



Index

- Aargau, Switzerland
 cotton industry 140
 linen industry 133
 war tax 141
- Acts of Parliament (Great Britain)
 Act of Union (1707) 19
- Navigation Acts (repeal) 213
- Reform Act (1832) 20, 293
- Adamić, Andrija, Croatian entrepreneur 310
- AEG corporation 113, 114
- agricultural innovation/productivity 6, 8, 29,
 31, 66–7, 75, 80–1, 98–100, 164–5, 174,
 186–7, 194, 205, 265, 293, 373–4
- agriculture 1, 202, 372, 385–6
- Austrian 227, 229, 230, 232, 233, 235, 236,
 238, 242, 243
- Balkan 299, 305, 309, 311, 313, 314
- Belgian 66–7, 75
- British 18, 27–31, 187, 373–4, 375, 378, 380
- Czech 247–8, 249, 254, 259
- Dutch 79, 80–1, 86, 88, 187, 373–4, 381
- colonial 84–5
- French 47, 52, 53, 381
- German 98–100, 104, 115, 187, 374, 382
- Hungarian 241, 266–7, 269, 274, 276–82,
 286, 374, 383
- Italian 150, 159–60, 164–5, 168, 174, 374
- Mediterranean 186
- Russian 31, 329, 331–2, 334, 336, 340–3,
 345, 374
- Spanish 187, 190–4, 374
- Swedish 31, 187, 203–5, 210–13, 219, 220,
 222
- Swiss 31, 128, 130–3, 137, 141, 143–4, 188
- in USA 331, 350, 351–3, 356, 358, 362,
 364–5, 366
- see also* food prices
- Aguilas, Spain, lead mining 195
- Aitken, William, introduction of breast-wheel
 to France 41
- Alatini Bros., Greek entrepreneurs 313
- Albania 316
 economic history 292
 population statistics 294
- alcohol, in Russian diet 341
- Alexandrovsk steel works 337
- Algemeen Nederlandsche Maatschappij ter
 Begunstiging van de Volksvljt 84
- Allcard, W. *see* Buddicom, W.B. and Allcard,
 W.
- Allen, R.C. 29
- Almadén, Spain, mercury deposits 195
- Alpine Lands, Austria 226, 249, 250, 252, 383
 income distribution 230, 231
 industry 236
- Alpine Mining Company 238
- Alps, Swiss 140, 145
 agriculture 132
 war tax 141–2
- Alsace, France 54
 cotton industry 47, 48, 56
 locomotives industry 59
 machine-tool industry 42
 secession to Germany (1871) 60
 textile industry 39, 59, 297
- America *see* USA
- American Civil War (1861–5) 60, 352, 361
- American War of Independence (1775–83) 24,
 44, 361
- Amfimov, A.M. 339
- Amsterdam, Netherlands
 and international trade 85, 156
 money markets 66
 staple market 82 83
 sugar-refining industry 85
- Anglo-Swiss Condensed Milk Co. 144
- animal husbandry 164, 186
 British 29, 31
 Hungarian 267, 277, 278
 Russian 343
 Spanish 194
 Swedish 211

- Swiss 132
in USA 352
- anthracite coal fields, in USA 357, 361, 362
- anti-liberal parties, Austrian 242
- Antwerp, Belgium 68, 73
banks 66
harbour 65, 71, 72
- Appenzell, Switzerland, textile industry 198
- Appert, Nicolas François, French food-preservation pioneer 42
- Arbeiter Wochenkronik* 271
- Arcadian, N.P. 307
- Argentina, Spanish immigrants 192
- aristocracy *see* landowners/aristocrats
- Arkwright, Sir Richard, inventor of water-frame 17, 154
- armaments industry 384–5
- Belgian 65
Italian 159, 161, 169
Russian 333
- Arnhem, Netherlands, building industry 82
- artisan economy *see* craft (workshop) industries
- Ashton, Thomas Southcliff 5
Industrial Revolution 14, 16
- Asia, textile markets 70
- Association of Hungarian Industrialists 270
- Athens, Greece, electric power station 314
- Attwood, T. and G., and French textile industry 39
- Australia, mineral discoveries 351
- Austria-Hungary *see* Austrian Empire; Hungary
- Austrian Empire 60, 166, 226
industrialization 2, 166, 226–46, 379, 382–3
mercantilism 65
see also agriculture; Hungary
- Austrian State Railroad Co. 281
- Austro-Hungarian Dual Compromise (1867) 227, 241, 267–8, 271, 273, 280, 309
- Austro-Hungarian National Bank 268
- Austro-Prussian War (1866) 234, 240
- automobile industry 376
Italian 171, 172
Spanish 196
in USA 358
- Avise au Roy et à Monsieur de son Conseil* 152
- Babbage, Charles 16
- Bachinger, K. 259
- Baden, Switzerland 142
- Bairoch, Paul 31, 59, 237, 282, 330, 331, 332
- Baku, oil industry 333
- Baleanu, N., Romanian entrepreneur 306
- Bali Efendi, Bulgaria, wool factory 298
- Balkan War (1912–13) 301, 304, 305, 314, 315, 316
- Balkans 157, 240, 279, 384
- industrialization 2, 290–328
states (c. 1910) xxvii
towns (c. 1910) xxv
see also agriculture
- ball-bearings 218
- balloons, hot-air 37
- Baltic states
dairy farming 343
Russian loss of 343
- Baltimore, MD 362
- Banca Commerciale Italiana 171, 173
- Banca Generale 170
- Banca Nazionale 166, 169
- Banco de Crédito Industrial 198
- Banco Nacional de San Carlos 198
- Bank of Bucharest 306
- Bank of England 22–3
- Bank of Italy 171
- Bank of Spain 198
banks/banking systems
Austrian 231, 234, 238, 240, 268, 273
- Balkan 295, 304–5
- Belgian 64, 65–6, 68, 71, 73–4, 76, 381
- British 115
Czech aristocrats 258
French (Lyons) 155
German 74, 102, 106, 108, 111, 112, 113, 114–15, 198, 275, 382, 383
Hungarian 266, 267, 270, 272–5
Italian 149–50, 163, 166–7, 169, 170–1, 173, 198
nationalization (USSR) 344
- Romanian 306
- Russian 334, 335
- Spanish 198
- Swedish 214, 216, 220
- Swiss 138, 144, 382
in USA 361, 362
- Banque de Belgique 68, 73
- Barcelona, Spain, textile industry 195
- barley, Russian 343
- Baste, Switzerland 142
- silk industry 133, 140, 145
- war tax 141
- Bassano, Italy, Remondini printing works 159
- Bauwens, Liévin, and mechanization of Belgian cotton industry 38, 70
- Bavaria-Württemberg customs union 101
- Bavarian beer 87
- Beales, Lancelot, *The Industrial Revolution 1750–1850* 353
- Beckett, J.V. 20
- beer *see* brewing industry
- beet-sugar *see* sugar, sugar beet
- Belgium 85, 237
industrialization 2, 37, 43, 48, 59, 60, 64–77, 79, 258, 379, 381, 382; agrarian context 66–7, 75; British influence 64,

INDEX

391

- 66, 67, 69, 70; economic context 64, 65, 66, 67, 68, 70, 73–4, 97; geographical regions 64, 68–72; Antwerp 71; Brussels 71–2; Ghent 70–1; Mons-Charleroi 68–70, 71, 72; Verviers-Liège 68; historical background 64–7
 Secession (1830) 71, 84
 Belgrade, Serbia, industries 311, 312
 Bell, Alexander Graham, American inventor 337
 Berend, Ivan T. x, 2, 265–89
 Bergamo, Italy, wool industry 161
 Bergès, A., French engineer 41
 Berlin
 banks 114
 security market 115
 Treaty of (1878) 272
 Berne, Switzerland 128, 130
 agriculture 140
 war tax 141
 Berov, Ljuben x, 2, 290–328
 Berthollet, Claude Louis, on bleaching properties of chlorine 42
 Bessemer, Sir Henry, inventor of steel-making process 49, 216
 Bessemer process 282, 284, 357, 363
 Bezanson, Anna 4
 Bičanić, R. 295
 bicycle industry, Italian 171
 Birmingham, Alabama, iron and steel works 354
 Birmingham, England 27, 39
 metal trades 355
 birth rates 202, 265, 293
 British urban 27
 European (1810–1910) xxi
 Hungarian 268
 Spanish 187, 191
 Bismarck, Otto Edward Leopold von
 Anti-socialist Law (1878) 119
 protectionist policy 115
 Blanqui, Jérôme-Adolphe 201
 blast-furnaces 40, 41, 44, 48, 49, 68, 69, 107, 216, 252, 312, 314–15, 377
 Bláthy, Otto, Hungarian engineer 285
 bleaching industry 42
 Dutch 85
 Bobrinsky, A.A., count, Russian farmer 339
 Bohemia 226, 227, 247–64, 267, 270, 279, 282
 heavy industry 235–6
 Hungarian investment 272
 hunger revolt (1846/7) 233
 income distribution 230, 231
 linen/cotton industry 235
 Bologna, Italy
 hemp production 150
 silk industry 152–6
 Borchardt, K. 46
 Bos, R.W.J.M. 78
 Bosnia-Herzegovina, industrialization 314–15, 316
 Boulton, Matthew and Watt, James,
 manufacturers of heavy machinery 44
 bourgeoisie *see* middle classes
 Bourguignon, F. 60
 Brabant, Belgium
 luxury goods trade 64
 wool industry 64, 65
 Brabant, Netherlands 81, 84, 87, 88
 agricultural industries 86
 textile industry 82, 86
 Braşov Mining and Blast Furnace
 Association 309
 Brazil, Spanish immigrants 192
 bread prices, in Netherlands 82, 83, 87
 Brescia, Italy, armaments industry 159
 Brewer, John 23
 brewing industry
 Austrian 233
 Balkan 299, 300, 312
 Belgian 66
 British 18
 Dutch 80, 81–2, 87, 88
 German 87
 Swedish 219
 bribery/corruption, in Russian commerce 336
 brick industry, Swedish 219
 Bristol 27
 Britain 159, 237, 258, 378
 income estimates 1, 97, 184, 185
 Industrial Revolution 1–12, 13–35, 40, 43–4, 161–2, 175, 201–2, 265–6, 290, 292–3, 297, 302–3, 317, 330, 354–5, 371–2, 375–82, 384–5, 395; agrarian context 18, 27–31, 81, 187, 373–8, 380; demographic context 24–7, 58; economic growth theory 13–15, 51; geographical aspects 19; politico-economic context 19–24
 influence on foreign industry *see* Belgium; France
 see also cotton industry; iron and steel industry; technology; urbanization
 Brittany, linen industry 54
 Brno, Moravia
 cotton industry 235
 heavy industry 236, 256
 brocade, Venetian 156
 bronze industry, Belgian 65
 Brown & Sharpe, American machine-tool makers 356
 Brown, Boveri & Co., engineers in Switzerland 145
 Bruges, Belgium
 agricultural region 66

392

INDEX

- harbour 65
 Brugmans, I.J. 78
 Brussels, Belgium 68, 70–1, 381
 banks 66, 73, 84
 Bucharest, Romania, industries 306
 Buda, Hungary 268, 269
 Budapest, Hungary
 banks 274
 grain trade 267, 280, 282
 immigrant workers 270, 271
 National Theatre 285
 population 269
 Buddicom, W.B. and Allcard, W., and
 French locomotive industry 39
 building industry *see* construction industry
 Bukovina 236, 250
 income distribution 230
 Bulgaria
 industrialization 297–306, 308, 309, 314,
 316
 Liberation (1878) 304
 population statistics 294
 Bunge, M.Kl., Russian finance minister 335
 business organization, Swedish 216, 218
 Busto Arsizio, Italy, cotton industry 159

 cabinet-making, French 55
 Cailler Co., Swiss chocolate manufacturer
 144
 Calais, France, lace-making 39
 calcium carbide and cyanamide production
 171
 calico-printing
 Belgian 70
 French 37
 Cameron, R.E. 40, 79, 341
 CAMPSA (petrol monopoly) 198
 Canada, immigrants 353
 canals
 American 356, 362
 Austrian 232, 239, 244
 Belgian 65, 68–9, 71
 British 20, 377
 Dutch 84, 85
 French 381
 Hungarian 266, 272
 Italian 150, 154, 164
 Canary Islands, Spanish immigrants 191
 candle production, Bulgarian 303
 cannon-founding industry, French 38
 capital, sources of *see* investment
 Caribbean, sugar economy 352
 Carnegie, Andrew, Pittsburgh steel plant 357
 Caron, F. 54, 57
 Carreras, Albert 167, 174, 195
 cartels
 Austrian 238, 243
 Dutch 86
 German 89, 113–14, 116
 Russian 335, 339
 Catalonia, Spain, textile industry 195
 Catholic Church 176
 and Italian luxury crafts 151, 160
 Swiss 129
 Cavour, Camillo, count 166
 cement industry
 Balkan 300, 310
 Swedish 219
 census
 of Austrian factories (1906) 238
 Bulgarian 294, 300
 Hungarian 266, 268, 282
 Italian (1861, 1911) 172
 Ostrava (1880, 1890) 256
 Romanian (1902, 1908) 308
 Russian (1926) 341
 Central America 351
 ceramics
 Balkan 311
 Italian 151, 160, 171
 cereal production *see* grain production/trade
 Chaillot, France, manufacture of steam
 engines 41
 Chakalov, A. 305
 Chandler, Alfred 366
 Chaptal, Jean Antoine, and French
 industrialization 38
 charcoal, use in iron-smelting processes 18,
 40, 48, 50, 106, 212, 216, 255, 257, 282,
 357
 Charenton, France, iron industry 39
 Charleroi, Belgium 68, 69–70
 Chassagne, S. 39, 48
 Chateaubriand, François René, vicomte de
 128
 Chayanov, A.G. 341
 chemical fertilizers *see* fertilizers
 chemical industry
 Austrian 235
 Balkan 310, 311
 Czech 255
 Dutch 89–90
 French 42, 44, 60
 German 89, 116, 145, 238, 337
 Italian 162, 171, 174
 Romanian 306
 Russian 334, 336, 337
 Spanish 196
 Swiss 145
 chemistry, organic, Swiss 145
 Chicago 356
 urbanization 358
 child labour 258, 375
 in Italian silk industry 152, 153, 157
 China, industrialization 330
 chlorine, bleaching properties 42

INDEX

393

- chocolate
 Macedonian 315
 Swiss 144
- Chorín family, Hungarian Jewish entrepreneurs 270, 275–6
- Christian Socialist party, Austrian 243
- Christians
 in Bulgaria 298
see also religious minorities
- CIBA Co. 145
- cinnabar, Balkan 312
- Cipolla, Carlo M. 247
- Cisleithania 227, 228, 230, 241, 250, 266, 272, 276, 383
- citrus fruits
 Italian 163, 164
 Spanish 194
- civil service, Austrian 244
- Clapham, J.H. 55
- Clark, Sir George Norman 4
- classes, social *see* landowners/aristocrats; middle classes; peasants; workforce
- Cleveland, Ohio, heavy industry 354, 357, 358
- clock-making industry
 in New England 355, 363
 Swiss 133, 137, 140
- clothing industry *see* fashions
- coal
 bituminous (Pittsburgh basin) 357
 shortage: in France 40–1, 46, 48, 49, 50, 51, 54, 58, 65, 69, 72, 79, 379; in Netherlands 78, 79
- coal industry 373, 379
 Austrian 235, 236
 Balkan 304, 309, 315
 Belgian 65, 66, 68, 69, 70, 71, 72, 79, 381
 British 18, 38, 40, 55, 79, 377
 Czech 255, 257, 383
 Dutch 89
 European (1912) xvi
 German 103–8, 112
 Hungarian 270, 281, 282, 284
 Russian 333, 335
 in USA 351, 356, 358
- Cobden, Richard 166
- Cockerill, William, introduction of textile machinery to Belgium 38, 46, 68
- Cockerill family, and heavy industry at Liège 68, 69
- cocoa, Dutch processing industry 89
- coffee, Javanese 85
- coke, use in iron-smelting/refining processes 18, 106, 171, 257, 282, 312, 354, 357, 363, 374
 blast-furnaces 40, 41, 44, 48, 49, 377
- colonies/colonial trade
 Belgian 67, 71, 74
- British 9, 23–4, 139, 212, 350, 376, 378
 Dutch 84–6, 88, 90, 350, 381
 French loss of 380
- colonization, of America 350
- communes, rural, Russian 343
- communications *see* transport
- communism 4
- Communist Party, USSR 344
- Como, Italy, silk industry 154, 156
- companies
 industrial share (Austria) 238
 limited (Italian) 168, 172, 173
 multinational 217–18
see also joint stock companies
- Confederazione Generale del Lavoro 172
- Conservative Party, Austrian 242, 244
- Constantinescu, O. 295
- construction industry
 American 357
 Austrian 241
 British 17, 55
 Dutch 82, 87–8
 Italian 151, 170
 Russian 331
 Spanish 196
 Swedish 212, 214, 219
- consumer goods 73–4
 American 355
 Austrian 238, 243, 383
 Belgian 73–4
 Czech 251, 252–3
 Hungarian 282, 285–6
 Italian 163, 174
 Spanish 195–6
 Swedish 204, 208, 215, 218, 221, 222
see also food industry; food prices; food supply; luxury goods; textile industry
- Conti, Ginori, prince 171
- Cook, Thomas, tour of Switzerland (1863) 144
- cooperative movement, Austrian 243
- copper industry
 American 351, 357
 Balkan 312
 Belgian 65
 Bulgarian 304
 Dutch 79
- copper pyrites, Spanish deposits 195
- corn, British exports 28
- cottage industries *see* craft industries
- cotton gin 24, 352
- cotton industry 374
 Austrian 235, 236, 237
 Balkan 297, 303, 311, 317
 Belgian 381
 British 16, 17, 18, 21, 24, 51, 55, 56, 155, 203, 297, 317, 375
 British/French transfers 38, 39–40

- Czech 253, 254, 256, 257, 259
 Flemish 66, 70, 71
 French 36, 38–40, 41, 44, 45–6, 47, 48, 51,
 54, 56, 57, 58
 German 56
 Italian 151, 159, 160, 162, 168, 169
 Russian 332, 333, 334, 338, 339, 342
 Spanish 195
 Swedish 212, 213, 218
 Swiss 133–7, 138, 140, 143
 in USA 352, 353, 355
 Counter-Reformation 151
 Coxe, William, on Swiss cottage industries
 133
 craft (workshop) industries 172, 202, 372, 380
 Balkan 291, 292, 297, 299–300, 302–4, 306,
 308, 312–14
 Belgian 65, 66, 67, 69, 71, 72
 British 55, 375, 376
 Czech 247, 251, 254, 256, 257
 Dutch 83, 86
 French 54–5
 German 55, 110
 Italian 157, 165, 168
 Russian 331, 334
 Swedish 205, 207, 212, 218
 Swiss 132, 133, 136, 138, 141, 145, 188
 in USA 361, 362, 363
 Crafts, N.F.R. 29, 59, 79
 Explorations in Economic History 97
 Crédit Mobilier, Paris 234, 274, 275
 Credit-Anstalt, Austria 234, 274
 Credito Italiano 171, 173
 Credito Mobiliare 170
 Crefeld, Germany, Commission for the
 Social Question 121
 Crimean War (1853–6) 234, 297
 Crisp, Olga 336, 341
 Croatia
 economic history 296
 industrialization 310–11, 315, 316, 317
 Crompton, Samuel, inventor of spinning-
 mule 17
 crop rotation 186
 in Belgium 66
 in Hungary 277
 in Italy 150, 164
 Crouzet, François x, 1, 36–63
 Cugnot, Nicolas Joseph, French inventor of
 steam-tractor 40
 currency devaluation, Spanish 197
 customs and excise/customs unions *see*
 taxation
 Czech Lands (Bohemia, Moravia, Silesia)
 industrialization 2, 230, 231, 247–64, 271,
 379, 382–3
 see also agriculture
- Daguerre, Louis Jacques Mandé, inventor of
 daguerrotype 42
 dairy industry
 Dutch 89
 Italian 164
 Russian 343
 Swiss 132
 in USA 353
 Dalén, Gustav, Swedish inventor 218
 Dalmatia 320, 315
 Danube Monarchy 226, 227, 231, 239
 Danube Steam Ship Navigation Co. 266, 281
 Daumas, Maurice 42
 Deane, Phyllis x, 1, 13–35, 377
 defence budget, Russian 335
 democracy
 British 20–2
 rise of 387
 Swiss tradition 127
 demography *see* population
 Denmark 237
 real income estimates 97
 Depression (1873–96) 88, 234, 238, 242, 273,
 311
 Depression (1930s), in Spain 191, 195
 Depretis, Agostino, Italian prime minister
 169
 Derby, silk industry 155
 Déri, Miklós, Hungarian engineer 285
 Derviz, P.G. von, Russian railway
 entrepreneur 339
 Detroit, Michigan, automobile industry 358
 Deutsche Bank 114, 115
 diamond trade, Belgian 64, 66
 dictatorships, and economic history 190, 197
 diesel engines, Russian 337
 diet 118
 Dutch 83
 Mediterranean 186
 Russian 341
 Spanish 187
 Swedish 221
 Swiss 130
 Disconto-Gesellschaft, Berlin 114
 disentailment, in Spanish rural areas 193
 distilleries
 Bulgarian 299, 300
 Swedish 219
 Donets basin, Russia, coal industry 333
 Douglas, William, and French wool industry
 38, 46
 Dutch East India 70
 dyes 57
 aniline 145
 dyestuffs industry
 Bulgarian 300, 303
 Dutch 85
 German 113

INDEX

395

- Italian 150, 160
 Swiss 145
 Venetian 157
- Early Modern period
 agricultural innovation 186
 Italian industrial history 149–55
 Spanish emigration 191
 East Elbia, Germany, agrarian reforms 98
 Eastern Europe 265, 382, 384
 forced industrialization 385
 Ecole Centrale des Arts et Manufactures 43
 Ecole Polytechnique 43
 Ecoles des Arts et Métiers 43
 economic growth theory *see* Rostow, W.W.
 economics, and industrialization 377–8,
 385–8
 Balkans 290–328; Bulgaria 292, 296,
 297–306; Greece 312–14; Romania
 306–10; Serbia 311–12
 Belgium 64–6
 Britain 1–12, 377–8, 385
 France 1, 44, 45, 51, 52–4, 59–60, 293
 Germany 95–125
 Habsburg Empire 226–46, 248, 249,
 253–5, 266, 272–6, 278–9, 282
 Italy 154, 155, 159–61, 166–76
 Netherlands 78–90, 381
 Russia 330–43; under communism 344–5
 Spain 184–99
 Sweden 202–22
 Switzerland 130–7, 138, 381–2
 USA 358, 363–4, 366
- education
 Austrian 232, 233
 British 378
 Hungarian 271
 Swedish 384
 Swiss 129, 188, 382
 technical: French 41, 43; German 112;
 Spanish 191, 192; Swedish 214
- Edwards, Humphrey, and French machine
 industry 39, 41
- Eighty Years War (1568–1648) 65
- Ekaterinoslav, Russia, railway 333
- Ekman, C.D., Swedish chemist 218
- Elba, iron-ore deposits 171
- electrical engineering industry
 British 115
 Bulgarian 304
 Dutch 89, 90
 German 114
 Hungarian 383
- electricity industry
 Balkan 311, 312, 314, 315
 Dutch 90
 German 113, 116, 238
 Hungarian 285
- Italian 169, 171, 172, 173
 Russian 336
 Swedish 217, 219, 221
 Swiss 145
- embroidery, Swiss 136, 145, 382
- emigration
 from Germany 110
 from Hungary 269
 from Italy 175
 from Spain 190, 191, 194
 from Sweden 214
 from Switzerland 130
- Emminghaus, Arwed 139
- enclosures 22, 29, 30, 210, 352, 353
- Engel, E. 108
- Engels, Friedrich, *Die Lage der arbeitenden Klasse
 in England* 4
- engineering industry 373
 Austrian 235, 238
 Belgian 381
 British 16, 217
 Czech 252, 256, 257
 French 38, 57, 58
 Hungarian 270, 280, 281, 284–5, 285
 Italian 162, 172, 174, 383
 Russian 332, 333, 336, 339
 Swedish 207, 208, 213, 217, 220
 Swiss 145
 see also machine-making industry; machine-tool industry
- Enlightenment 1, 127
- entrepreneurs
 Czech aristocrats 258–60, 383
 foreign 39, 85, 336
 merchants (France, Italy) 36, 153
 and political environment 384
 Russian 338–40, 385
 social origins 375, 379
- Eötvös, József, Hungarian education minister
 271
- Ericsson, John, Swedish/American inventor
 337
- Ericsson, L.M., Swedish inventor 217
- Erie Canal 362
- Ernle, Baron 29
- European Monetary System 198
- Evans, Oliver, American engineer 361
- exchange rate, of lira 168, 170
- exports
 Austrian 232, 235
 Belgian 70: coal 65, 68–9, 72; heavy
 manufactures 71; luxury goods 64–5
 British 17, 163, 378; cotton 24, 46–7, 55,
 56, 134; food 28; iron 47; machinery 37,
 38–40, 41, 43; manufactures 23–4
 Dutch 81–3: agricultural products 80–1,
 88; beer-brewing 80, 81–2; colonial
 products 84–6; ships 80; textiles 80, 82

- French 60; locomotives 43; silk 55, 58;
textiles 47, 56, 58; wines 57;
- German beer 87; heavy industry 106, 113
- Hungarian 272, 285; foodstuffs 267, 272,
276, 278–9, 281; grain 279, 280, 282, 283
- Italian 163, 164, 170; agricultural products
167; armaments 159; luxury goods 157–8;
minerals 162, 167; silk 152, 156, 161, 167;
textiles 158
- Russian: agricultural products 84, 190,
340–3; oil 333; textile machinery 297
- Spanish 197, 279; agricultural products 187;
minerals 187, 195
- Swedish 203, 204, 205–9, 223, 384; iron
ore 216; wood products 213
- Swiss 138–40, 141, 142–3; chemicals 145;
machinery 59; textiles 133, 139, 140;
watches/clocks 136, 139
- USA: cotton 235; grain 190, 279
see also trade, international
- Fabians 353
- factory acts, Russian 342
- factory system 202, 203, 236, 353, 374, 375,
376, 379
- Belgian 66, 68
- British 17, 155, 380
- Bulgarian 297–8
- Czech 247, 251, 252, 253, 255, 256, 258
- Dutch 84, 85
- French 36, 44, 47, 48, 54
- German 110–11
- Italian 154, 155, 156, 157, 162
- Russian 331
- Swedish 204, 205
- Swiss 134, 137, 145
- famine 193
- Bohemian (1846/7) 233
 - Russian 341, 343, 344
 - Swiss (1816–17) 130, 143
- Farben corporation 113
- fashions 136, 145
- British 18
 - French 55, 56, 155–6, 381
 - Italian 151, 155–6
- Federal Pact (Switzerland, 1815) 140
- Feldbauer, J., owner of Sarajevo brewery 315
- Fellner, F. 249
- Feltre, Italy, silk industry 154
- female labour, in Italian silk industry 152, 157
- Ferdinand II, king of the Two Sicilies 163
- Ferdinand and Isabella, joint Spanish
sovereigns 197
- fertilizers, chemical 174, 194, 277, 386
- feudalism 7, 8, 265, 266, 269
- Italian 149
 - Swiss 132
- Fiat Co. 171
- Finland 237
- real income estimates 97
- firearms industry, in New England 355, 356,
363
- First World War 98, 120, 145, 168, 206, 214,
215, 220, 221, 222, 229, 236, 237, 240,
243, 244, 269, 270, 271, 272, 274, 275,
276, 278, 281, 283, 286, 296, 305, 309,
315, 329, 333, 335, 339, 341, 343
- Fitch, 'Mad' John, American engineer 361
- Flanders, Belgium 68, 70–1, 73
- flax/linen industries 66
 - luxury goods trade 64
 - wool industry 64, 65
- flax industry
- Belgian 66
 - Czech 251, 253, 257
 - French 42, 47
 - German 382
 - Italian 150
 - Russian 342
- Flinn, Michael, *Origins of the Industrial
Revolution* 353
- Florence
- financial centre 149–50
 - luxury goods trade 151
 - silk industry 152
- flour mills 218
- automated (American) 361, 362
 - Balkan 309–10, 317
 - British 18
 - Hungarian 267, 280, 282, 383
 - Italian 162
- flying shuttle 44, 46, 85, 158
- food industry
- Balkan 299, 303, 306
 - Czech 257
 - Dutch 89, 381
 - French 42, 53, 55
 - Hungarian 267, 270, 279, 280, 282, 283
 - Italian 163, 168, 171
 - Russian 332, 335
 - Spanish 196
 - Swedish 208, 218–19
 - Swiss 144
- food prices 279
- Belgian 67
 - British 25–6, 28, 30
 - Dutch 82, 83, 87, 88
 - Russian 342
 - Spanish 193
- food supply
- and British urbanization 27–31, 341, 378
 - German 382
 - Swedish 203
 - Swiss 133, 138
 - USSR 345
- forestry *see* sawmills; wood industry

- forge hammers 217
 Fourchambault, France, iron works 49
 Fourneyron, Benoît, French inventor of turbine prototype 41
 France 232, 237, 241, 272, 275
 income estimates 52, 97, 184, 185
 industrialization 3, 36–63, 302, 305, 330, 331, 376, 378, 379, 380–1; agrarian context 29, 31, 47, 52–3, 381; British influence 36, 37–40, 41, 43–6, 47–9, 56, 57; coal shortage 40–1, 46, 48, 49, 50, 51, 54, 58, 65, 69, 72, 79, 379;
 demographic context 26, 58, 59, 60;
 economic factors 40, 41, 44, 45, 46, 48, 50, 59–60
 political revolution 128, 265, 293
 urbanization 50–1, 52–3
 wars 22, 38, 44, 46, 49, 56, 57, 60, 67, 127, 385
 Franco, Francisco 196, 197, 198
 Franco-Prussian War (1870–71) 60
 Frankfurt, Germany, security market 115
 free trade 6–7, 19, 21, 115, 116, 138–9, 163, 176, 188, 213, 240, 241, 242, 376, 385
 Fremdling, R. 107
Eisenbahnen und deutsches Wirtschaftswachstum 1840–79 104, 105
 French Revolution (1789–99) 7, 45, 55, 56, 193, 371–2
 French Revolutionary Wars (1792–99) 385
 Freudenberg, Herman 231
 Fritzsche, Bruno x–xi, 2, 126–48
 fruit cultivation, Spanish 190, 191, 194
 fuel economy, in French industries 41, 49, 58
 fulling mill 372
 Fulton, Robert, American engineer 361
 fur trade
 American 361, 362
 Romanian 308
 furniture industry, Italian 151
 Galicia 236, 250, 256, 269–70
 income distribution 230
 Ganz Co. 280, 281, 285
 Gårdlund, Torsten, on Swedish industrialization 203
 Garibaldi, Giuseppe 166
 Gary, Indiana, steel works 357–8
 gas industry
 Dutch 85, 89, 90
 French 39
 Italian 162, 172
 Swedish 219
 Gay-Lussac, Joseph Louis, and sulphuric acid manufacture 42
 Geigy Co. 145
 gender, and literacy 189
 General Strike (Sweden, 1909) 221
 Geneva, Switzerland 128
 war tax 141
 watch-/clock-making 133, 140
 Genoa
 heavy industry 162
 silk industry 152
 velvet production 156
 geography
 Belgian industrial regions 64, 68–72
 and British industrialization 19, 40, 380
 factors in Habsburg Empire 228
 of French industry 53–4, 60
 German 109
 and Spanish modernization 187, 197
 geothermal energy 171
 German Confederation 240
 German Democratic Republic 292
 Germany 31, 41, 55, 74, 81, 229, 230, 231,
 237, 270, 272, 332
 industrialization 2, 37, 43, 46, 48–9, 51–2,
 59, 60, 72, 95–125, 302, 303, 305, 330,
 378, 379, 382; chronology 97–8; leading sector (heavy industry) xvi, 102–9; role of institutions 98, 100–2, 114–15; welfare implications 95–7, 109–12, 117–21
 see also agriculture; banks
 Gerschenkron, Alexander 60, 71, 164, 227,
 231, 332, 334, 341, 354, 379–80, 382
 Gewerkschaftsbund (Switzerland, 1880) 145
 Ghent, Belgium 68
 cotton industry 381
 textile industry 70–1, 73
 Girard, P. de, French inventor of wet-spinning method for flax 42, 379
 Glarus, Switzerland, textile industry 138, 141
 glass industry
 Austrian 235
 Balkan 310, 312
 Czech 254
 Italian 151, 171
 Swedish 219, 220
 Venetian 160
 Glorious Revolution (1688) 20, 21
 glove-making, in France 55
 Goering, Hermann, Nazi leader 364
 Goetz corporation (Romania) 306
 gold 21
 and international finance 170
 in Italian luxury trades 151
 N. American ‘rushes’ 351
 gold standard 197–8
 Russian entry 335, 337
 Gömmel, Rainer, *Realeinkommen in Deutschland* 96
 Good, David 229, 237–8
 government *see* state
 grain production/trade 186, 279
 Dutch 82

- German imports 115
 Hungarian 267, 270, 277, 278, 283
 Russian 190, 340^{–1}, 343
 Spanish 194
 Swedish 210, 211
 Swiss imports 133
 in USA 190, 352, 356, 361, 362
see also barley; corn; maize production; rye; wheat
- Gramont, Scipion de, on French imports of Italian silk 152
- Great Britain *see* Britain
- Great Lakes, N. America, shipment of steel products 363
- Great Plains, N. America 352^{–3}
- Greece 237
 economic history 292, 312^{–14}
 industrialization 312^{–14}, 317
 population statistics 294
- Green, Thomas Hill 5
- Gregory, Paul 330, 341
- Grenoble, France, glove-making industry 55
- Griffiths, R.T. 78
- Grillparzer, Franz 233
- Grimaldi, Domenico 153
- Groningen, Netherlands, agricultural industries 86
- Grosrouvre, France, ironworks 49
- gross domestic product
 Austrian 229, 237
 Belgian 81
 British 81
 Dutch 81
 Hungarian 286
 Italian 168
- Gross, Nachum 229
- gross national product 331
 Austrian 234
 British 265
 French 53
 Hungarian 266
 increases (1830–1910) xxvi
 Italian 166, 168
 Spanish 197
- Grozev, Ivan, Bulgarian entrepreneur 298
- Guiccardini, Ludovico, cardinal 152
- guilds 242, 267, 339
 Dutch 82, 83, 85
 Flemish 65
 Italian 151^{–2}, 153, 154^{–5}, 160
 Swedish 213
 Swiss 141
- Gümüşgerdan, Atanas and Mihalaki, Bulgarian entrepreneurs 298
- Gustafsson, Bo xi, 2, 201^{–25}
- Haarlem, Netherlands, textile industry 85
- Habsburg Empire 2, 65, 226^{–46}, 247^{–64}, 265^{–89}, 311, 382^{–3}
- Hainaut, Belgium 72
 coal/iron industries 71
 nail industry 67
- Hamburg, Germany 71
- Hammond, John Lawrence Le Breton 353
- Hammond, Lucy Barbara (née Bradby) 353
- hand-loom 48, 54, 135, 205, 212
- Handelsverein union 101
- hardware 46, 56
- Hargreaves, James, inventor of spinning-jenny 17
- Harris, J.R. 37, 39, 40, 57
- Hartmann Machine Co., locomotive plant at Lugansk 337
- Hartwell, R.M., *Causes of the Industrial Revolution in England* 1
- Hau, M. 59
- Hayange, France, blast-furnace 49
- Heathcote, John, and French lace-making industry 39
- heavy industry
 Austrian 235^{–6}
 Balkan 304
 Czech 251, 252, 253, 383
 Dutch 89, 90
 German 49, 72, 98, 102^{–9}, 112, 116, 382
 Hungarian 282^{–4}
 Russian 333
 Spanish 196
 Swedish 205
 Swiss 137
 in USA 354
see also coal; iron and steel; machine-making; machine-tool
- Heckscher, Eli F., on Swedish industrialization 202, 203
- Hegel, Georg Wilhelm Friedrich 5
- Heilmann, Josué, French inventor of wool-combing machine 42, 379
- Heineken, G.H., German brewer 87
- Helvetic Republic (1798) 127, 128, 132, 134
 official census 130
- hemp industry
 Italian 150, 158, 162, 164, 168
 Russian 342
- Henderson, W.O. 39
- Henning, F.-W., *Die Industrialisierung in Deutschland 1800 bis 1914* 96
- Hesbaye, Belgium, brewing industry 66
- Hicks, John 9
- Hitelbank *see* Hungarian General Credit Bank
- Hobsbawm, Eric 3, 15
- Hoffman-Nurske pattern 208
- Hoffmann, Walther G. 195, 380
et al., *Das Wachstum der deutschen Wirtschaft* 105

INDEX

399

- Hoffmann-La Roche Co. 145
 Holden, Isaac, *see* Lister, S.C. and Holden, I.
 Holker, John Jr., and introduction of spinning-jenny to France 38
 Holland *see* Netherlands
 Holy Roman Empire 226
 horse power 17
 housing
 in German towns 118–19, 120
 of workforce 221, 379
 Huguenots, and Swiss watch-/clock-making industry 133
 Hungarian Bank of Industry and Commerce 275
 Hungarian Commercial Bank of Pest 275
 Hungarian Discount and Exchange Bank 275
 Hungarian General Coal Mining Co. 283–4
 Hungarian General Credit Bank (Hitelbank) 274, 275–6
 Hungarian Land Credit Institute 267
 Hungarian Mortgage Credit Bank 275
 Hungarian State Railway Machine Works 281
 Hungarian United Incandescent Lamp Co. 285
 Hungary 250
 economic growth 229
 foreign investment 272, 275
 industrialization 2, 265–89, 375, 378, 383
 relations with Austria 227, 228, 232, 237, 240–1, 267–8, 273–4
 see also agriculture
 hydraulic power 137, 168
 hydroelectric industry, Italian 171
- Illinois, lead deposits 351
 incandescent lamp 285
 India 9
 British textile imports 17
 industrialization 330
 Indians, American 352
 indigo, Javanese 85
 Indonesia
 Dutch imports 89
 ‘sugar crisis’ 88
 Indret, France, cannon-founding industry 38
 industrial espionage
 French/British 37–8, 39
 in Italy 154
 infrastructure 202, 375
 American 357
 Austrian 230, 232, 233, 234, 240, 244
 Belgian 65, 70
 British 28
 Czech 248
 Hungarian 268
 Italian 166, 167, 175
 Swedish 202, 215
- Institute for Industrial Recovery, Spain 196
 insurance companies, Belgian 71
 insurance, social
 in Austria 243
 in Germany 119–20
 Interessengemeinschaften 113
 interest rates
 Balkan 295
 Bulgarian 304
 Romanian 309
 internal combustion engine 358
 International Exhibition (Crystal Palace, 1851) 18, 58
 investment, industrial
 foreign 214, 238, 272, 275, 336–7, 374–5
 managerial 73
 see also banks; companies; entrepreneurs
- Ireland
 agriculture 29
 immigration 27
- Iron Ring (Austrian conservative coalition) 242, 244
- iron-and-steel industry 372, 379, 384–5
 American 351, 354, 356–8, 361, 363
 Austrian 233, 235, 236, 238
 Balkan 314–15
 Belgian 65, 66, 68, 69, 71–2, 381
 British 16, 17–18, 39, 49–50, 51
 Czech 251, 252, 254, 257, 258–9, 260, 383
 European (1912) xvii
 French 38, 39, 40, 42, 45, 46, 48, 49–50, 51, 53, 57, 58
 German 49, 89, 103–7, 111, 112–13, 116, 337
 Hungarian 281, 282, 284, 285
 Italian 159, 169, 171
 Russian 330, 333, 335, 337
 Spanish 195, 196
 Swedish 203, 212, 216, 220, 223; Great Ironworks Death 217
 processes: Bessemer 49, 216, 282, 284, 357, 363; crucible 39, 357; forging 49; pig-iron 17, 49, 51, 68, 72, 106, 216, 236, 281, 382; puddling 40, 49, 68, 212, 374; refining 17; rolling 40, 49; Siemens-Martin 42, 168, 169, 216, 282, 284, 363; wrought iron 217
 see also blast-furnaces
- Istanbul
 imports of Venetian brocade 156
 railway links 312
 tailoring trade 297
- Italian Confederation of Industrialists 172
 Italy 234, 237
 census (1861) 165
 economic history 97, 166–77, 184, 185, 186, 190
 industrialization 2, 43, 60, 149–83, 378, 383

- political history 161–2
unification (1861) 165, 166, 167
see also agriculture
- Ivanovo, Russia 339
- Jackson, James, and French steel industry 39
- Jackson, M. 307
- Jackson, R.V. 29
- Jacquard, Joseph Marie, French inventor of Jacquard loom 42, 57, 379
- Japan, banking system 198
- Java 88
- Cultivation System 84–5
- Jena, Battle of (1806) 98
- Jesenice, Slovenia, metal industry 310
- jewellery-making
- French 55
 - Italian 151
- Jews
- immigrants in Hungary 269–70
 - role in Russian industry 338
- Johansson, C.E., Swedish inventor of measurement implements 217
- Johnson, Samuel, on innovation 16
- joint stock companies
- Balkan 315
 - British 22
 - and colonization 350
 - Czech 258–9
 - Dutch 89
 - German 102–9, 112–14
 - Hungarian 274–5, 280
 - Russian 335, 336, 339
 - Swedish 214, 216, 220
- Jones & Lamson, American machine-tool makers 356
- Jonge, J.A. de 78
- Jörberg, Lennart, on Swedish industrialization 203–4
- Joseph II, Roman-German emperor 231
- Jouffroy d'Abbaix, Claude, marquis de, inventor of steamboat 40
- Jowett, Benjamin 5
- Jura, Switzerland
- lace-making 130
 - watch/clock-making 130, 133, 136, 140
- jute industry
- Belgian 71
 - French 39
- Kahan, Arcadius 336, 338
- Kalpazanov, Ivan, Bulgarian entrepreneur 299
- Kandó, Kálmán, Hungarian engineer 285
- Karst district, Austria 226
- Katus, László 278
- Kaufman, A. 334
- Kausel, Anton 229
- Kentucky, corn-hog enterprises 352
- Keynes, John Maynard, Baron Keynes, economic theory 14
- Kint, Ph. 79
- Knowles, Lillian C.A., *Industrial and Commercial Revolution in Great Britain* 353
- Koechlin, André, engineer of Mulhouse 39
- Koerber, Ernest von, plan for Austrian fiscal stimulation 234, 239, 244
- Kogalniceanu, M., Romanian entrepreneur 306
- Kokulescu, N., Romanian entrepreneur 306
- Köllmann, W., *Bevölkerung in der industriellen Revolution* 110
- Komlos, John 229
- Kommilitgesellschaften 112
- Kondratieff, Nikolai 232
- Königgrätz-Sadowa, Battle of (1866) 240
- Korea, cotton industry 355
- Kossuth, Lajos, Hungarian revolutionary 266, 267
- Kreka, Bosnia-Hercegovina, coal mines 315
- Krivoi Rog, Russia, iron industry 333
- Krupp corporation 112
- Kuznets, Simon 15, 201
- labour *see* workforce
- labour surplus theories 109–12
- labour-capital relation 204, 205
- lace-making
- in Belgium 64
 - in Bulgaria 303
 - in France 39
 - in Switzerland 130, 145
- Laharpe, César, Swiss statesman 127
- Lake Constance, Switzerland 142, 143
- linen industry 133
- Lake Garda, Italy, paper mill 159
- Lampe, J.R. and Jackson, M.R., *Balkan Economic History 1550–1950* xxvii
- Lancashire
- cotton industry 38, 53, 56
 - iron industry 212, 217
 - land reclamation
 - British 28
 - in Hungary 277
 - in Tuscany 164
- land tax *see* taxation
- Landes, David 46, 97
- landowners/aristocrats 210, 228, 293, 339, 381, 383, 384
- in Austria/Hungary 235, 239, 241, 276
 - British 20–1, 29–30, 293
 - Czech entrepreneurs 258–60
 - German 98–100
 - Italian 156, 166, 168, 170, 176; agrarian innovation 164–5; banking/industry investment 149–50, 157, 163

INDEX

401

- Russian 339–40; under communism 344–5
 Spanish 193, 197
 Langstraat, Netherlands, footwear industry 87
 Languedoc, France, woollen industry 54
 Larderello, Italy, geothermal electricity plant 171
 lathe, rotary 217
 Latin America
 economics 331
 luxury goods market 65
 Latin countries, economic modernization 186–7, 190–1
 Latin Monetary Union 198, 241
 Laval, Carl Gustaf Patrik de, Swedish engineer 217
 Lavrion Mining Company 313
 law/legislation
 British fiscal 20–3
 and economic growth 384–7
 factory 379
 Swiss commercial 142
 see also patents/patent laws; state
 Le Creusot, France, iron industry 38, 39, 44, 50, 52
 lead industry
 American 351
 Balkan 310, 312
 Belgian 65
 Spanish 195
 leading sector
 German 102–9
 see also cotton industry (British); sawmills (Sweden)
 leather industry
 Balkan 303, 311–12, 317
 Russian 332, 342
 Spanish 196
 Leblanc, Nicolas, and sodium carbonate manufacture 42, 44, 45
 Lee, Ronald 24
 Leeds 27
 legislation *see* law
 Levant
 cotton exports 70
 imports of Venetian wool 157
 Lévy-Leboyer, M. 60
 Lewis, W.A., labour surplus theory 109
 Leysin, Switzerland 130
 Liberal Constitutional Party (Germany) 242
 liberalism
 Austrian 242, 243
 Swiss 128–9
 Liège, Belgium
 coal industry 66, 72
 heavy industry 68, 71
 machine-making industry 38
 nail industry 67, 69
 natural resources 65
 life expectancy
 German 96
 Swiss 130
 lighthouse technology 218
 lignite mining, Hungarian 284
 Lille, France, flax industry 47
 Limburg, Belgium 84
 lime, in pulp manufacture 218
 linen industry
 Belgian 65, 67, 70–1
 Bohemian 235
 British 47
 Czech 254, 257
 Flemish 66
 French 48, 54
 Italian 158, 162, 168
 Russian 334
 Swiss 133, 135
 Linqvist, F.W., Swedish inventor of spirit-stove 218
 Linussio, Giacomo, owner of linen/hemp factory at Tolmezzo 158
 List, Friedrich, protectionist theory 266
 Lister, S.C. and Holden, I., and French wool industry 39
 literacy
 comparative rates 188–9
 Dutch/German 81
 gender gap 189
 Hungarian 271
 Italian 189, 191
 Spanish 188–9, 191, 192
 Swiss 137
 Liverpool 18, 27
 living standards
 and population growth 25–6
 Russian 341, 343
 Spanish 198
 see also workforce
 Ljubljana, Slovenia, cotton factory 310
 locomotives 217
 Belgian 68, 72
 British 17
 French 39, 41, 42, 43, 59
 Hungarian 285
 Italian 162, 169
 Russian 333, 337
 Lódz, Poland, industry 333
 Lombardy
 agriculture 150
 silk industry 154, 162, 165, 234
 Lombe, John, Derby silk-mill owner 155
 London 18
 imports of Italian silks 156
 population growth 26, 27
 Louisiana, rice cultivation 352
 Lower Austria 249

- engineering industry 252
 Lucca, Italy, silk industry 143, 152
 Lucerne, Switzerland 142
 electric power station 285
 Lugansk, Russia, locomotive plant 337
 Lungu, I. 295
 Lupu, M. 307
 luxury goods
 Austrian 383
 Belgian 64
 Dutch 80
 French 56–7, 60
 Italian 151, 157, 167
 Lyons, France
 banking centre 155
 luxury goods 56–7
 silk industry 53–4, 55, 155, 156
- McCloskey, Donald 18–19
 Macedonia
 cotton exports 297
 flour mills 317
 industrialization 315–16
 machine-making industry
 American 354, 357–8, 363
 Balkan 311
 Belgian 68
 British 17, 37, 38–40, 41, 43
 British/French transfers 38, 39–41, 46
 Czech 255
 Dutch 89
 French 38, 46, 57, 58, 60
 German 111
 Italian 162
 Swedish 215, 216
 Swiss 59
 machine-tool industry
 American 354, 356, 361
 British 16, 17, 18
 French 42
 machinery
 agricultural 29, 132, 217, 277; Hungarian 280, 282; Italian 162, 164; Spanish 194; Swedish 211
see also technology
 McKay, J.P. 337–8
 MacLeod, J., and flying-shuttle weaving in France 44
 Madrid, Spain 191–2
 Magyars 228, 241
 Maine, France, textile industry 54
 maize production
 Hungarian 237, 277
 Spanish 194
 Malthus, Thomas Robert 5, 6, 7, 26, 130, 231, 341
 Manby, Aaron and Wilson, Daniel, and French industry 39
- Manchester 18, 27, 235
 Mannesmann corporation 115
 Mantoux, Paul, *La révolution industrielle au XVIIIe siècle* 3–4, 353
 Mantua, Italy, silk industry 153, 154
 Marczewski, J. 45
 margarine production, in Netherlands 86, 88
 Maria Theresa, Roman–German empress 154, 231, 271
 markets, foreign *see* exports; trade, international
 marriage
 dynastic 30
 in Swiss rural areas 131
 Martin, Emile and Pierre, Siemens-Martin open-hearth process 42, 216
 Marx, Karl 4, 26, 109, 350, 353
 Das Kapital 9
 Marxism 10, 145, 384
 Maryland, tobacco cultivation 352
 Maschinenfabrik Oerlikon, Switzerland 145
 Massa, P. 152
 materialism, in continental socialism 8
 Matis, Herbert xi, 2, 226–46, 259
 measurement implements 217
 meat
 consumption per capita 81
 German imports 115
 production: Spanish 194; in USA 361, 362
 mechanization *see* technology, innovation
 Meck, K.F. von, Russian railway entrepreneur 339
 medical innovation 205, 387
 Mehedințin, T., Romanian entrepreneur 306
 Mendels, Franklin, *Industrial and Population Pressure in Eighteenth-Century Flanders* 67
 Merchwart, András, Hungarian inventor of roller mill 280
 mercury, Spanish 195
 Mesopotamia 3
 metal industries 374
 Austrian 235
 Balkan 303, 309, 310, 311
 Belgian 68, 69, 72
 Czech 252, 253, 255, 256
 Dutch 86, 88, 89
 French 46, 60
 Italian 159, 161, 162, 383
 Romanian 306
 Russian 332, 333, 336, 339
 Spanish 196
 Swedish 207, 208, 213, 215, 217, 220
see also copper industry; iron-and-steel industry
 Metternich, Clemens Lothar Wenzel, prince, Holy Alliance system 233
 Mexico, mineral resources 351
 Michigan, copper deposits 351, 357

- Middle Ages 1, 65, 127, 350
 agricultural innovation 186
 Belgian wool trade 64
 feudalism 7
 guilds 6
 Hungarian institutions 266–7
 Swiss linen production 133
 middle classes 8, 219, 350, 365–6
 in Austria/Hungary 239, 240, 242, 269–71
 Balkan 294–5, 311
 Czech entrepreneurs 258–60
 German 100, 118, 119, 120, 121
 in Italian commerce 149, 157, 164, 176
 Russian 336, 338–9
 Middle East, luxury goods market 65
 Milan 160
 electric power station 169
 silk industry 152, 153, 154
 stock exchange 172–3
 Mill, John Stuart 3, 4
 Milne, James, and introduction of water-frame to France 38
 Milner, Alfred, Viscount Milner,
 ‘Reminiscence’ 5
 Minarik, L.P. 339
 minerals
 British landowners’ rights 21
 discovery/‘rushes’, American 350, 351–3, 356
 mining industry 386
 American 350, 356, 358, 360–1
 Austrian 238
 Balkan 304, 309, 312, 315
 Czech 250–3, 255, 256, 258, 259
 Germany 382
 Hungarian 272, 281
 Italian 164, 167
 Russian 332
 Spanish 187, 195–6
 Swedish 207, 208, 213, 215, 216
see also coal industry; metal industries
 Missouri, lead deposits 351
 Mokyr, J. 16, 78–9
 monetary integration (German states) 102
 monopolies
 Dutch 85
 petrol 198
 Mons, Belgium 72
 coal industry 68–9
 financiers 70
 nail industry 69
 Montagnana, Italy, hemp production 150
 Montello, Italy, wood production 150
 Montenegro, local industry 316
 Montgomery, Arthur, *Rise of Modern Industry in Sweden* 202
 Morajtis, P. 313
 Moravia 227, 230, 247–64
 textile industry 251
 wool industry 236
 Mori, Giorgio xi, 2, 149–83
 mortality rates 202, 265
 and British urbanization 27
 child/infant, in Germany 118
 Hungarian 268
 Spanish 187, 191
 Swedish 211
 Moscow–St Petersburg railway 333
 motorcycle industry, Italian 171
 Mottek, H. 292
 Mrampassis, S. 313
 mulberry cultivation, Italian 150, 156–7, 164
 Mulhouse, France, textile industry 39, 52
 multinational empire *see* Habsburg Empire
 Munting, Roger xi, 2, 329–49
 Müntzing, Alvar, Swedish inventor 218
 musical instruments
 Belgian 64
 Italian 151
 Mussolini, Benito 196
 Myška, Milan xi–xii, 2, 247–64
 nail industry
 Belgian 65, 67, 69
 Italian 159
 Naples 173
 heavy industry 162
 import of armaments 159
 silk industry 152, 153
 Napoleon I 37, 38, 43, 45, 46, 47, 69, 70, 71, 127, 376
 Napoleon III 51, 52
 Napoleonic Wars (1800–14) 385
 National Bank of Bulgaria 304–5
 National Debt, British 22–3
 National Industrial Institute, Spain 196
 nationalism, in Austrian Empire 228, 239, 240, 244
 nationalization
 of Italian railways 173
 in USSR 344–5
 Nederlandsche Handelmaatschappij 85
 neo-Absolutism (Austria, 1848–59) 230, 231, 232–3, 239, 240
 Nestlé, Henri, baby foods pioneer 144
 Netherlands, The 159, 237, 385
 industrialization 2, 78–94, 379; economic context 22, 78–90
 integration into French Empire 84
 population growth 26
 unification with Belgium 70
see also agriculture
 Neuchâtel, Switzerland 128, 130
 war tax 141
 watch-/clock-making 133, 140
 New England 358, 361, 362

404

INDEX

- industrialization 363
 light industry 355–6
 textile industry 354
 New York 361, 362
 Newcomen, Thomas, inventor of atmospheric steam engine 66
 Nicholas II, tsar of Russia 334
 Niepce, Joseph Nicéphore, French photographic pioneer 42
 Nobel Co., establishment of Russkii Diesel 337
 Normandy, cotton industry 54
 North America, British colonial markets 23–4
 Norway 229
 real income estimates 97
nouveaux riches 149
 Núñez, Clara Eugenia 189
 Nye, J. 54
- O'Brien, P.K. 19, 31, 40, 54, 59
 Obuda, Hungary
 population 269
 shipbuilding 266
 Ochs, Peter, Swiss statesman 127
 oil industry
 Balkan 308, 317
 Russian 332, 333, 336, 337, 339
 Spanish 196
 in USA 351, 356, 357, 362
 Oklahoma, oil deposits 351
 Ol', Pavel 336
 olive cultivation
 Italian 164
 Spanish 194
 Olomouc, Moravia, 253
 optical/camera industry, American 362
 Orléans, France, cotton mill 44
 Ostend, Belgium 65
 Ostrava, Moravia
 coalfields 255
 population census (1880, 1890) 256
 Otto, Louis Guillaume 45
 Ottoman Empire 156, 243, 290, 296, 297, 298, 300, 311, 312
 Overijssel, Netherlands 81, 88
 cost of living 83
 textile industry 82, 84
Oxford English Dictionary, definition of ‘industrial revolution’ 3
- Padua
 economic decline 161
 silk industry 154
 Paianu, M. 306, 307
 Panciera, Walter 158
 Papal States
 gas industry 162
 hemp production 164
- paper-making industry
 Austrian 235
 Balkan 310, 311
 British 16, 18
 Dutch 81, 85
 French 42
 Hungarian 282
 Italian 159, 162
 Swedish 207, 208, 218, 220
 Paris 38, 50, 54, 234, 381
 iron industry 39
 machine-building industry 46
 Peace of (1763) 362
 population growth 26
 World Exhibition (1900) 285
 Parker, William N. xii, 2, 350–70
 patents/patent laws 39, 373, 385
 British 160
 Hungarian 285
 Venetian 160–1
 Pazdur, Jan 256
 peasants 293, 352, 372, 374
 Austrian 232, 240
 Bulgarian 298, 304
 German, and agrarian reforms 98–100
 Italian 149, 150, 156–7, 158, 161, 165, 170;
 rebellion 166, 175
 Russian 331, 334, 341, 342–3, 344, 345
 Swedish 210–12
 Swiss 132, 187
 see also serfs
 peat trade, Dutch 82
 pebrina silkworm plague (Italy, 1853) 162
 Pennsylvania, coal/oil deposits 351
 Périer, J.C., manufacturer of steam engines 44, 45
 Perkin, Harold 21
 Perrot, L., inventor of power-printing process for cottons 42
 Peru
 cotton industry 355
 mineral resources 351
 Pescia, Italy, silk industry 154
 Pest, Hungary 266, 267, 268
 Commercial Bank 275
 population 269
 Pest Rolling Mill Co. 279
 Peter I, the Great, tsar of Russia 329
 petroleum *see* oil industry
 Peyron, Gianfranco, Italian silk-mill owner 155
 pharmaceuticals industry
 German 238
 Hungarian 285
 Swiss 145
 Philadelphia, PA 361, 362
 photography 42
 Pickford, P., and Paris textile industry 38

INDEX

405

- Piedmont, Italy
 silk industry 153, 155, 157, 159–60, 162, 165
 wool industry 162
- Piesowicz, Kazimierz 247
- Pittsburgh, heavy industry 354, 356–8, 362, 363
- plough 217
 heavy 186
 iron 211
- Plovdiv, Bulgaria, wool industry 298
- Po valley
 navigation canals 150
 silk industry 153
 use of chemical fertilizers 174
- Poland 152
 Jews in industry 338
 Russian loss of 343
- politics *see* state
- Pollard, Sidney xii, 2, 40, 57, 59, 79, 185, 371–88
- Poncelet, Jean Victor, inventor of undershot water-wheel 41
- Poni, Carlo xii, 2, 149–83
- Popov, K. 305, 309
- Popovich, N., Bulgarian entrepreneur 299
- population
 Belgian 66, 67, 75
 British 9, 18–19, 24–7, 58
 Czech 256
 European: density (1910) xxii; growth (1800–1910) xx; urban (1910) xxiii;
 French 58, 59, 60
 German 58, 110, 119
 in Habsburg Empire 231
 Hungarian 268–72
 Russian 340–1
 Spanish 191–4
 Swiss 130–7, 137–8, 143
- porcelain manufacture, in Italy 159
- Porter, Roy xii, 1–12
- Portoferraio, Italy, iron production 171
- Portugal 237
 economic history 184, 185, 186, 187, 190
- potato
 blight, in Switzerland 130
 cultivation: in Belgium 66; in Hungary 277, 278; in Spain 194; in Sweden 210–11
 Dutch ‘crisis’ (1845–7) 85
 in Russian diet 341
- Potcoava, Romania, textile factory 306
- Pottendorf Yarn Manufacturing Company 235
- pottery industry, British 16, 159
- Pounds, N.J.G., *Historical Geography of Europe* xxvi
- poverty
 agrarian 374; in France 59; in Russia 329, 343; in Spain 187, 190–4
 in Czech Lands 383
 in Italy 164, 383
 railway investment and poor relief (Germany) 104–5
 in Scandinavia 383
 in Switzerland 144
- power industries *see* electricity industry; gas industry
- power loom 48, 55, 145, 218
- Prague 236
 engineering industry 253
 polytechnic 233
- Prague Iron Company 238
- Pratt-Whitney, American machine-tool makers 356
- Prilep, Macedonia, tobacco factory 315
- printing, of textiles 37, 42, 46, 48, 70, 136
- printing industry
 Balkan 311
 Bulgarian 299
 Italian 159, 162, 168
 in USA 361
- Prodamet* (Russian steel-producers’ cartel) 335
- Produgol* (Russian coal-mining cartel) 335
- proletariat *see* workforce
- property
 in British law 21
 in French law 45
 rights in Germany 98–100, 116
 Swiss land reforms (c. 1850) 132
- protectionist systems 4, 65, 69, 138, 142, 163, 382, 385
 Austro-Hungarian 242, 243, 244, 266, 267, 279, 383
 Balkan 300, 306, 312, 313
 Czech 258
 Dutch 82, 83, 85, 88
 French 37, 45, 47, 57–8
 German 112, 115–16, 240, 382
 Italian 169, 170, 176
 Russian 335, 339
 Spanish 195, 196
- Protestants 129, 133, 350
- Prussia 236, 240
 agrarian reforms 98–100
 bank of issue 102
 income distribution 111
 railways 103, 104–5, 106
 urban population 118
- Prussia–Hesse–Darmstadt customs union 101
- public health 387
- pulp industry, Swedish 207, 208, 215, 218, 220
- Purš, Jaroslav, *Industrial Revolution: Development of the Idea and Concept* 4, 252
- Putilov armaments/engineering works, St Petersburg 333

- Racconigi, Italy, silk mill 155
 Radicals, Swiss 129
 railways 265, 373
 American 353, 356, 357, 358, 362, 363, 365
 Austrian 231, 233, 235, 239, 244, 273
 Balkan 312, 313
 Belgian 68, 71, 72, 381
 British 17, 22, 380
 Czech 251, 255
 Dutch 79, 85, 86, 89
 electrified 285
 European (1840, 1880) xvii, xix
 French 43, 49, 50, 381
 German 98, 101–2, 103–9, 382
 Hungarian 266, 267, 273–4, 280–1
 Italian 164, 166, 167, 173–4
 Romanian 306
 Russian 333, 334–5, 339
 Spanish 197
 Swedish 203, 213, 214, 216
 Swiss 142–3, 144, 145
 Rapp, R.T. 161
 Rappard, William, *La révolution industrielle et les origines de la protection légale du travail en Suisse* 4
 rationing, under communism 344
 rayon industry, Italian 171
 Reformation 1, 133
 refrigeration 190
 Reggio Emilia, Italy, silk industry 152
 religious minorities
 role in Russian industry 338
 role in Swiss industry 133
 Renaissance 1, 2, 151, 350
 Reocín, Spain, zinc mining 195
 Retsina Bros., Greek entrepreneurs 313
 reverberatory furnace 377
 Revolutions, European
 Austrian Lands (1848) 232, 233
 France (1830) 128, 293
 France (1848) 240
 Germany (1848–9) 103
 Hungary (1848–9) 266, 271, 276
 Swiss ‘Regeneration’ (1830–1) 128, 141
 see also French Revolution; Russian Revolution
 Rheims, France, textile industry 48, 57
 Rhenish–Westphalian Coal Syndicate 113
 Ricardo, David 5, 6
 rice cultivation, American 352
 Rijeka, Croatia 310
 paper and tobacco industries 310
 sugar factory 311
 Rimamurány Ironworks 284
 Río Tinto Co. 195
 Río Tinto, Spain, copper pyrites mining 195
 roads
 Austrian 232, 233
 Balkan 313
 British 377
 Czech 255
 Dutch 84, 85
 German 101, 102
 Italian 164
 Spanish 197
 Robert, L., French inventor of a paper-making machine 42
 Roberts, Richard, inventor of self-acting mule 39
 Rockefeller, John Davison, American oil entrepreneur 357
 Roehl, R. 51
 rolling-mills 44, 217
 Roman Empire 186
 Romania 296
 customs war with Austria 243
 economic history 292, 296
 industrialization 306–10, 314, 316, 317
 Romanticism 1
 Rome, electric power station 285
 Romilly-sur-Andelle, France, rolling-mills 44
 Rostow, Walt Whitman
 economic growth theory 14–15, 50, 71, 79, 97, 98, 126, 134, 231, 295, 354
 Stages of Economic Growth 15
 Rothschild family, bankers 273, 274–5
 Rotterdam, Netherlands 71
 commodities market 89
 Roubaix, France, textile industry 57
 Rouen, France, textile industry 39
 rubber industry
 Italian 172
 Russian 334
 in USA 358
 Rudolph of Habsburg, archduke, ironworks owner 260
 Rudolph, Richard 229
 Ruhr area, Germany 88, 333
 coalfields 113
 rural industry *see* craft industries
 Russia 43, 97, 229, 237, 243, 384–5
 industrialization 2, 300, 329–49, 375, 378, 382
 urbanization xxiv
 see also agriculture
 Russian Association of Southern Coal and Steel Producers 339
 Russian Civil War (1918–20) 343–4
 Russian Industrial Society 339–40
 Russian Revolution (1917–18) 343, 344, 345, 371
 Russkii Diesel 337
 Russo-Turkish War (1877–78) 299
 rye
 in Dutch diet 83
 German imports 116

INDEX

407

- Hungarian 277, 278
 Spanish 194
 Swedish 211
- Saco-Newton-Lowell, American machine-tool makers 356
 St Gall, Switzerland 142
 lace-making 145
 linen industry 133
 mechanical spinning-mill 134
 textile industry 138
- St Petersburg, industrial development 333
 Saint-Denis, France, chemical industry 44
 Saint-Etienne, France, silk industry 53, 55
 Saint-Quentin, France, lace-making 39
 Salerno, Italy, hemp/linen industry 162
 Salgótarján Coal Mining Co. and Foundry 284
 salt refinery, Belgian 66
 Sandberg, Lars, on correlation between literacy and income 188–9
 Sandgruber, Roman 229
 Sandoz Co. 145
 Sarajevo, Bosnia-Heregovina 315
 Sardinia
 gas industry 162
 industrial workforce 165
 protectionist system 163
 sawmills
 Balkan 308, 311
 Say's law 164
 Scandinavia 383–4, 385
 emigration 353
 industrialization 60
 literacy 81
 Schio, Italy, wool industry 158
 Schleswig-Holstein War (1864) 234
 Schofield, R.S. *see* Wrigley, E.A. and
 Schofield, R.S.
 Schön, Lennart
 on Swedish agricultural revolution 204
 Industri och Lantverk 208
 schools *see* education
 Schumpeter, Joseph Alois 223, 232, 234, 358
 Theory of Economic Development 102
 Schwarzenberg, Felix Ludwig Johann
 Friedrich, Austrian prime minister 239
 science, and technical innovation 373, 387
 scientific instruments, French 58
 Scientific Revolution 1
 Scotland 19
 coalfield 355
 Second World War 13, 73, 74, 137, 175, 191,
 292, 294, 296, 303, 308, 311, 316, 317,
 358, 385
 self-acting mule 39
 Sella, Domenico 158
 Sens, France, cotton industry 38
- Serban, K. 295
 Serbia
 economic history 296
 industrialization 311–12, 314, 315, 316
 serfs 384
 Hungarian 265, 266, 267, 269, 276
 Russian 329, 339
 sericulture *see* silk industry 329, 339
 service sector 79, 88, 378, 386
 Spanish 196–9
 see also banks; insurance, social; shipping;
 transport
- Seven Years War (1756–63) 23
 seventeenth century
 Belgian trade 65
 British agriculture 28, 29
 Dutch economy 79–80
 political settlement 19–20, 21, 22
- sewing-machine 42, 337
- Shakespeare, William
 A Midsummer Night's Dream 350
 Richard II 151
- Sheremet'ev estate, Ivanovo 339
- shipbuilding industry
 Balkan 310
 Belgian 68, 69, 71
 Dutch 80, 81, 83, 84, 85, 88, 89
 Hungarian 266
 Italian 169, 383
 Spanish 196
 Venetian 150
- shipping
 British 378
 Dutch 81, 84, 88, 89
- ships
 iron 68, 217
 wooden 88
- shoemaking
 in Britain 55
 in Netherlands 82, 87
 in New England 355
 in Sweden 218
 in USA 361
- Siberia, dairy industry 343
- Sicily
 industrial workforce 165
 sulphur trade 163
- Siemens, Sir Charles William, inventor of open-hearth regenerative steel furnace 42
- Siemens, Karl, on Russian attitude to foreigners 336
- Siemens corporation 112, 113, 114
 in Russia 336, 337
- Siemens-Martin open-hearth process 42, 168,
 169, 216, 282, 284
- Silesia 230, 236, 247–64, 383
 textile industry 251

- silk industry
 Austrian 235
 British 55
 Bulgarian 299
 French 42, 48, 53, 55, 60
 Italian 150, 151, 152–7, 160–5, 167, 168, 383
 Swiss 133, 134, 135, 137, 140, 145
- silkworms, diseases of 162, 299
- silver 21
- Balkan 312
 currency, Spanish 198
- Simonis, Jean-François, Belgian entrepreneur 68
- Singer, Isaac Merritt, American sewing-machine pioneer 42, 337
- sixteenth century 28
 Belgian trade 65
 British population growth 25
 colonization of America 350
 Italian industrial history 149–55
- Skopje, Macedonia
 chocolate factory 315
 electric power station 315
- Slater & Lowell, American makers of English machinery 355
- slavery, abolition in USA 352, 353, 363
- Sliven, Bulgaria
 new factories 299
 wool factory 297–8
- Slovenia
 economic history 296
 income distribution 230
 industrialization 310–11, 315
- Smith, Adam 5, 6
Wealth of Nations 197
- soap factories
 Bulgarian 299, 300, 303
 Romanian 308
- Social Democratic party
 Austrian 243
 Germany 119, 121
 Swiss 145
- social hierarchy *see* landowners/aristocrats; middle classes; peasants; workforce
- socialism 4, 7
 Continental 8
 English Radical 8
 German 119, 121
 Spanish 196
- Société de Terrenoire, establishment of
 Alexandrovsk steel works 337
- Société Générale de Belgique 73
- sodium carbonate (soda), Leblanc process 42, 44, 45
- Sofia, Bulgaria 298, 301
- Somorrostro, Spain, iron mining 195
- South Africa
 Dutch imports 89
- mineral discoveries 351
- South America 351
 Spanish immigrants 192
- South Carolina
 rice cultivation 352
 textile industry 354
- South-eastern Europe *see* Balkans
- Spain 65, 152, 237, 384
 economic history 184–99; recovery factors 190–1
 industrialization 2, 43, 60, 195–6, 375, 378
- Spanish Civil War (1936–39) 191, 194, 195, 198, 199
- Spiethoff, Arthur 232
- spinning-jenny 17, 38, 44, 70, 134
- spinning-mule 17, 44, 47, 134, 145
- spirit-stove 218
- Split, Dalmatia, cement plant 310
- Springfield, Mass., federal armoury 356
- Stalin, Joseph 329, 344–5
- state, role in industrialization 174–5, 176, 375, 379–80, 381, 384–7
- Austrian 226–45, 383
- Balkan 300, 312, 317
- Belgian 65
- British 19–24
- Dutch 82, 85–7, 89, 90
- French 37, 38, 44, 45
- German 100–3, 119, 120–1
- Hungarian 267
- Italian 154–5, 159, 161–4, 166–71, 173–4
- Russian 329, 334–8
- Soviet 344–5
- Spanish 190, 191, 196–9
- Swedish 205, 209–10
- Swiss 127–9
- steamboat 40, 361
- steam engine 17, 18, 39, 40, 41, 42, 43, 44, 48, 53, 60, 72, 78, 79, 84, 86, 90, 162, 168, 213, 217, 219, 233, 252, 255, 266, 282–5, 310, 371, 373
- steam hammer 43, 217
- steam mills 266, 279, 299, 300, 306, 310, 311, 313, 315
- steam power 18, 36, 41, 46, 51, 55, 79, 213, 218–19, 255, 291, 355, 363
- steam pump 373, 374
- steam ships 84
- steam tractor 40
- steam turbine 217
- steel *see* iron-and-steel industry
- Stein-Hardenberg Reforms 98
- stock exchange
 Hungarian 274–5
 Milan 172–3
 Swedish 220
 Vienna 241–2, 275
- stocking frame 372

INDEX

409

- stone and clay industries, Swedish 208, 219, 220
straw-millinery, Italian 163, 164
straw-plaiting industry, Swiss 135
Strindberg, (Johan) August, on 'New Society' 221
Stuijvenberg, J.H. 78
Styria 227
Suchard Co., Swiss chocolate manufacturer 144
sugar
 Indonesian crisis 88
 Javanese 85
sugar beet 86, 257, 259, 277, 278, 339
sugar production/refining
 Austrian 233, 236, 238
 Balkan 306, 310, 311
 Belgian 66
 Czech 253, 259, 260
 Dutch 83, 85
 Hungarian 280
 Italian 172
 Russian 332, 335, 338, 341
 Swedish 218–19
sulphate/sulphite methods (chemical pulp) 218
sulphur, Sicilian 163
sulphuric acid
 Gay-Lussac's process 42
 in pulp manufacture 218
Sumeria 3
Svennilson, I., *Growth and Stagnation in the European Economy* 174
Sweden 97, 229, 237
 industrialization 201–25, 375, 377, 383–4;
 demographic context 202, 220
 see also agriculture; technology
Swedish 203, 207, 208, 209, 210, 212, 213, 215, 218, 221, 222, 284
Swiss Confederation 127
Swiss Separatist League (1847) 142
Switzerland 4, 229, 237, 270, 332, 385
 demography 130–7, 138
Federal Pact (1815) 128
French invasion (1798) 127
 industrialization 2, 59, 126–48, 188, 378, 379; foreign trade 59, 133, 138–40;
 national market 140–3, 144; raw materials 40, 137, 139, 141; workforce 136, 137–8
 see also agriculture
Széchenyi, István
builds first Hungarian steam mill 279
 Hitel 266, 267, 276
Taaffe, Edward, count, Austrian prime minister 242
tariffs *see* exports; protectionist systems;
- taxation
 Austro-Hungarian customs union 267, 268, 279–80
 British system: customs and excise duties 21, 22; export tax 28; land tax 21, 22; war taxes 22, 23
 Bulgarian system, import duties 299, 300
 Dutch system 82, 83, 86
 German system: imports tax 115;
 local revenues 120–1; Zollverein (customs union) 98, 100–2, 233, 236, 237, 382
 Italian system 150, 158, 166: customs duties 154–5, 161, 169, 170; land taxes 154; *mercantilism* 154; property tax 173
 Russian system 335, 343: customs duties 335
 Spanish system 188: commerce/industry taxes 197; income tax 197; land tax 197; value-added tax 197
 Swedish system: customs duties 213; land taxes 210
 Swiss system: customs duties 140; war taxes 141–2
 USSR 345
tea, in Russian diet 341
technology
 innovation 36, 98, 106, 111, 201–2, 252, 256–7, 280, 284, 285, 291, 372–3, 377–8, 379, 386–7; American 361; Anglo-French transfers 37–40, 44, 47; Austrian 233; British 16–19, 27, 40, 43, 47, 48, 64, 66, 69, 70, 136, 158, 161, 381; French 40, 41–2, 44, 59, 379, 381; Italian 153–4, 155, 159–60; Swedish 203, 204, 212, 215–20, 222; Swiss 145; workers' hostility 42, 135
Teich, Mikuláš xii–xiii, 1–12
telephone, introduction to Russia 337
Tennessee, corn-hog enterprises 352
Terni steel factory, Italy 169
Teslić, Bosnia-Herzegovina, wood industry 315
Texas, oil deposits 351
textile industry
 American 161, 354, 355, 356, 361, 363
 Austrian 233, 235, 236, 238
 Balkan 297–300, 303, 306, 308, 312–13, 315–17
 Belgian 64–5, 66, 67, 70–1, 76, 381
 British 18, 21, 48, 56, 381
 Czech 251, 253, 254, 256, 258, 259, 383
 Dutch 79, 82, 84, 85, 86, 89
 European xv
 French 37, 39, 42, 47, 48, 50, 53, 54, 57, 58
 German 48, 111
 Hungarian 282
 Italian 150, 151–2, 158, 161, 168, 171, 383

- Russian 330, 332, 334, 338
 Spanish 195, 196
 Swedish 203, 204–8, 211–13, 218, 220, 222
 Swiss 133–7, 140–1, 145, 235, 382
see also cotton; flax; jute; linen; silk; wool;
 worsted
- Tharsis Co. 195
 thermo-chemical processes 256
- Thessalia, Greece 313
 Thessaloniki, Greece 315
 electric power station 314
 milling industry 313
 railway links 312
- Thimonnier, B., French sewing-machine
 pioneer 42
- Third World 41, 45
- Thirsk, Joan 28
- Thomas, Keith 9
- Thompson, F.M. 30–1
- throwing machines 155
- Thüringian states, Germany 101
- Tilly, Richard xiii, 2, 95–125
- tilt-hammers 49
- tobacco industry
 American 352
 Balkan 315
 Bulgarian 300
 Dutch 83
 Italian 166
 Russian 332, 342
- Tocqueville, Alexis, on Swiss political history 129
- Tolmezzo, Italy, linen/hemp production 158
- Tortella, Gabriel xiii, 2, 184–99
- tourism
 Italian 173
 Spanish 196–7
 Swiss 133, 144, 382
- Toynbee, Arnold Joseph, *Lectures on the Industrial Revolution* 4–10, 13, 353
- Toynbee, Charlotte Maria 5
- trade, international 81, 380, 382
 competition 23, 37, 46–7, 55–8, 67, 70, 72,
 84–7, 136, 139, 155, 157–8, 297, 317,
 377–8
see also cartels; exports
- trade unions 202
 German 119
 Italian 172
- Transcaucasia, Armenian traders in 338
- transformer, alternating-current 285
- transport 108, 265, 373, 374, 375, 380, 386
 American 351
 Austrian 233, 242
 Balkan 291
 Belgian 65, 68–9, 71, 74, 76
 British 3, 16, 19
 Bulgarian 300
- Czech 251, 255, 260
 Dutch 79, 82, 85, 87, 381
 French 37, 39, 47, 48, 50
 Hungarian 267, 272
 Italian 150, 164
 Spanish 187, 190, 197
 Swedish 203, 213, 222
 Swiss 137, 142
see also canals; railways; roads
- Transylvania 296
 heavy industry 281
 industrialization 309–10, 317
- Treviso, Italy, silk industry 154
- Trieste, port of 239, 244
- Tron, Niccolai, Venetian wool-producer 158
- tropical products, Dutch 82, 84–6
- Tucci, Ugo 159
- tungsten lamp 285
- Tunzelmann, G.N. von 18
- turbines 41, 145, 217, 379
- Turkey
 economic history 292
 population statistics 294
 textile industry 316, 317
 trade with Bulgaria 297–8
- Tuscany
 land-reclamation scheme 164
 straw-milliners 163
- Twente, Netherlands, textile industry 79, 85,
 86, 89
- Ukraine
 emigration 353
 iron industry 333
 sugar production 338
- Ungern-Sternberg, K.K., baron, Russian
 railway entrepreneur 339
- universities, Spanish 191, 192
- upper classes *see* classes, social
- Upper Styria, heavy industry 236
- Urals, iron industry 333
- urban population, Europe (c. 1910) xxiii
- urbanization 3, 202, 265, 364, 387
 Belgian 52
 British 3, 18–19, 26–7, 29–31, 52–3, 187,
 317, 376, 378
 Czech 248, 255, 256
 Dutch 80, 81, 87–8
 French 50–1, 52–3
 German 52, 98, 117–21, 187
 Hungarian 269
 Italian 149
 Portuguese 187
 Russian xxiv, 341
 Spanish 187, 194
 Swiss 131, 145
 in USA 358, 361–2, 365
- Ure, Andrew 16

INDEX

411

- US Steel Corporation 358
 USA 24, 332
 financial system 73
 immigrants 269, 353
 industrial regions xxviii
 industrialization 2, 59, 302, 330, 350–70,
 379
 multinational corporations 74
 see also agriculture
 USSR 332
 Gosplan 344, 345
 New Economic Policy 344–5
 Stalinist industrialization 329, 331
 Supreme Economic Council 344, 345
 Uster, Switzerland, workers' riot 135
 usury 298, 300, 304, 315
 utility industries *see* electricity industry; gas
 industry
 Utrecht, Peace of (1713) 65
 Uzora, Bosnia-Herzegovina, sugar refinery
 315
 Vác, Hungary 266
 Val Trompia, Italy, metal workshops 161
 Valais, Switzerland 128
 Van der Voort, R.C.W. 79
 Van der Wee, Herman xiii, 2, 64–77
 Van Zanden, Jan Luiten xiii, 2, 78–94
 Vareš, Bosnia-Herzegovina, iron works
 314–15
 Varese, Italy, silk industry 154
 Vaud, Switzerland
 war tax 141
 watch/clock-making 140
 vegetable cultivation, Spanish 190, 191
 Veluwe, Netherlands, copper mills 79
 velvet, Genoese 156
 Venice
 Arsenal 150
 brocade production 156
 glass industry 157
 granting of patents 160–1
 import of armaments 159
 luxury goods production 157
 silk industry 152, 153, 154, 155
 wool industry 157–8
 Verley, P. 55
 Verona, economic decline 161
 Versailles, French court at 56
 Verviers, Belgium
 machine-making industry 38
 wool industry 65, 66, 68
 Veyrassat, Beatrice 136, 137
 Vicenza, Italy
 silk industry 156
 wool industry 161
 Vienna 255, 266, 267, 276
 Congress of (1815) 70, 128
 and consumer demand 235
 engineering industry 252
 as political/commercial centre 228, 383
 polytechnic 233
 stock exchange 241
 World Exhibition (1873) 241
 Vienna Basin 227
 cotton-mills 235
 heavy industry 236, 383
 Vienne, France, blast-furnace 49
 Villani, Giovanni, on Florentine luxury
 products 151
 Virginia, tobacco cultivation 352
 viticulture
 Italian 150, 164
 Mediterranean 194
 Spanish 194
 Vojvodina 315
 industrialization 310
 Vorarlberg, Austria 227, 249, 383
 textile industry 235, 236
 Vučo, N. 295
 Vukovar, Vojvodina, steam mill 310
 Vyshnegradsky, I.A., Russian finance
 minister 335
 wages *see* workforce
 Wales, coalfield 355
 Wallerstein, Immanuel 228
 Wallonia, Belgium 71, 72
 iron and coal industries 66, 72
 nail industry 67
 natural resources 65
 war, economic effects 112, 384–5
 on Britain 22–3
 on Bulgaria 301
 on France 22, 38, 44, 46, 49, 56, 57, 60,
 67, 127, 385
 on Habsburg Empire 234, 240, 241
 on Italy 161
 on Russia 343–4
 on Switzerland 138, 141–2
 War of the English Succession (1698) 23
 War of the Spanish Succession (1701–14) 67
 Warsaw, Poland, industry 333
 watchmaking industry, Swiss 130, 133, 137,
 140, 141, 382
 water frame 17, 38, 44, 134
 water power 17, 18, 41, 86, 153, 154, 213, 219,
 255, 298, 361, 363, 377, 379, 383
 water wheel 39, 41, 154, 217, 282, 300, 355
 Waterloo, Battle of (1815) 46, 70
 Watson, J. Wreford, *North America. Its Countries
 and Regions* xxviii
 Watt, James
 inventor of steam engine 17, 41, 46
 see also Boulton, M. and Watt, J.
 Webb, Steven 113

- Webb, Walter Prescott, *The Great Plains* 352
 Wedgwood, Josiah & Co., potters 159
 Weiss family, Hungarian Jews 270
 welfare, and German industrialization 95–7,
 109–12, 117–21
 welfare state, Josephinistic ideal of 239, 240
 Wernström, Jonas, Swedish inventor of three-
 phase alternating electric current 219
 wheat
 German imports 116
 production: Hungarian 277; Russian 343;
 Spanish 194; Swedish 211; in USA 352,
 353
 Whitney, Eli, American inventor of cotton
 gin 24
 Whitten Works, American machine-tool
 makers 356
 Wilkinson, William, and French iron industry
 38
 William I, king of the United Netherlands 71,
 84
 Wilson, Daniel *see* Manby, A. and Wilson, D.
 wind power 86
 wine production *see* viticulture
 Wingqvist, L.J., Swedish inventor of ball-
 bearings 218
 Witte, Sergei, fiscal policy 334, 335
 woad 150
 women, in workforce 189, 258
 wood
 in blast-furnaces 49
 in shipbuilding 88
 wood industry
 Austrian 230
 Balkan 308, 315, 317
 Czech 249
 Italian 150
 Russian 342
 in USA 361
 see also sawmills
 wool industry 374
 Austrian 236
 Balkan 297–99, 303, 312
 Belgian 64, 65, 66, 68
 British 375
 Czech 251, 253, 254, 257
 Flemish 71
 French 38, 39, 46, 47, 48, 53, 58
 Italian 151, 160, 161, 168
 Spanish 195
 Swedish 205, 206, 207, 212, 218
 Swiss 135
 Venetian 157–8
 wool-combing machine 42
 Woolf, Arthur, inventor of compound steam
 engine 41
 workforce 4, 52–3, 131–2, 163, 196, 210,
 293–4, 298, 331, 344, 354–5, 387
 conditions/hours 221, 222
 discipline 155, 379
 discontent 87, 173, 342, 375; hostility to
 new machinery 42, 135; hunger revolt
 233; strikes 119, 221, 375
 forced labour 254
 labour surplus 96–7, 109–12
 living standards 9, 27, 87, 117–21;
 housing 120, 221, 379
 organizations 145, 172, 173, 176, 214, 221–2,
 271, 342; collective agreements 221–2;
 political 119, 294–5; trade unions 119,
 172, 202
 relations with employers 8–9, 87, 204, 205,
 375
 rural *see* peasants
 safety 379
 skilled 39, 56, 59–60, 111–12, 136–8, 203,
 214, 258, 270–1, 375, 380–2, 387
 skills shortage 53, 60, 375
 social insurance 243
 wages 96–7, 109–12, 214, 215, 221–2, 232,
 341–2, 379, 382; high 78, 79, 80, 81, 82,
 87; low 71, 73, 79, 82, 89, 136, 137, 256,
 382
 worsted industry
 British 47
 French 47, 57
 Wrigley, E.A. and Schofield, R.S., *Population
 History of England* 25–6
 Yablanski, D., Bulgarian census 300
 Yorkshire
 coalfield 355
 textile industry 53, 57
 Young, Arthur 29
 on prosperity of northern Italy 159–60
 Travels 160
 Yugoslavia 296, 315
 economic history 292
 population statistics 294
 Zaan, Netherlands, paper-making industry 79
 Zagreb, paper factory 311
 Zamagni, V., *Industrializzazione e squilibri
 regionali in Italia* 176
 Zaremba, Stanislaus, on Polish imports of
 Italian silk 152
 Zenica, Bosnia-Herzegovina, metal industry
 315
 Zentrumpartei 121
 Zheliakov, Dobri, Bulgarian entrepreneur
 297
 zinc
 Balkan 312
 Spanish 195
 Zipernowsky, Károly, Hungarian engineer
 285

Cambridge University Press

978-0-521-40940-7 - The Industrial Revolution in National Context: Europe and the USA

Edited by Mikulas Teich and Roy Porter

Index

[More information](#)

INDEX

413

- Zollverein (German customs union) 98,
100–2, 233, 236, 237, 382
Zurich, Switzerland
cotton industry 135, 140
projected railways 142, 143
silk industry 133
textile industry 138