216, 251
 Redmayne and Weeks, 67
 Reiley, see Mooney and Reiley
 Re-investment, 185-7, 192, 201, 202, 206, 209, 211, 213, 216, 217, 220, 265, 266
 Renier, Dr., 250
 Rent, 54, 72, 196
 Rentier, 181, 183
 Repair Boss, 128
 Repairing, 45
 Representative firm or plant, 31, 44, 83, 96
 Research Departments, 20, 129, 134, 165
 Research Groups, 131, 165
 Reservation of Control, principle of, 143
 Respectability, 156, 172, 174, 247, 264
 Restriction of Output, 78, 103-7, 222, 224, 231
 Retailing, 36-8, 41, 45, 52-4, 89, 90, 175, 184

INDEX

- Risks, 22, 24, 66, 72, 145, 151, 180, 182, 183, 195, 211, 241, 265
 Rivalry, 205
 River Conservancy, 150
 Rivers, W. H. R., 216
 Roads, 50, 185
 Robbins and Folts, 28
 Robertson, D. H., 21, 146
 Robinson, E. A. G., 3, 15, 16, 87, 88, 116, 186
 Round-about Production, 60
 Route Clerk, 128
 Routine, 155, 159, 237, 251, 258
 Routing, 4
 Rowntree, B. S., 165
 Rowntree's, Messrs., 127, 140, 141, 153, 154, 165
 Rubber Works, 112
 Rugby, 254
 Rule relations, 119
 Rural deans, 120
 Ruskin, John, 223, 224, 241, 247
 Russia, 8, 9, 42, 46, 50, 53, 85, 112, 154, 175, 260

 Salaries, 54, 73, 89, 95, 106, 180, 181, 184, 196, 197, 198, 219, 224, 228, 231-6, 264
 Sales, Clearance, 79
 Sales Manager, 124, 129, 132, 134, 137, 219
 Salesmanship, 84, 149, 225
 Salesmen, 124, 132, 173, 219, 242
 Salisbury, the Marquis of, 146
 Salter, Sir Arthur, 58, 189, 230
 Samuel, H., 213
 Sargant, W. L., 221
 Satiation, 60, 61, 261
 Saunders, C. T., 176
 Savings, 97, 183, 184, 221
 Saw-making, 28
 Say, 222

 Schools, see Education, Public Schools
 Scientific instruments, 71
 Scientific investment, 188
 Scientific management, 127, 166
 Secrist, H., 54
 Securities, 180, 181, 185, 190
 Sex, 67, 173, 175
 Shareholders, 54, 145, 146, 191, 195, 209, 213, 224, 225, 263
 Shares, 97, 145, 146; see Deferred, Ordinary, Preference Shares
 Sheffield, 38
 Sheldon, O., 140, 195
 Shifts, 78, 103, 107-14, 159, 162, 176, 262
 Ship-building, 7, 10, 33, 43, 96
 Shipping, 10, 233, 235
 Shirt-making, 72
 Shoe manufacture, 30, 32, 33, 45, 78, 94, 96, 163
 Shoe Trade, 54, 67, 229
 Shop-keepers, 52; see also Retailing
 Short-time, 103-6
 Siegfried, A., 222, 248, 256
 Silk Industry, 71, 112, 188
 Simplification, 25-8, 57, 78
 Size of Organizations, 29-48, 144, 157-61, 163-5, 186, 211, 239, 262
 Skirts, 70
 Slichter, S. H., 186, 204
 Smith, Adam, 18, 90, 172, 198, 200, 240
 Smoke-abatement, 46
 Sociability, 156, 173-5, 264
 Social Class, 176, 201, 237, 250, 268
 Social Sciences, 47, 169
 Socialists, 152
 Sociology, 46, 47, 153
 Solicitors, 214, 234, 235
 Soviet System, see Russia

INDEX

- Specialization, 2, 5, 11, 14, 18-20, 24, 26, 47, 88, 89, 92, 118, 124, 127, 133, 139, 155, 240, 251, 260, 261
- Speculation, 189, 190, 211
- Speed boss, 128
- Spoiling the Market, 83
- Sportsmen, 248, 255
- Sraffa, P., 81
- Staff, 133-6, 201; see also Line and Staff, Experts
- Stamp, Sir Josiah, 170
- Standard of Living, 168, 184, 207, 210, 215, 221, 223, 231, 264, 266
- Standardization, 2, 15, 25, 55, 57, 59, 62, 78, 86, 89, 253, 260
- State, the, 118, 140, 146, 185, 187, 198
- State Control, 90, 149, 150, 263; see also Nationalization
- Stationery Trade, 54, 71
- Statistical Control, 131, 134, 137
- Statistical Studies, 37, 39, 40, 43, 53, 54, 70-3, 77, 93, 144, 146, 168, 169, 171, 181, 185, 188, 228
- Statistisches Reichsamt*, 73
- Steam Fittings, 72
- Steel, see Iron and Steel
- Stimulus, definition, 169
- Stinnes, 211
- Stock-brokers, 190
- Stock Exchange, 77, 187
- Stone, Artificial and Concrete, 71
- Strategy, 82, 83, 140
- Strikes, 159, 161, 166, 223
- Structure of Industry, I-II, 118, 142
- Sugar Industry, 72
- Suggestion schemes, 161
- Superintendents, 120, 123, 126, 141, 143
- Supervision, 114, 127, 140, 152, 157, 160, 162, 163
- Supplementary Costs, 21, 105, 112; see also Fixed Costs
- Supply Price, 177, 192, 217-38, 266
definition, 178
- Tactics, 82, 140
- Tailoring, 60
- Tanks, 126
- Tawney, R. H., 249, 252
- Taxation, 59, 91, 95, 149, 184, 185
- Tax-inspectors, 214
- Taylor, F. W., 127, 128, 132
- Teachers, 128, 198, 234-6, 257, 258
- Team Spirit, 157
- Technician, 216-18, 224, 230, 231, 237, 240, 242, 257, 266
- Technocrat, 49, 216, 217, 260
- Technological unemployment, 76, 98-100
- Telephones, 41, 86, 96, 185
- Textiles, 5, 7, 22, 23, 33, 34, 36, 39, 112
- Time and Motion Study, 134, 165
- Time-clerk, 128, 143
- Time-keeping, see Lost Time
- Time Wages, 104, 168, 196, 198, 221, 227
- Tips, 191, 196
- Tobacco, see Food, Drink and Tobacco
- Trade-marks, 81
- Trade Unions, 98, 154, 161, 162, 165, 166
- Trade Wars, 86
- Tramway and Omnibus, 71, 150, 230
- Transpecuniary incentive, 167-9, 200, 203
- Transport, 4, 7, 14, 23, 39, 40, 44, 47, 55, 57, 76, 86, 99, 111, 112, 131, 149, 176, 185, 202, 238, 265

CHECKFO

2003 14

SERVANTS OF INDIA SOCIETY'S LIBRARY

POONA 4.

1. Books drawn from the library may not be retained for longer than a fortnight.
2. Borrowers will be held strictly responsible for any damage done to books while they are in their possession.