Index

| | Cl. (1 (10(a) =0) |
|---|---|
| A Key to the Field Identification of Sugar Cane | Clean Air Act (1963), 738 |
| Diseases, 571 | Clean Waters Act (1971), 735 |
| Abbotsford Mill, 93 | Crown Lands Alienation Act (1868), 44 |
| Abergowrie, 292, 297 | Discharged Soldiers' Settlement Act (1917), 274 |
| Abergowrie Scheme, 299, 300, 659 | Diseases in Plants Act (1929), 575, 586 |
| Aborigines: | Imported Sugar Refiners Act (1874), |
| as canecutters, 630, 631, 633, 635, 637; as field | 232–233 |
| labourers, 84, 88, 341; attacks on sugar | Leasing Act (1866), 44 |
| plantations, 1, 49; employed by Fairymead | Local Government Act (1936), 408, 425 |
| Sugar Co. Ltd., 630; gather seed from | Plant Protection Act (1989), 602 |
| legume crops on Palm Island, 354 | Primary Producers' Organisation and Marketing |
| Acclimatisation Society, Queensland, 147, 148, | Act (1926), 279 |
| 474; see also Q. 813 cane variety | Queensland Harbours Act (1955), 794 |
| A.C.F. and Shirleys Fertilisers Ltd., 357, 371, | Regulation of Sugar Cane Prices Act (1915) |
| 372, 373 | (and subsequent amendments to), 272, |
| acid sulphate soils, 440-441, 836 | 279, 281, 284, 289, 321, 575, 664, 689– |
| Acts of Parliament: | 690, 693, 695, 697 |
| Australia: | River Improvement Trust Act (1940), 409 |
| Australian Industries Preservation Act (1906), | Sugar Acquisition Act (1915), 770, 776 |
| 257 | Sugar and Shearers' Workers Accommodation |
| Commercial Activities Act (1919), 773 | Act (1905), 60, 614 |
| Custom Tariff (Sugar Duties) Act (1922), 775 | Sugar Cultivation Act (1913), 63, 108 |
| Excise Tariff Act (1902), 58 | Sugar Experiment Stations Act (1900) (and |
| Excise Tariff Act (1905), 59 | subsequent amendments to), 138, 202, |
| National Water Resources Assistance Act | 527, 586, 591, 601 |
| (1978), 436 | Sugar Growers' Act (1913), 63 |
| Pacific Islanders Act (1901), 58, 91 | Sugar Industry Act (1991), 327, 329, 602, 755 |
| Sugar Bounty Act (1903), 59 | Sugar Milling Rationalisation Act (1991), 327 |
| Sugar Bounty Act (1905), 59 | Sugar Works Act (1922), 276 |
| Sugar Bounty Act (1910), 60–61 | Sugar Works Guarantee Act (1893), 101 |
| Sugar Bounty Act (1912), 62 | Sugar Works Guarantee Act (1911), 111 |
| Sugar Agreement Act (1935), 785 | War Service (Sugar Industry) Land Settlement |
| Sugar Rebate Abolition Act (1903), 59 | Act (1946), 293, 299 |
| War Precautions Act (1914), 773 | The South Johnstone, Gin Gin, North Eton and |
| New South Wales: | Mount Bauple Sugar Works Act (1927), 699 |
| Clean Air Act (1961), 740 | The Workers' Accommodation Act (1915), 614 |
| Clean Waters Act (1970), 740 | Water Act (1926), 404, 425 |
| New South Wales Grant (Flood Mitigation) Act | South Australia: |
| (1974), 436 | Northern Territory Sugar Cultivation Act |
| Plant Diseases Act (1924), 574 | (1880), 50, 75 |
| Water and Drainage Act (1902), 400 | Adam, Eleonard, 27 |
| Water Act (1912), 400 | Adams, Walter, 94, 700 |
| Queensland: | Adelaide: |
| Bonded Distilleries and Bonded Sugar Houses | companies based in invest in Northern |
| Act (1872), 232 | Territory sugar plantations, 50; Charles |
| 1.07 (10/2), 202 | retritor, sugar plantations, 50, Chancs |

Jacobs & Son propose sugar refinery in, 238; CSR builds sugar refinery in, 238 Adelaide River Land and Sugar Co., 83 Adelaide Steamship Co., 215 aerial baiting (for rat control), 549-550, 557 aerial fertilising, 372 aerial spraying (of herbicides), 366, 368, 379 affination and affination stations, 16, 241, 781, 792, 808, 814 African black beetles, 512, 534, 544, 555, 556 Ageston Mill and plantation, 87, 182 'Agreed Sugar Industry Package of 1993', 329 Agricultural Bank, Queensland, 106 agricultural conferences, 129 Agricultural Society of Southern Queensland, Ahern, Hon. Michael J. (politician), 316 air pollution (from Australian sugar mills), 738-740 Air Pollution Committee of the Queensland Sugar Industry, 738 Air Pollution Council of Queensland, 738, 739 Airdmillan Mill, 186, 193, 213 Airdmillan plantation, 63, 82, 88, 134 Albert River, 46, 204, 205 Albert River Milling & Distilling Co., 205 Albert Shire Council, 425 Alberton Mill, 96, 272, 691, 701, 703 aldrin, 548, 555 Alexandra Mill, 182 Alexandra plantation, 83, 143 Alford Mill, 231 Allen, Dr John, 736, 739 Allied Works Council, 359 Allman, Captain Francis, 23; see also Port Macquarie Alpha Mill, 212 Alstonsville, 81, 123, 208, 317, 432 Alstonsville plantation, 82 Alstonsville Sugar Co., 82 Amalgamated Sugar Mills Ltd, 698; see also Pleystowe & Palms Mills Amalgamated Sugar Workers' Union, 60 Amalgamated Workers' Association, 60, 107; see also Australian Workers' Union Amhurst, Francis (sugar planter), 81 analytical chemists; see chemists, analytical Antigua Mill, 182 anti-monopoly and anti-trust measures, 257 Aplin, Brown & Co. (merchants), 245, 248, 250

apron feeders, 724 aqua ammonia, 371, 372, 376, 383 area under sugar cane:

> Australia, 48, 55, 56, 291; Beenleigh district, 46, 51, 53, 56, 57, 65, 271-272, 274; Brisbane district, 28, 45, 52, 53; Bundaberg district, 46, 51, 53, 57, 64, 272; Cairns district, 50, 53, 56, 64; Clarence River district, 27, 48, 49, 52; Gin Gin district, 56, 57; Haughton River district, 63; Herbert River district, 46, 51, 56, 64; Innisfail district, 56, 64; Isis district, 55, 56, 57; Ipswich district, 45, 52, 65, 271; Lower Burdekin, 51, 53, 56, 63, 271; Mackay district, 46, 51, 53, 56, 63; Maroochy district, 56, 57, 65; Maryborough district, 27, 46, 52, 53, 56, 58, 64-65, 272; Mossman district, 50, 56, 64; Mt Bauple district, 274; New South Wales, 48, 55, 58, 274, 275, 291, 306, 332; Northern Territory, 50, 53; Proserpine district, 51, 56; Queensland, 45, 47, 55, 63-64, 271, 272, 273, 291, 310, 322, 325, 329; Richmond River district, 48, 51; Rockhampton district, 49, 53, 57; Tweed River district, 48, 51, 55

Aretan fungicide, 365, 582
army worm caterpillars, 548–549
arrestors; see fly-ash arrestors
arrows or arrowing of sugar cane, 468, 490, 497, 502, 508
arrow fuzz, 468, 477, 479, 495
arrowroot, 53, 272, 274
arsenic (use against cane grubs), 523, 524, 526
Artemisia SS (ship), 792, 793
artificial recharge of underground water supplies, 406–407, 417, 419
artificial sweeteners, 811–812
artificial wetlands, 455
Ashburton plantation, 88

34–35 Ashfield Mill, 218, 250

Askin government (New South Wales), 436 assignments (in Queensland):

Ashdown, Archibald (sugar refinery manager),

area harvested on, 381; criticised for encouraging use of marginal land for cropping, 327; new guidelines for in 1990s, 329; increased number of, 284, 293, 299, 309, 314, 316, 324, 325, 327; introduction of (1915), 272; loss of to competing uses,

Approved Seed Plots, 602, 604

322; promote soil erosion, 411; review of, 1927–1929, 279; rezoning of, 659–660, 752; 'roaming', 321–322, 327; used to limit production, 272, 381

Association of Italians in the Sugar Producing Industry, 622

Atherton district, 271, 276

Atherton, Phillip (mill technologist), 720

Atherton Tableland, 296, 308, 316, 330, 514, 678, 832

ATV subsider, 744, 757

Austoft Industries Ltd., 647

Austroft mechanical cane harvesters, 378, 673, 676 Australia:

amount of sugar imported, 254, 769, 771; area under cane in, 48, 54, 55, 56, 63, 291; complaints about price of sugar in, 783, 784, 786; concerns about overproduction of sugar in, 276-277; contraction in cane growing in, 52; exports of sugar from, 212, 276-277, 780-781, 801-803, 820-821, 823; Great Depression in, 783, 784, 786; imposes sugar imports embargo, 276, 318, 324, 770, 776, 784; tariff on sugar imports, 58, 324, 329, 775, 815; percentage of sugar exported, 276, 278, 284; prohibits recruitment of Pacific Islanders, 58; quota under British Commonwealth Sugar Agreement, 294-295, 301; quota under the International Sugar Agreement, 285, 289, 300, 313, 315; role of sugar industry in defence of, 112, 834; sugar consumption in, 231, 293, 298, 777, 786, 788, 806, 811, 813; sugar production in, 243, 244, 291, 298, 304, 310, 311, 314, 317, 323, 332; sugar rationing in, 786, 788; White Australia Policy in, 58, 834

Australia, Government; see Commonwealth Government

Australia-Japan Trade Agreement, 801 Australasia Sugar Refining Co., 237, 246, 247

Australasian Steam Navigation Co., 214

Australasian Sugar Co., 33-36

Australasian United Steam Navigation Co., 215

Australian Bureau of Agricultural and Resource Economics, 322, 675–676

Australian Cane Farmers Association, 754

Australian Conservation Foundation, 316, 330, 455

Australian Cooperative Fertilisers Ltd., 345, 347

Australian Department of Labour and National Service, 654

Australian Estates & Mortgage Co. Ltd.:

acquires Kalamia, Seaforth & Palms plantations, 88; appeal to pay for cane at a lesser price than other Lower Burdekin sugar mills refused by Central Board, 696; attitude to land disposal, 105-106; closes Palms Mill (1924), 698; cost of growing cane, 89; credit to farmers, 106-107; decides to cease plantation agriculture, 91; extends irrigation at Palms Estate, 136, 405; machinery upgrades to Kalamia Mill, 701, 703, 705; opposes erection of new sugar mills in Queensland during 1950s, 296; pays same price for sugar cane as Drysdale Bros., 218, 219; recruits Japanese workers, 90; resumes plantation agriculture, 92; see also Kalamia & Palms Mills

Australian Estates Co. Ltd., 741, 749

Australian Institute of Agricultural Science, 573, 579

Australian Molasses Pool, 371; see also molasses Australian National Power

Alcohol Co., 732

Australasian Steam Navigation Co. (shipping agents), 214

Australasian United Steam Navigation Co. (shipping agents), 215

Australian Society of Sugar Cane Technologists, 707; see also Queensland Society of Sugar Cane Technologists

Australian Sugar Agreements; see Sugar Agreements, Australia

Australian Sugar Co., 33

Australian Sugar Co. Pty. Ltd., 195, 699, 721; see also Mourilyan Mill

Australian Sugar Consumers' Association, 782, 785

Australian Sugar Journal, 260, 341, 618

Australian Sugar Milling Council Pty. Ltd., 325, 754

Australian Sugar Planter, 128

Australian Sugar Producers' Association (ASPA): annual conferences of, 283, 302, 626, 791; applies to extend night harvesting throughout Queensland, 665; attitude to cane burning, 628; calls for a new sugar refinery in Queensland, 791; campaigns to improve sugar industry's image, 785; complains about level of farmer-cut cane during World War II, 633; concerned about overproduction, 285; considers forming a 'technological department' in 1928, 706; disbanded (1987), 753-754; expresses disappointment with the BSES, 719; expresses disappointment at proposal to alter the Sugar Agreement of 1930, 784; founded in Queensland (1907), 60, 753; lobbied to change mill peaks, 281; lobbies Interstate Commission 1914, 261; lobbies Queensland government for more funds to control pests of sugar cane, 526; invests in Queensland Cane Harvester Corporation Ltd., 624; opposes cane price fixing legislation, 693; opposes the Dickson Award, 618-619; rejects calls to abolish sugar import embargo, 774; supports Equalisation Scheme, 286

Australian Year Book, 720, 816

Australian Trades Practices Commission, 819, 820

Australian Workers' Union:

and mechanical harvesting, 638, 655; application for burning orders, 628, 629; application for wage increase (1916), 617, 618, 619; express concern about labour shortages, 630; negotiations by avoid strike action (1935), 629; oppose use of non-European workers in the sugar industry, 107, 620; police working hours, 617; support for 'Gentlemen's Agreement', 622

Avoca Mill, 189 Ayr district; see Lower Burdekin district Ayr Divisional Board, 209 Ayr Shire Council, 405–406, 417 Ayr Tramway, 209, 210, 215 Ayton, 50, 56, 213

B. 208 cane variety, 152, 153, 470, 570, 578, 587

Baber, Esmond (cane breeder), 585 Babinda Central Mill:

> acquired by Bundaberg Sugar Co. (1989), 753; adopts relative percentage scheme at, 697; amount of weevil borer damaged cane supplied to, 556; assignments from Goondi Mill transferred to (1987), 752; boiler station upgrade at,

747; erected (1914), 111; landlocked, 325; machinery upgrades to, 719, 727; receives emergency government funding to operate, 751; strike at over British preference issue, 620

Babinda Cooperative Sugar Milling Association, 620

Babinda Creek, 111, 733, 735, 737 Babinda district:

> central mill erected in, 111; creek erosion in, 408; linked to Cairns by rail, 64, 208; outbreaks of 'root rot' in, 597

'Babinda root rot', 597; *see also Pachymetra* root rot Backhouse, James, 22 Bach subsiders, 720, 726, 744

bacterial mottle disease, 579, 583, 584 Badila cane variety:

characteristics of, 150–151, 474; discovery of, 150; districts grown in, 152, 153, 469, 470; gumming disease susceptibility in colder districts, 474, 568, 570; milling properties of, 705; Mulgrave Mill offers bonus to cultivate, 155; replaced by other cane varieties during the 1950s, 487; resistant to yellow spot disease, 584; sucrose-rich, 141, 150, 467; suffers from weevil borer attacks, 521, 530, 531; used as a parent in breeding, 472, 484

Baffle Creek, 64, 205, 207, 272, 330, 593

Baffle Creek Mill, 205, 698

Baffle Creek Sugar & Trading Co., 205 bagacillo, 713, 731

bagasse:

as a fertiliser, 126, 127, 130, 133; as a fuel in sugar mills, 15, 189–190, 194, 706, 729, 747–748; as a soil enhancement agent, 15, 375; baling of, 748; feeding of through crushing rollers, 705, 709, 710, 724–726; maceration of, 15, 705, 722; mechanical drying of, 190–191; mill muds mixed with (Petree-Thomas process), 700, 712; pelleting of, 748; sun drying of, 190; storage of, 729, 747, 756; use in Hawaiian sugar mills, 706

bagasse storage tanks, 729, 747, 756

bagged sugar, 211, 212, 213, 215, 216, 791, 796, 798

Bagotville, 274 Bagotville Barrage, 437 Bailey Creek, 271, 276, 296 Bakers Creek, 734 Balazategui, Bianka (historian), 615, 636 ballast, ballasting and ballast tampers, 669-670 Ballina, 95, 207, 317, 331, 437 Balmoral Mill and plantation, 81, 82, 189 Balts, 635; see also canecutters banana farms, 274, 275 Bancroft, Dr Joseph, 142, 143 Bank of Australasia, 88 Banks, Sir Joseph, 21 Barbados, 146 Barke, E.J. (cane breeder), 476, 477 barracks; see cane barracks Barratta Creek, 213 Barrier Reef; see Great Barrier Reef Barton, Prime Minister Edmund, 58 Basilisk Range, 536 Basque immigrants (to Australia), 275 Bathurst, Earl, 22-23 batteries of open pans; see evaporation (of cane

beagle hounds, 540, 544 Beenleigh district:

> acid sulphate soil risk in, 441; area under cane, 51, 53, 56, 57, 65, 271, 274; cane first cultivated in, 46; CSR tries to convince mill-owners in to manufacture only refining sugars, 252; canegrowers in slow to acquire tractors, 351; central mills in, 99; contraction of cane growing in, 53, 271-272; dairying in, 65; drainage improvements in, 127, 425, 427; Fiji disease outbreaks in, 570; frost-prone, 53; German immigrants and cane growing in, 94, 99; important cane varieties in, 154; punting of cane in, 204-205; small millers in, 94; soldier fly infestations in, 547; use of German wagons in, 203; see also Rocky Point, Alberton, Carbrook Junction & Beenleigh Mills

Beenleigh Mill and plantation, 81, 126, 191, 205 beetle borer; *see* weevil borer

Behne, E.R. (Roly) (mill technologist), 638, 707, 708, 714

Bell, Arthur (plant pathologist & BSES Director): announces post-World War II research program in plant pathology, 580; assessment of the impact of World War II on cultivation methods of Queensland's canegrowers; 360; assumes control of the Division of Pathology, BSES, 571; involvement with BSES cane variety improvement program, 477; 479, 480; awarded BSES Travelling Research Scholarship in plant pathology, 570; comments on the weevil borer problem, 532; comments on difficulty of understanding the etiology of leaf scald disease, 572; co-discoverer of the transmission agent for Fiji disease, 573; faces a staff shortage, 579; legislation drafted by, 586; reflects upon efforts to control cane diseases in Queensland, 578; publications of, 354, 571; representative at meeting of International Society of Sugar Cane Technologists, 1932, 535

Bell, Frederick, 128

Bellenden Plains plantation, 49, 81

Bemerside plantation, 83, 89

Bennett, Norman (mill technologist), 703, 705–706, 707, 733

Benowa Mill, 177

Benowa plantation, 81, 87, 127; see also Muir, Robert

benzene hexachloride; see BHC

Berding, Dr Nils (cane breeder), 507, 512

BHC (benzene hexachloride), 364, 487, 541–544, 546, 547, 548, 552, 553; see also cane grubs

'Big Scrub', 51, 65 billets; *see* cane billets billet planters, 380 Bingera Mill:

boiler station upgrade at, 711, 747; disposal of fly-ash at, 739; erection of (1885), 186; fractional liming first used at, 715; loss of assigned land to competing crops, 322; machinery upgrades to, 192, 202, 701, 723; mill whites manufactured at, 237, 243, 250, 253, 254; rezoning of assigned land to, 661; staffed with an analytical chemist, 200; tramlines at, 208; treatment of waste waters at, 734; unloading cane at, 210; see also Gibson & Howes Ltd.

Bingera plantation:

area under cane on, 80; cultivation methods at, 134; drainage improvements at, 134; irrigation at, 136, 347; molasses used as a fertiliser at, 347; subdivision of, 90; see also Gibson & Howes Ltd.

Bingera Weir, 405 Bingil Bay, 292

bins; see cane bins

biochemical oxygen demand (BOD), 734, 735, 736, 737, 809

biological control (of cane grubs), 161, 535

Birribi Mill, 177

Bjelke-Petersen government (Queensland), 321, 420, 427, 432, 434, 441, 447, 448, 602, 751, 752

Black, Maurice Hume, 104, 126

Blackall Range, 65

Bloomfield River, 50, 56, 88, 213

Bloomfield River Sugar Co, 82, 213; see also Vilele

Blundell, Ellis (inventor and canegrower), 364

Blundell knapsack fumigant injector, 537; see also soil fumigation

Blundell machine injector, 537; see also soil fumigation

Blymyer Manufactory Co., 188

Blyth, Ken (author), 638

boilers, sugar; see sugar boilers

boilers, sugar mills:

improved efficiency of, 710-711; stack emissions from, 739, 740; upgrades to, 703, 710-711, 719, 729, 740

boilers, sugar refineries, 779, 806

boiling down works, 33, 81, 231

Bolton, Professor Emeritus Geoffrey (historian), 54, 55

Bonanno, Harry, 329

Bonel Brothers Pty. Ltd. (agricultural machinery makers), 380, 645

bone char, 232, 239, 241, 242, 806, 808, 809, 811, 814

bone char decolourisation plant (in sugar refineries), 240-241, 814

bone char kilns, 239, 806, 807, 809, 814, 818 bone char making plants (at sugar refineries), 234, 239, 809

bone char paste, 240, 241, 786

bone char revivification, 806, 807, 808

bonded sugar houses, 38

Bonna Mill and plantation, 92, 252

borers; see weevil borers

Botany Bay, 21

Bour pans, 181, 187, 188

Bourbon (cane variety), 142, 143

Bourke, Governor Richard, 25

Bowden, Thomas (sugar refiner), 27, 34, 35

as port for sugar exports, 215, 798, 799; overlooked as site for bulk sugar terminal, 799; sale of sugar in, 243

Bowen district:

attempts to secure a central mill in, 308; cane ceases to be cultivated in, 53; cane cultivated in, 49, 51, 53

Bowen Sugar Co., 49, 82

Boyd, Major A. (sugar planter), 161, 177, 179; see also Ormeau plantation

Boyd, Robert Mitchell (sugar planter), 91, 144, 236, 243, 252; see also Ripple Creek plan-

Braby, Henry (mill engineer), 135, 190, 193, 833

Brandes, Dr E.W., 472

Brandon, 488

Branscombe plantation, 83

Brazil, 1, 73, 831

breeding cane varieties (New South Wales); see cane variety improvement programs

breeding cane varieties (Queensland); see cane variety improvement programs

Brennan, Dr Lisa, 676

Bridgman, George (pastoralist & sugar planter), 81 Brisbane:

as a port for sugar exports, 331, 821; auctions of sugar at, 43; bulk sugar handling terminal at, 821; commission agents at (for sugar), 244, 250, 254; CSR erects New Farm Refinery in (1893), 238-239; sugar machinery makers in, 184-185; sugar refinery at Bulimba, 237

Brisbane Botanic Gardens, 28, 43

Brisbane Bulk Sugar Terminal, 821

Brisbane district:

area under cane, 45, 52, 53; decline in cane growing 1880s, 52, 53; floating central sugar mill in, 99; frost-prone, 52; potential as a sugar-producing locality, 26, 27; punting cane in, 204-205; 'rust' disease outbreaks in, 52; small millers in, 93; see also Mt Cotton, Ormiston & Redland Bay plantations

Brisbane House Sugar Refinery (Sydney), 35, 36,

Brisbane River, 204, 205, 821

Brisbane River Sugar Refinery, 237

Britain; see Great Britain

British Commonwealth Sugar Agreement, 294–295, 301

British Empire, 282, 285

British Empire Producers' Organisation, 280

British Guiana (Demerara), 81, 148, 202

British immigrant labourers (for Australian sugar industry), 60, 88

British Ministry of Food, 289, 293, 294, 295, 801

British New Guinea; see New Guinea

British Preference League, 621

British Preferential Tariff (on sugar imports from the Dominions), 780

Broadwater Experiment Station:

appointment of David North to, 565; breeding new cane varieties at, 471, 493, 495; cane disease investigations at, 568–569, 570, 584–585; facilities upgraded at, 493; Fiji disease eradication investigations at, 593–594; Fiji disease resistant cane variety trials at, 584–585, 593

Broadwater Mill:

acquired by New South Wales Sugar Milling Cooperative (1978), 751; erection of (1881), 51, 97; machinery upgrades to, 713; road transport of cane to, 672; tramlines for, 205; treatment of waste waters at, 740; see also Richmond River district

Brown, A. & A.H. (sugar planters), 182, 184; see also Antigua Mill

Brown, Professor W. Jethro, 62, 260

Bruce, Prime Minister Stanley, 776, 777

Brünnich, Johannes (chemist), 161, 162, 198

Brunswick Heads, 51, 275

Brunswick River district, 125, 332

Brussels Convention (1902), 63

BSES; see Bureau of Sugar Experiment Stations, Queensland

Buchanan, David, 146, 149; see also Mackay State Nursery

Buderim, 52

Buhôt, John (plantation manager), 43

Bulcock, Frank, (politician) 586

Bulimba Sugar Refinery; see Brisbane River Sugar Refinery

bulk handling of fertiliser, 372

bulk handling of raw sugar:

Brisbane Terminal, 331, 821; Bundaberg Terminal, 796, 799, 821; Cairns Terminal, 821; causes loss of jobs for waterside workers, 796–797; CSR's investigations into, 792; first Australian plant for at Harwood Mill (1954), 793; Lucinda Terminal, 799; Mackay Terminal, 795, 799, 819, 821; Mourilyan Terminal, 795, 799, 821; opposed by waterside workers, 793; reports into, 793; Townsville Terminal, 795, 799, 821; trial shipments of (1951–1953), 792–793

bulk storage (in sugar mills), 796

bulk storage (in sugar refineries), 793-794

bulk sugar terminals; see bulk handling of raw sugar

bulldozers, 360, 361, 414, 417

bunch planting, 490, 493, 497, 507; see also cane variety improvement programs (Queensland)

Bundaberg:

as port for sugar exports, 798, 799; commission agents (for sugar), 244; machinery manufacturers (agricultural) in, 380, 645 R. Cran & Co. erect sugar refinery at, 54, 189, 233–234

Bundaberg Approved Plant Sources Scheme, 593,

Bundaberg Bulk Sugar Terminal, 799, 821

Bundaberg cane beetle; see cane beetles

Bundaberg Cane Pest and Disease Control Board, 592, 593

Bundaberg district:

area of irrigated cane, 399, 405, 414; area under cane, 46, 51, 54, 57, 64, 272; cane first cultivated in, 46; cane grub attacks in, 522, 547, 548, 552; cane varieties in, 154, 470; contraction in area under cane in, 272; downy mildew outbreaks and their control in, 587, 589; drought-prone, 150, 405; exports of sugar from, 215, 798, 799; Fiji disease outbreaks and their control in, 570, 591, 592, 594-595; frost-prone, 13; German immigrants to, 105, 109; gumming disease outbreaks and their control in, 144, 470, 570; irrigation in, 136, 399, 405, 414, 445, 449; isolation plot established in, 576; juice mills in, 178, 189, 191, 193; leaf scald disease outbreaks in, 595; losses from nematodes in, 551; mechanical cane harvesting in, 625, 646; Millaquin Refinery erected in, 54, 189, 233-234; mill-owners in compete for cane in, 217; mill-owners in meet to discuss establishing a cooperative sugar refinery, 258; night harvesting in, 655; plantations in, 64, 75, 83, 92; rezoning of assignments in, 661; road transport of cane in, 658; 'root rot' outbreaks in, 598; salt water intrusion in, 419; small millers in, 93; sodic soils in, 385; soil conservation measures in, 452; soldier fly prevalent in, 545, 546; sugar exports from, 798, 799; swarms of grasshoppers in, 155; trickle irrigation in, 449; wireworm attacks in, 555; see also Bingera, Fairymead, Goodwood, Millaquin, Mon Repos, Qunaba & Pemberton Mills & Millaquin Refinery

Bundaberg Foundry Ltd., 700, 701
Bundaberg Groundwater Area, 450
Bundaberg Irrigation Scheme, 419–420, 441
Bundaberg Planters' and Farmers' Association,

Bundaberg Sugar Co. Ltd.:

acquires Babinda Mill (1989), 753; acquires Hardings Manufactures Pty. Ltd., 818; acquires Moreton Mill (1988), 752; acquires Mourilyan Mill (1988), 752; attempts unsuccessfully to acquire; South Johnstone Mill (1994), 753; closes Qunaba Mill (1985), 752; expands its share of the domestic Australian sugar market, 818; formation of (1972), 749; history of, 3; operates sugar plantations, 92; take- over by Tate & Lyle (1991), 753; upgrades to Millaquin Refinery, 814, 818; uses road transport to move harvested cane, 678–679

Bundaberg Sugar Experiment Station, 467, 476, 477, 496, 594

Bundall plantation, 87

Burdekin Delta Artificial Recharge Scheme, 417, 419

Burdekin Delta Sugar Co., 82, 213; see also Airdmillan plantation

Burdekin Falls Dam, 419, 448

Burdekin River:

Blue Valley Weir, 448; Clare Weir, 448; dam on, 419; erosion of river banks, 409; flooding of, 409, 433; Gorge Weir, 448; waters from diverted into Plantation Creek, 407

Burdekin River Improvement Trust, 409 Burdekin River Irrigation Area, 325, 330, 448, 449, 514 Burdekin Sugar Experiment Station, 488, 496 Bureau of Central Sugar Mills, Queensland, 110, 111, 698, 699

Bureau of Sugar Experiment Stations, Queensland (BSES):

advice to canegrowers, 139, 400; advice to Cane Pest and Disease Control Boards, 601; advise canecutters to sterilise cane knives, 577; Advisory Board of, 586; appoints cadet assistant plant pathologists, 569; assumes control of cane variety improvement in New South Wales, 504; Atherton, Phillip (engineer), 720; Barke, E.J. (cane breeder), 476, 477; Behne, E.R. (Roly) (technologist), 638, 707, 708, 714; Bell, Arthur (plant pathologist & Director), 354, 360, 477, 479, 480, 532, 533, 535, 570, 571, 572, 573, 578, 579, 580, 586; Bennett, Norman (technologist), 703, 705, 706, 707, 733; Berding, Dr Nils (cane breeder), 507, 512; BHC trials, 541, 542; Buzacott, James (cane breeder), 487, 488, 489, 490, 498, 531, 534, 541; calculates fertiliser rations during World War II, 358; Cane Improvement Group, 507; cane variety breeding programs, 468-469, 474-481, 486-491, 495-498, 506, 507, 508; cane toads imported by (1935), 535; cane variety distribution program 1900s, 152; Committee on Seedling Raising, 477, 487; Cottrell-Dormer, W. (plant pathologist), 468, 569, 570, 572; criticised for slowness in breeding new cane varieties, 481; criticism of advice to canegrowers, 139; criticism of canegrowers' irrigation methods, 400, 445; Croft, Barry (plant pathologist), 599; develops fertiliser mixtures, 353-354; disease trials at the Government Domain, 582; Division of Entomology and Pathology, 477, 531, 571; Division of Mill Technology, 707, 720; Division of Plant Breeding, 487; Division of Plant Pathology, 571, 578, 580; Division of Soils and Agriculture, 353; Division of Sugar Mill Technology, 705-708; Egan, Brian (plant pathologist), 580, 597, 602, 653; Easterby, Harry (Director), 150, 203, 276, 343, 347, 349, 467, 468, 569, 702, 703, 773; Eigenhus,

Ir. J. (technologist), 707, 708; erection of quarantine house in inner Brisbane, 477; establishment of (1900), 138; establishment of a station at Bundaberg, 138; establishment of a station at Meringa, 477; establishment of station at South Johnstone (1918), 468; experiments with DDT, 541; experiments with bagasse as a soil enhancement agent, 375; experiments with BHC, 541-542; fertiliser advisory service, 368; Ferguson Wood, E.J. (plant pathologist), 404, 569, 576; fertiliser trials, 353; Fiji disease eradication program, 594-595; Garside, Dr Alan, 514, 515; Girault, Alexandre (entomologist), 164, 523; Gordonvale entomological facilities, 523; herbicide trials, 366, 368; outlines affects of ration stunting disease, 596; Hogarth, Dr Douglas (cane breeder), 496, 503, 507, 513; Hughes, Cecil Graham (plant pathologist), 477, 482, 487, 489, 545, 579, 587; Illingworth, Dr James (entomologist), 523, 524, 526; importing new cane varieties, 148, 467, 468; investigations into cane grub control measures, 523-524, 534-535, 541-542, 552-555; initiates soil conservation experiments, 430-431; investigates insectary technique, 594; investigations into nematodes and nematocides, 551; investigations into rat control measures; 557; investigations into wireworm control measures, 533; Jarvis, Edmund (entomologist), 156, 521, 522, 523, 525, 526, 531, 534, 554; Kerr, Dr H.W. (soils scientist and Director), 353, 354, 357, 358, 400, 410-411, 715, 724; King, Norman (Director), 307, 309, 354, 368, 373, 430, 477, 481, 545, 594, 646; lease farm at The University of Queensland, 582; Magarey, Dr Robert (plant pathologist), 599; Maxwell, Dr Walter (founding Director), 102, 138-139, 201, 202; McWalters, Peter (cane breeder), 468, 476; metrology service of, 707, 720; moves plant pathology investigations to Woodford, 583; Mungomery, Reginald (entomologist), 531, 534, 535, 536, 543, 545, 573; Nicklin, Don (engineer), 720; Pathology Farm, 372, 583, 594; legume breeding program, 374; organises field days, 576; organophosphate insecticide trials, 552; produces soil maps, 354; promotes soil conservation measures, 411, 430-431, 451; publishes The Cane Growers' Quarterly Bulletin, 354; relationship with CSR, 138, 570, 575; releases cane toads, 535; research interrupted during World War II, 580; 'root rot' investigations, 597, 598; Scriven, Ernest (Director), 139, 164, 272, 467; Skinner, Dr James (cane breeder), 487, 490, 507, 512; Steindl, David (plant pathologist), 579; Sturgess, Owen (plant pathologist), 580; soil analysis service, 368, 370; soil fertility investigations, 368, 382; Sugar Yield Decline Joint Venture, 513, 514; suspends farm-based fertiliser and cultivation trials during World War 1, 347; trash conservation trials, 374, 378; Vallance, L. (soils scientist), 430, 654; warns canegrowers against use of arsenic to control cane grubs, 526; Wilson, George (entomologist), 542, 569 see also Bundaberg, Burdekin, Mackay, Meringa & South Johnstone Sugar Experiment Stations

Burnett River, 46, 79, 136, 233, 405, 419–420, 544, 661, 796, 798

burning (crops of cane); see cane burning Burns, Philp and Co. (merchants), 215, 245, 250, 253, 255

burnt cane, 625, 626, 627, 628, 664 Burrows, Geoffrey (author), 636, 641, 642 Buss, Frederick, Charles & George (sugar planters), 83, 92, 218

butty gang system, 613

Buzacott, James (cane breeder), 487, 488, 489, 490, 498, 531, 534, 541

by-products; *see* mill by-products Byron Bay, 55

Caboolture River, 28, 45 cadet assistant plant pathologists (BSES), 569–570, 579 Cairns:

as a port, 208, 215, 371, 793, 796, 797, 798, 799, 821; bulk handling of sugar at, 793, 799, 821; linked to Babinda by rail, 64, 208

Cairns Bulk Sugar Terminal, 821

Cairns district:

area of irrigated cane in, 449; area under cane in, 50, 52, 56, 64; cane grub attacks in, 158, 526, 541, 543; cane toads released in, 535; Chinese canegrowers in, 105; collecting cane beetles in, 526, 543; common rust outbreaks in, 599; drainage improvements in, 414; exports of sugar from, 215, 793, 796, 798, 799; feral pigs damage cane crops in, 540; gumming disease outbreaks in, 469, 578, 587; important cane varieties in, 153; irrigation in, 414-415, 449; isolation plots established in, 577; land suitability study for, 749; 'root rot' outbreaks in, 598; soil conservation measures in, 431-432; swarms of grasshoppers in, 155; see also Hambledon & Mulgrave Mills & Green Hill Estate

Cairns Divisional Board, 208

Cairns-Mulgrave Tramway, 64, 208, 209, 215 calandria vacuum pans, 705, 713, 721, 727, 745,

calcium, 345, 385

Calcutta, 31, 32

Caldwell, Arthur, 635

Cameron's Foundry (Mackay), 709, 718

Campbell, Clarke & Co. (merchants), 31

Campbell, Walter (politician), 123, 124

Canada (as a sugar market), 289, 294, 295, 296, 780, 801, 803, 821

cane arrows; see arrows or arrowing of sugar cane cane barracks, 613, 614, 615, 655

cane beetles:

Bundaberg, 156, 548; Childers, 156, 547, 548, 552, 553, 554; clearing vegetation to reduce impact of, 161, 536; control methods for, 159–163, 523, 526, 535–536, 537, 541–544, 552–554; Frenchi, 156, 536, 542, 548, 552; greyback, 156, 541, 543, 553, 554; hand collection of, 159–160, 163, 523, 526, 536, 537, 541; life-cycle of described, 156–157, 164

cane billets, 11, 365, 662, 666

cane bins, 662-664, 665-667, 748

cane breeding; see cane variety improvement programs

cane burning, 11, 126, 133, 355, 374, 376, 529, 617, 625–629, 664

cane carrier; see carriers

cane, chopped, 647, 653, 663–664 cane collecting expeditions; *see* collecting expeditions for cane

cane cutters; *see* canecutters cane cutting; *see* cane harvesting cane derricks, 210, 657, 658
Cane Disease Control Boards, 586 cane diseases:

bacterial mottle, 579, 583, 584; chlorotic streak, 572, 580, 582, 585, 588-589, 600, 602, 604, 832; common rust, 142, 500, 507, 512, 515, 599, 600, 602; downy mildew, 512, 565, 568, 570, 572, 573, 578, 579, 580, 587, 589, 590, 591; dwarf, 572, 587, 580; Fiji, 472, 498, 501, 503, 507, 509, 565, 566, 568, 570, 571, 572, 573, 575, 577, 580, 589, 597, 600, 602; gumming, 144-15, 153, 154, 471, 474, 566, 568, 570, 571, 575, 576, 577, 578, 579, 580, 587, 590; leaf scald, 498, 509, 565, 568, 570, 571, 572, 577, 578, 579, 580–581, 587, 589, 595, 597, 602, 832; mosaic, 153, 565, 566, 568, 570, 571, 578, 601, 602; Pachymetra root rot, 507, 515, 599, 602; pineapple, 364, 579, 581, 582, 588, 602; ratoon stunting, 579, 581, 585-586, 589, 596, 601, 602, 603, 604; red rot, 570, 595, 602; red stripe, 572, 595; 'rust', 45, 49, 52, 142, 143; striate mosaic, 583-584, 601, 602; top rot, 570, 572; yellow spot, 583, 584, 586, 595-596, 600, 602; yellow stripe, 153, 565

cane farmers; see canegrowers

Cane Farmers' Association of North Queensland, 60

cane fires; see cane burning

cane growing areas and climate, 12-13, 832

cane growing areas and drainage, 13, 400–404, 407–408, 412–414, 420–427, 433–440, 832

cane growing areas and frost, 12-13, 131-132, 832

cane growing areas and irrigation, 12, 397–399, 405–407, 414–420, 441–445, 447–450

cane growing areas and soils, 14, 450

Cane Growers' Union; see United Cane Growers' Union

cane grubs:

biological control of, 161, 535; clearing vegetation to reduce impact of, 161, 536; damage to sugar cane plants, 157–158; eaten by birds, 160; financial losses from, 159; hand collection of, 160, 163, 523, 536; killed by fungal pathogen, 161, 554; larvae of cane beetles, 156–157; soil fumigation with carbon bisulphide and/or paradichlorbenzene against, 162–163, 523, 525, 536, 537, 541, 542, 543; tonnage of cane lost to, 159, 522, 540, 552; use of BHC against, 541, 542, 543, 546, 548, 552; use of lime against, 160; use of salt against, 160, 162

cane harvester groups, 674–676 cane harvesters:

Austoft, 378, 673, 676; Cannavan, 663; capacity of, 673, 675; chopper, 647, 653, 663; Claas, 377; cost of, 646, 675, 676; Creber, 377; Crichton, 647, 651; CSR, 646; Don Mizzi, 649; Fairymead, 625, 646, 647, 649; Falkiner, 624, 638; Howard, 625; Hurrey, 623; Kinnear, 645; Massey Ferguson, 377, 649, 650, 651; Miller & Owen, 625; Moloney, 644; nineteenth century designs of, 140; number of, 673-674; ownership patterns of, 654, 676-677; Rasmussen, 646-647; Scott, 645; Shear blade, 645, 649; slower than a manual canecutter, 624; Tierney, 638; Tomlinson, 140; Toft, 638, 652; Venton, 647, 649; whole stalk, 647, 652

cane harvesting:

British workers preferred, 60, 619–622; by Aborigines, 630, 631, 635; by displaced persons (DPs), 636; by Italians, 622, 630, 636–637; by Pacific Islanders, 84, 620; by Torres Strait Islanders, 630, 635; disrupted during World War II, 629–631, 633; green cane, 377, 385, 454; labour shortages for, 629–631, 633, 635–637; manually, 140, 615, 617, 630–631, 655; mechanically, 140, 644–654; night time, 655, 665; strikes during, 60–62, 618–619, 627–628

cane harvesting styles, 634
Cane Improvement Group, BSES
cane inspectors, 350, 351, 359, 363, 412, 414, 614, 626, 627, 628, 661
cane invert, 803
cane juice, 15, 182, 183, 186, 715, 726

cane knives, 576-577, 581, 634

cane leaves, 11

cane loaders (mechanical):

front-end, 641, 642, 643; hydraulic grabtype, 642–643; jib-type grab, 625, 631, 645; Nuffield, 642; Quaid's, 639–640; Toft Brothers', 422, 632–633, 638, 639, 642, 643; use in New South Wales, 305, 643; use in Queensland, 422, 638

cane loading:

onto punts, 97, 205–206, 657; onto rail trucks, 210, 642, 658–659; time of during the day, 615, 617; with derricks, 210, 657, 658; with lifts, 658; with mechanical loaders, 305, 638–644

cane mulch; see trash blanketing cane nurseries, 144, 146, 468

cane payment formula:

by weight, 153, 155, 691; CSR's system, 697; individual analysis, 155, 488, 691, 697; relative percentage scheme, 697; sugar in the bag, 697

cane penalties, 691, 695

Cane Pest and Disease Control Boards, 527, 542, 544, 557, 586, 589, 596, 597, 601–602

Cane Pest Control Boards, 527, 536, 537 cane planters, 140–141, 164, 343, 349, 350, 352, 359, 364–366, 380

cane planting:

by teams of workers, 124, 343; CSR's experiments on, 124; late in the season, 533; mechanised, 140–141, 164, 343, 349, 350, 352, 364–365; methods of, 11, 124, 128, 131, 140–141, 343; over-planting, 124, 125; *see also* cane planters

cane prices, 97, 217, 218, 219, 220, 689-697, 754-755

Cane Prices Boards; see Central Sugar Cane Prices Board

Cane Protection and Productivity Boards, 557, 602

cane punting, 97, 204, 205, 206, 656, 657, 671–672

cane seedlings, 146, 468; see also cane variety improvement programs

cane slip and cane slipping, 206, 657

cane toad (Bufo marinus), 535-536, 835

cane transport; see transport (of cane to sugar mills); see also cane punting, tramlines, Queensland Railways & motor lorries cane unloaders (at sugar mills), 210–211, 717 cane unloading (at sugar mills), 209–211, 743 cane varieties:

annual types, 473, 504; B. 208, 152, 153, 470, 570, 578, 587; Badila, 9, 141, 150, 151, 152, 153, 154, 155, 467, 469, 470, 472, 474, 481, 484, 487, 521, 530, 531, 532, 568, 569, 570, 571, 584, 587, 705; Black Fiji, 160; Black Java, 144; Bourbon, 9, 142, 143; biennial types, 473-474; B.W. series, 471; Chenoma, 152; Cheribon, 144, 153, 160, 691; China, 9, 142, 152, 154; collecting expeditions for, 146-147, 467, 470, 471, 489; Co. series, 481, 486, 493, 504, 571, 578; common rust resistant, 50, 600; C.P. series, 479, 486, 499, 504, 546, 587, 594; Creole, 144; D. 1135, 150, 154, 470, 570, 578, 580, 587; Dupont, 160-161, 691; E.K. 28, 470, 481, 487; Fiji disease resistant, 472, 594, 595; frost-resistant, 478, 486, 495, 503, 832; Goru, 9, 141, 150, 151, 152, 153, 154, 470, 521, 571; gumming disease resistant, 150, 472, 569, 572, 484, 486; H.Q. 409, 470, 472; H.Q. 426, 146, 153, 468, 481, 486, 470, 521, 566, 570, 580, 587, 833; importations of, 146-148, 467, 470, 471, 489; Indian, 481, 486, 493, 504, 571, 578; Javanese, 470, 481, 487; Kewensis, 146, 150; Korpi, 470, 471, 472, 474, 484, 578; M. 1900, 141, 147, 152, 154, 470, 481, 487, 578, 587; Mahona, 150, 152, 154, 474, 578, 584; Malabar, 154, 474, 578, 691; Malagache, 151, 152, 154, 470, 580; Mauritius, 147, 470, 481, 487; Meera, 142, 144; New Guinea 148, 150, 151, 152, 153, 154, 470, 471, 472, 474, 489; NCo. 310, 502, 504, 510, 512, 546, 591, 592, 593, 594, 595, 603, 604; N.G. 14 and N.G. 16, 152, 154; Oramboo, 470, 472, 474, 482, 578; Otamite, 153, 691; Pindar, 305, 370, 482, 484, 485, 487, 499, 502, 512, 584, 587, 596; P.O.J. series, 9, 472, 474, 479, 481, 482, 484, 486, 571, 572, 573, 578, 587, 591, 708, 715; Q. 813, 470, 472, 474, 481, 482, 484, 487, 569, 571, 573, 578, 587, 584; Q. series, 381, 481-482, 486, 491, 493, 498-499, 504, 509; Rappoe, 144, 150, 151, 152, 154, 160; Ribbon, 142; 'root

rot' resistant, 504, 599; S.J. series, 469, 486, 531, 571, 587; S.N. series, 471, 482, 495; South African, 502, 504, 510, 512, 546, 591, 592, 593, 594, 595, 603, 604; Striped Singapore, 144, 151, 152, 154, 160; Tanna, 9, 152, 691; Trojan, 471, 482, 484, 485, 487, 499, 512, 582, 584, 585, 587; Triton, 305, 495, 502, 509, 512, 587, 596; Uba, 470, 571, 578, 580; weevil borer-resistant, 556; Vesta, 471, 482, 495, 584; United States of America, 143, 486, 503

cane variety improvement (methods of):

BSES, 468–469, 474, 476–480, 489–491, 496–498, 506–507; CSR, 468, 471–474, 493, 495; Hawaiian, 468–469, 473, 489, 496 Javanese, 473; Mauritian, 496

cane variety improvement programs (New South Wales):

BSES, 504; CSR, 471–474, 493, 501, 503; Department of Agriculture, New South Wales, 147, 149, 472; Grafton Experiment Station, 472; New South Wales Sugar Milling Cooperative, 504; Wollongbar Experiment Farm, 147, 149

cane variety improvement programs (Queensland):
at Kamerunga State Nursery, 149; at Mackay
State Nursery, 149; benefits of, 512; BSES,
150, 468–469, 474, 476–480, 487–491,
495–498, 506–510, 556, 594; CSR, 146,
147, 149, 150, 472–473, 493, 500, 504,
505; Hambledon Cane Nursery, 150, 500;
Queensland Acclimatisation Society, 147,
148, 474, 481, 486, 487; Young Brothers,
148; see also Clark, James

cane washing unit, 717

cane weighing (during cane variety improvement programs), 497–498

canecutters:

Aborigines, 630, 635, 637; accommodation for, 614–615; Austrians, 60; Balts, 635, 636; British, 60, 619, 620, 621, 622, 630; daily routine of, 615–616, 642; die from Weil's disease, 627, 629; displaced persons (DPs), 635–636; Finns, 637; gangs of, 613–614; Greek, 275; Indian, 90–91; Italians, 88, 109, 275, 636, 637; last of, 650; Maltese, 109; numbers of in Australia, 617, 655; prefer to cut burnt cane, 626; Polish, 636; Scandinavians, 60;

shortages of, 629–631, 633, 635; Spanish, 60, 275, 637; Torres Strait Islanders, 630, 635; Yugoslavs, 637

canegrowers (New South Wales):

abandon hot-water treatment of setts, 596; acquire tractors, 350, 362; adopt control methods against African black beetles, 534, 544; adopt mechanical cane loaders, 643; adopt soil conservation measures, 432; advice about acid sulphate soils, 440-441; area cultivated, 97, 109, 376; assist CSR in field trials, 149; assisted by CSR, 131, 354; awarded prizes by CSR to improve cultivation methods, 130, 348, 350; background of, 128; burning of cane, 126; credit to, 97, 130; cultivation methods criticised, 123, 350; decline in number of, 303; drainage improvements of, 402-404, 428-429, 437-438, 439; employ Pacific Islanders, 620; encouraged to expand production, 305, 331; engage in over-planting, 124, 125; fail to fertilise, 127; fail to improve drainage, 127; favourite cane varieties of, 142, 474, 493, 495; fertiliser use of, 373; financial difficulties of, 330; issued with booklet on cultivation methods (1895), 131; petition New South Wales government to fund the erection of a cooperative sugar mill, 219; practice aerial fertilising, 372; practice green manuring, 355; practice trash conservation, 355, 362; practice trashing, 126; relations with CSR, 93, 219; restrictions on cane varieties grown, 154; slow to adopt tractors, 350; slow to adopt mechanical cane harvesters, 651; supplied with disease-free setts, 577, 602, 604; struggle to control cane diseases, 576; suffer field worker shortages during World War II, 291; suffer Fiji disease outbreaks, 591, 592, 603, 604; troubled by post-World War II labour shortages, 303; troubled by ratoon stunting disease, 603, 604; use rotary hoes, 362

canegrowers (Queensland):

abandon hot-water treatment of setts, 596; acquire tractors, 342, 351–352, 362–364; adopt irrigation, 136, 397–399, 405–407; adopt soil conservation measures, 431–432, 451–453; agitate for formation

of Sugar Experiment Stations, 137; apply herbicides, 366-368, 379; area cultivated, 109, 273, 297, 349, 376; assist BSES investigations, 139, 508-509; assist Department of Agriculture & Stock investigations, 149; assisted by millowners, 130, 136; background of, 128; burning cane, 355, 374, 377, 625-628; burning trash, 139, 347, 355, 374, 377; credit to, 106; conserving trash, 348, 355, 378; cultivation methods of criticised, 123, 347; debt levels of, 313, 319-320; diversify into other crops, 319, 322; drainage improvements of, 404, 408, 422-425; favourite cane varieties of, 142, 491-493, 499, 509-510; failure to use BSES fertiliser advisory service, 368; fertiliser use, 347, 356, 359, 368-370, 373, 383-385; lack of financial records, 141, 694; implement rat control measures, 528-530; numbers of, 107-109, 273, 308, 322, 325, 330; nationality of, 105, 133, 275; petition the Queensland government to build central mills, 92, 100, 110; practice green manuring, 354, 374; practice trashing, 126; receive BSES advice, 139, 368; relations with CSR, 106; relations with sugar planters, 100; rely on family labour, 105; restrictions on cane varieties cultivated, 153-154; suffer shortages of canecutters during World War II, 630-631; soil fumigation by, 523, 536, 537, 541; subjected to farm peaks, 289; suffer cane grub attacks, 158-159, 526, 540; unsuccessful attempts to erect central sugar mills in 1870s and 1880s, 98-99

canetainers, 665–668 Cannavan, Arthur, 663 Canterbury Refinery, Sydney, 33–38 Cape Town, 21, 31 capital:

for farm machinery, 676; for milling machinery, 94–95; for establishing sugar plantations, 82; supplied by banks, 82, 106; supplied by Queensland government, 101–102, 111, 276

carbon bisulphide, 162, 523, 525, 534, 537, 541, 542, 543; *see also* cane grub

carbonation process (in sugar refineries), 242, 786, 808, 814

Carbrook Mill, 691 Cardwell, 49 Cardwell Shire Council, 408, 425, 436 Carmila, 274, 330, 543, 593 carriers:

automatic speed control equipment installed at, 724, 743; early mechanical, 179–180, 184, 186; intermediate, 722; maceration bath, 722; revolving knives on, 705, 743; unloading cane at, 210–211, 743

Casey, Hon. Ed (politician), 326, 329

caster sugar, 16, 809

Castle, Vince (canegrower), 678

Cattle Creek, 429

Cattle Creek Mill:

cane for moved over Mackay Railway, 209; closure of (1991), 752; effluent treatment plant at, 737; erection of (1906), 63; joins the Mackay Sugar Manufacturers' Association, 218; machinery upgrades to, 709, 710, 712, 713, 719, 722; receives cane by government-owned railways, 657, 661, 671; receives emergency government funding to operate, 751

Cattle Creek Sugar Co. Ltd., 218 cattle penning, 126; see also fertilising (of cane) ccs: see commercial cane sugar Cedars Mill and plantation, 79, 82, 123, 179 central-colono system; see central milling system central milling system:

adopted in West Indies, 100; attempts at in Queensland before 1885, 98–99, 101–102; explanation of, 73; encouraged by Queensland government, 100, 101, 110–111, 275–276; pioneered in New South Wales by CSR, 97–98; see also central sugar mills, farmer cooperatives, & central sugar mills, proprietary

Central Sugar Cane Prices Board:

abolished (1991), 327, 754; allocates assignments, 272, 277; composition of, 272; assesses minimum standard of mill efficiency, 699; criticised by Sugar Industry Working Party (1985), 320; decision on cane bin rentals and supply, 663, 664; decision on penalties for stale cane, 663–664; determines allocation of crop proceeds, 696, 755; fixes price for sugar cane, 689, 691, 694; formation of (1915), 272; functions of, 272, 696; functions transferred to the

Queensland Sugar Corporation, 754; halts expansion in 1966, 312; implements program of rezoning assigned land, 659-660; increases number of assignments, 284, 293, 299, 309, 314, 316, 324, 325; increases mill peaks, 293-294, 297, 299, 301, 309, 313-314, 315; introduces uniform cane prices state-wide, 696; permits harvest of 85% of gross assigned area, 309; permits use of 100% of an assignment, 314; reduction in some functions of during the 1980s, 321-322; rejects requests for increased mill peaks, 281, 290, 303, 317; review of assignments, 1927-1929, 279; suggests some Queensland central sugar mills were poorly located, 698; see also Queensland Sugar Corporation

central sugar mills, farmer cooperatives:

debts to Queensland Treasury, 101, 110, 699; erected in Queensland with government funding, 102, 111, 276; erection opposed by CSR 1893, 101; financial difficulties of, 110, 699, 788; inquiries into location of, 100-102, 110-111, 275-276; operate in Queensland during 1870s and 1880s, 98-99; parliamentary opposition to funding of, 101; performance of investigated by Dr Walter Maxwell 1904, 102; poorly located with regards to frost, 102; promote better cultivation methods to their suppliers, 136-137; proposed in New South Wales, 219; see also Bureau of Central Sugar Mills, Queensland

central sugar mills, proprietary:

emerge in Queensland, 102–104; pioneered in New South Wales by CSR, 2, 97–98 centrifugals:

continuous, 727–728, 756–757, 808; driven by electricity, 712; horse-driven, 177; NQEA Superfugal, 757; role in manufacture of sugar, 16; part of machinery upgrades in sugar mills, 699, 703, 755; steam washing in, 714

charcoal filters, 182, 232 charcoal kilns; *see* bone char kilns Charley, Walter (engineer), 623, 625 Chataway, James (politician), 137, 256 Chatsworth Mill, 97, 181, 183 check chemists, 689, 692, 693, 718 chemical analysis (of the sucrose content of sugar cane), 155, 697; see also cane payment formula

chemical control (in Australian sugar mills), 195–201, 702

chemists, analytical:

appointed in Queensland sugar mills, 110, 200–201, 702; considered necessary by Dr Walter Maxwell, 110; considered optional by some Australian sugar millowners, 201; hired by CSR, 197–200; not employed in Australian sugar mills before 1880, 195; in dispute with CSR's mill managers, 199

Cherbourg, 630, 635 Chifley, Prime Minister Ben, 804 Child, William Knox (sugar refiner), 33 Childers cane beetle; see cane beetles Childers district; see Isis district Childers Mill:

> closure of (1932), 698; erection of (1895), 56; high levels of burnt cane supplied to, 627; machinery upgrade at, 705; stock food supplement manufactured at, 732

Chillagoe, 109, 345 chimneys (at Australian sugar mills), 738, 739 Chinderah Swamp Drainage Scheme, 402 Chinderah Swamp Drainage Trust, 400, 402 Chinderah Wharf, 659 China:

as a sugar market, 803, 820, 821; imports of sugar from, 235, 254, 255

Chinese immigrants (to Australia):

as plantation labourers, 1, 85; as canegrowers in Northern Territory, 50; as canegrowers in Queensland, 89, 105; discrimination against, 107; hired by canegrowers, 105; teams of collecting grasshoppers, 155; teams of collecting cane grubs, 160; unloading cane at sugar mills, 210

chlorotic streak disease:

control methods for, 588–589; discovery of, 572; investigations into, 580, 582, 585; outbreaks of, 600–601, 602, 604

chlorpyrifos (insecticide), 554, 555, 556 chopped cane, 653, 663–665 cicadas, 549 Cilento, Sir Raphael, 529, 628

Cingalese immigrants (to Australia), 85

Circulation (in vacuum pans), 714

Civil Construction Corps, 359, 360

Clare, 311, 448, 660, 678

Clarence & Richmond River Steam Navigation Co., 213

Clarence River, 216, 437, 474, 821

Clarence River County Council, 427, 437

Clarence River district:

area under cane, 48, 52; cane growing in during 1850s, 27; contraction in area under cane, 53; cultivation methods of canegrowers, 124, 129, 130; CSR erects and closes sugar mills in, 97-98; drainage improvements in, 413, 427-428, 437; drainage unions in, 413; Fiji disease outbreaks in, 568; flood mitigation works in, 427, 437; frost-prone, 13, 48, 52 mechanical loading of cane in, 428, 643; mill- owners compete for cane in, 217; outbreaks of gumming disease in, 144- 145; quarantine zone in, 574-575; severity of frosts in, 48, 52; small millers in, 93, 95, 96; soil conservation measures in, 432; soldier fly infestations in, 547; tramlines in, 205; see also Harwood, Southgate & Chatsworth Mills

clarification (of cane juice):

chemicals used in, 182, 183, 186; historical methods of, 15; monosulphite of lime process, 182, 184; nineteenth century innovations in, 182, 192; objects of, 15; research into, 726, 744; types of vessels used, 15, 192, 720, 726; twentieth century innovations in, 715, 726, 744; use of flocculants, 726, 744

clarifiers:

ATV, 744, 757; Bach, 720, 726, 744; conical or CSR, 192, 702, 720, 726, 833, 835; Dorr, 726, 744; open, 15, 181; RapiDorr, 744; SRI, 720, 744, 757, 833

clarifying agents:

lime, 182, 183, 715; magnesia, 184, 186; magnesium oxide, 720; soda ash, 720; sulfuric acid, 182, 186

Clark, James (CSR cultivation overseer and cane breeder), 146, 150, 348, 468

Clark's Seedling (H.Q. 426), 146, 468, 481, 486, 470, 521, 566, 570, 580, 587, 833

Clean Air Regulations, Queensland (1968), 738, 739

clean cane scheme, 644

clean seed programs, 592, 593, 594, 601 amalgamation with Victoria Sugar Co., 238 Clement, William (small miller), 95, 212 announces erection of central sugar mills in Cleveland, 28, 45, 53 New South Wales, 96 climate and cane, 12-13; see also frost appointed as the refiner for the Queensland Clydesdale Mill and plantation, 126, 181 Sugar Board, 776-777 Co. cane varieties (from Coimbatore Experiment appoints a plant pathologist, 565 Station, India), 481, 486, 493, 504, 571, appoints analytical chemists, 197-199 appoints Robert Harper & Co. as agent, 245 coal, 195, 213, 214, 234, 656, 661, 719, 789, archival records of, 6 806, 807 as agent of Queensland Sugar Board, 815 assists BSES with cane disease identification, Coca-Cola Amatil, 818 cockatoos, 550 coefficient of work, 699, 702, 703 attacks on in Commonwealth Parliament, Coffs Harbour, 54, 93 256, 259, 261, 785, 787 Coimbatore Experiment Station (India), 571 attempts to limit the amount of chopped cane collecting expeditions for new cane varieties: at its sugar mills, 664-665 Brandes, E.W., 472; BSES (1912), 467; BSES attempts to limit the amount of mill whites (1950), 488-489; Carne, A. & Baker, produced in Australia, 250-251 C. (1914), 470; Chinnery, E., 471; CSR attempts to monopolise Australian refined (1914), 470; CSR (1921), 471 Queensland sugar market, 35, 36, 246, 255-256 Department of Agriculture & Stock (1893 attitudes to cane burning, 126, 626, 627, & 1896), 146; Warner, Dr John & Grassl, 628, 629 Carl (1957), 489; Wells, Thomas (1912), attitudes to land disposal, 104, 105, 106 467 awarded National Energy Management Award Colonial Sugar Refining Company (CSR): (1981), 748accusations of being a monopoly, 256-259, becomes only mill-owner in New South 261, 782, 787 Wales, 202, 217 accused of fraudulently measuring the weight builds bridge across the Johnstone River of harvested cane in punts, 93 (1908), 64acquires Australian Estates Co. Ltd. (1975), cane variety collecting expeditions for, 470, 749 acquires a fleet of ships, 214 cane payments by, 55, 219, 220, 697 acquires Inkerman Mill (1987), 504, 752 cane variety breeding program of, 149, 150, acquires Invicta Mill (1975), 504, 751 471-474, 493, 495, 500-502, 504, 506, acquires Kalamia Mill (1975), 504, 751 acquires Pioneer Mill (1987), 504, 752 challenges validity of patent for Davids meacquires Pioneer Sugar Mills Ltd. (1987), chanical cane unloaders, 211 752 closes Chatsworth Mill (1887), 98 acquires Plane Creek Mill (1987), 752 closes Childers Mill (1932), 698 acquires Pleystowe Mill (1975), 751 closes Darkwater Mill (1872), 97 adopts computerised process control in its closes Goondi Mill (1987), 504, 752 sugar mills, 748-749 closes Hambledon Mill (1991), 504, 752 agrees that its sugar produced in New South closes Homebush Mill (1921), 698 Wales will be marketed by the Queensland closes Southgate Mill (1885), 98 Sugar Board, 276 collusion with Queensland National Bank, agrees that its New South Wales sugar mills 251-252 will operate under the Peak Year Scheme, complaints about CSR's profits, 219, 785, amalgamation with Australasia Sugar Refining considers closing its Queensland sugar plantations late 1880s, 55 Co., 247

constructs hot-water treatment units at its erects Pyrmont Refinery (1877), 235 New South Wales sugar mills, 589 erects Southgate Mill (1869), 97 contemplates building a sugar refinery in erects Sydney quarantine house (1925), 472 Western Australia, 239 erects Victoria Mill (1884), 186 contracts with New South Wales farmers, 97 estimates of losses from gumming disease, contracts with sugar mill-owners, 248-249, 695 evidence on, 1911-1912 Royal Commission, cost of growing cane, 88 credit for farmers, 44, 97, 106, 130, 132-133 expansion to Queensland, 82 criticisms of, 37, 93, 219, 256-258, 261 expenditure on mill upgrades, 701, 722, decides to cease plantation agriculture, 91 756-757 declines to purchase Fairymead plantation, experiments with bagasse drying, 190, 748 experiments with bagasse storage, 748 develops conical subsiders, 192 experiments with BHC, 541, 542 develops continuous pressure feeders, 710 experiments with chemicals to control cane beedevelops entrainment devices, 744 tles and cane grubs, 161-162, 524-525 develops insectary technique, 593 experiments with clarification methods, develops Pender levellers, 710 182-183, 726 develops toothed pressure feeders, 726 experiments with planting methods, 124 discrimination against non-European caneexperiments with DDT, 541 growers, 1895-1915, 107 experiments with trash conservation, 348 dispatches tachinid flies to Goondi Mill, 521 fertiliser trials, 131, 354 disposal of fly-ash, 739 Fiji disease eradication program, 593-594 dividends of, 36, 260 finances an advertising campaign to reduce early financial difficulties of, 36-37 declining sugar consumption in Australia, employs gangs of canecutters in New South 812 Wales, 97 finances Australian sugar exports, 277 employs teams of men to maintain drains in formation of, 35-36 New South Wales, 407 forms Queensland plantations, 83 encourages cane growing in New South Wales frost reduction experiments, 131-132 during the 1970s, 317 hires agricultural implements to its suppliers, encourages employees to become tenant farmers, 105 implements restrictive practices clause in conencourages New South Wales dairy farmers to tracts with customers who were manufacgrow disease-resistant cane varieties, 574 turers, 253 encourages sugar mill-owners to employ anaimports cane varieties, 147, 149, 470, 472 lytical chemists, 201 imports Indian myna birds into Queensland, erects Broadwater Mill (1881), 51 erects Chatsworth Mill (1870), 97 imports parasitic fungus into Queensland, 161 erects Childers Mill (1895), 56 imports raw sugar for its refineries, 238, 245, erects Condong Mill (1880), 51, 98 769 erects Cottesloe Refinery (1929-1930), innovations in milling procedures and ma-779-780 chinery, 182, 183-184, 192, 705, 710, erects Darkwater Mill (1870), 97 726, 727, 744, 757, 835 erects Glanville Refinery (1891), 238 innovations in refining procedures, 240-242, erects Harwood Mill (1873), 97 786, 807–808, 809, 818 erects Homebush Mill (1882), 186 interest in mechanical cane harvesters, 140, 646 erects New Farm Refinery (1893), 239 interest in mechanical cane planters, 140 erects Ord River Mill (1995), 276, 333, 756 introduces chemical control in its sugar mills, erects phytotron at Brisbane (1960), 500 198-199

introduces clean cane scheme during late 1950s, 644

introduces foliar analyses, 370

introduces front-end loaders into New South Wales, 640

introduces land assignment system in New South Wales, 281

introduces measures to reduce water pollution at its sugar mills, 734, 736, 740

introduces night time harvesting, 665

investigates bulk handling of sugar, 792

investigates methods to reduce air and water pollution at its sugar mills, 736, 738

investigates purchasing Pioneer Sugar Mills Ltd., 400

investigates establishing sugar mills in the Richmond and Tweed River districts, 98

investigations into cane bin design, 662 invests in Queensland Cane Harvester Co., 624

invests in Victoria Sugar Co., 36

irrigation at its plantations, 130

loans to drainage unions, 402, 413

loans to farmers, 44

loans to Australian sugar mill-owners, 248 machinery upgrades at its sugar mills, 182, 183, 186, 192, 705, 710, 713, 722, 756, 757

machinery upgrades at its sugar refineries, 239–242

maintains plantation agriculture during 1890s, 90

offers bonuses to New South Wales canegrowers who renew their supply contracts, 216–217

offers prizes for improved cultivation methods, 129

offers to import concretors 1870s, 97

operates central sugar mills in New South Wales, 2, 97–98

operates sugar plantations in New South Wales, 76–77

opposition to bulk purchases of sugar after 1945, 294

opposition to cane burning, 126, 626, 627, 628, 629

opposition to Queensland government funding erection of central sugar mills, 101

opposition to paying BSES levy, 138

opposition to cane price-fixing legislation in Queensland, 690, 692, 693 pays higher price for trashed cane, 126 pays too little for sugar cane, 219, 220 profits of, 219, 260, 785

promotes better cultivation methods, 129–130, 354

promotes better drainage, 130, 401–402, 407, 413

promotes control methods against African black beetles, 534

promotes green manuring, 354

promotes trash conservation, 348, 354

promotes rat control methods in Far North Queensland, 528, 529, 530

proposal to import moles to combat cane grub attacks, 161

public opinion about, 37, 219

publishes agricultural booklets and circulars about cultivation methods and drainage for suppliers, 131, 348, 354, 370, 413

purchases Cudgen plantation (1911), 92

purchases Hambledon Mill and plantation (1897), 193

purchases Keith Hall Estate (1891), 78

purchases Isaac Peck's sugar refinery (1887), 246

purchases land in the Tweed River district (1877), 98

purchases Macknade plantation (1896), 250–251

purchases Poolman Brothers' sugar refineries (1907), 247

purchases Ripple Creek Mill (1906), 252

purchases raw sugar from Australian sugar mill-owners, 82, 201, 246, 248–249, 252 recruits Javanese workers, 87

refinery upgrades, 237–242, 779–780, 792, 793–794, 806–810, 817–818

relations with cane suppliers, 93, 627, 695, 698

relations with Commonwealth government in Australia, 770–771

relations with manufacturers who use sugar, 253, 255

relations with Queensland Bureau of Sugar Experiment Stations, 138, 570, 572

relations with Queensland Sugar Board, 276,

relations with other Australian sugar millowners, 200, 201, 248–249

relations with trade unions, 60

relies on punting cane in New South Wales, 204 relies on sugar imports from Java and Philippines for its sugar refineries, 245 requires its New South Wales suppliers to trash cane, 216 responds to competition from other sugar refiners, 34-35, 37, 246-247, 259-250, restricts types of cane varieties grown by suppliers, 93, 152-153, 154 sells its New South Wales sugar mills (1978), size of its land holdings, 83 soil erosion reduction trials of, 431 stump removal on its plantations, 128, 160 subdivides its plantations, 90, 91, 104 sugar produced by transported by Adelaide Steamship Co., 215 supplies disease-free setts to canegrowers, supplies seed for legume crops, 354 supplies seedlings to the New South Wales Sugar Milling Cooperative, 503 supports Peak Year Scheme, 287 threatens to close Condong Mill, 304 trains men in the art of sugar boiling, 197 trash blanketing trials of, 378 trashing trials of, 126 under-selling strategy of, 37, 246, 247, 819 urges mill-owners to produce better refining sugars, 249

warns of sugar shortage 1915; see also Knox, Sir Edward, Knox, Edward W. & Goldfinch, Sir Philip

Commercial Banking Co. of Sydney, 34, 36, 94 commercial cane sugar (ccs), 199, 653, 695, 696, 697; see also pure obtainable sugar (p.o.c.s) formula

commission agents (for sugar), 243–245, 250 Commissariat (in New South Wales), 25, 31 Committee on Seedling Propagation, 477, 487 common rust (disease of sugar cane), 142, 500, 507, 512, 515, 599, 600, 602

Commonwealth Bank of Australia, 771 Commonwealth Government:

appoints CSR and the Millaquin Sugar Co. Ltd. as its refining agents, 770; assumes control of Northern Territory (1911), 56, 831; control over Australian sugar industry, 58–59, 770–776, 782–786, 787–788, 804–806, 814–815; control over sugar prices, 272, 701, 769–770, 772-776, 782-785, 787-788, 804-806, 814-815; criticised for slowness in delivering financial assistance to canegrowers during mid-1980s, 323; funding for irrigation and drainage schemes in sugar-producing districts, 420, 428, 441, 448; funding for flood mitigation in sugar-producing districts, 428, 433; excise and bounty system, 58-59, 60-61, 341; fails to end CSR's control over the Australian sugar market, 257; financial assistance to the Australian sugar industry, 318, 321, 329, 331; imports sugar to meet shortages, 1915-1922, 771; imposes import tariff on sugar imports, 2, 58; imposes sugar import embargo, 276, 318, 324, 770, 784; introduces fertiliser subsidy, 357; loan to Queensland Sugar Board, 1966, 312; lobbied to increase the duty on imported sugar, 774; prohibits recruitment of Pacific Islanders to Australia, 2, 58, 91, 341; prohibits further release of cane toads, 535; prohibits sugar exports from Australia after outbreak of World War I, 769; rescinds decision to prohibit the release of cane toads, 535; removal of sugar import embargo, 814, 815, 834; repatriation of Pacific Islanders, 59, 341

Commonwealth Parliament, 256, 257, 259, 771, 775, 785, 787

Commonwealth Scientific and Research Organisation; see CSIRO

Commonwealth Sugar Agreements; see Sugar Agreements, Australia

communal drainage schemes & syndicates, 413–414

Communist Party of Queensland, 622; see also Weil's disease

competition (for cane), 216-220

Compulsory Plant Source Inspection Schemes, 597

computerised process control:

in Australian sugar mills, 748–749; in Australian sugar refineries, 816, 818

'concrete', 97, 181, 188

'concretors', 97, 181, 187

Condong Drainage Union, 413

Condong Mill:

acquired by New South Wales Sugar Milling Cooperative (1978), 751; erection of

710; receives cane by government-owned Company railways, 55, 657; receives cane from Byron cotton industry, Queensland, 44 Bay locality, 55; road transport of cane to, Cottrell-Dormer, W. (plant pathologist), 468, 670, 672; short of cane, 303; tramlines for, 569, 570, 572 205, 659; see also Tweed River district Council for Scientific and Industrial Research; see Condong Plains locality, 402, 413 **CSIRO** Condong plantation, 77, 79, 83, 89, 90, 98, 130, Courtice, Brian (politician), 328 Cowley, Alfred (plantation manager), 54, 155 131 conductivity instruments, 714 Cowley, Ebenezer, 146, 149 conical subsider, 192, 702, 720, 726, 833, 835 Crabbes Creek, 275, 305, 657 Conomos, Denis (author), 613 C.P. cane varieties, 479, 486, 587, 594 Consolidated Fertilisers Ltd., 553 Craig, George, 123, 126 continuous crushing: 24-hour, 186, 192, 193; Cran Brothers & Co., 250 seasonal, 754 Cran, James (sugar planter), 163 continuous pressure feeder, 710, 720, 724, 833 Cran, John, 233 contour banks, 430-432, 451, 453, 454 Cran, Robert & Co. (sugar refiners), 55, 86, 189, contour tillage, 410, 411; see also soil erosion controlled traffic zones (on paddocks), 386 Cran, Robert Jnr, 233 convicts: Cran, Robert Snr (sugar refiner), 81, 175, 231, at Moreton Bay, 26; at Norfolk Island, 21-22; 233; see also Millaquin Refinery & Yengrowing sugar cane at Port Macquarie garie Refinery 1820s, 23; sent to Botany Bay, 21; sugar Crawford, Senator Thomas, 62, 406, 619, 784 rations of, 32 crawler tractors, 351, 359, 362-363 'Cooksland', 27 Crean, Hon. Simon (politician), 328, 820 Cooktown, 49, 296 Creber, Ron and Dick (canegrowers & inventors), coolers, 16 377; see also green cane harvesting cooling ponds, 710 Creole cane variety, 144 cooling towers, 737, 756, 757 Crespin, Godwin (sugar broker), 243 Coomera River, 46, 99 Crichton, William (canegrower & inventor), 647 Coongoon Mill and plantation, 94, 126, 243 Croft, Barry (plant pathologist), 599 Cooper, Sir Daniel, 37, 255 Croker, James (commission agent), 244 Cooper, Premier Frank, 631 crop rotation, 131, 134, 164 cross-pollinations: Cooper government (Queensland), 292, 718 Cooper, Robert (sugar refiner), 35 locations of, 468, 471, 476, 477, 478, 489, cooperative central sugar mills; see central sugar 493, 503; number of, 469, 493, 495, 496, mills, farmer cooperatives 500, 502, 506; methods of, 468, 469, Cooperative Sugar Millers' Association, 753 473, 478–479, 489, 496, 497, 501, 508 coots; see swamp hens crossing lanterns, 478, 489-490, 496, 497, 501, copper deficiency (in sugar cane), 375, 514 Coraki, 78, 177, 305 crushing rates, 709, 715, 731, 749 coral mining, 345, 375; see also lime crushing rollers: Costanzo, Frank and Tony (canegrowers & invendouble crushing, 15, 183, 186, 191, 192; tors), 379 feeding of cane into, 15, 179, 709-710, Cottesloe Refinery (Perth): 724-726; horse-driven, 94, 177, 188; hyboiler and machinery upgrades at, 807, 808; draulic pressure attachments for, 15, 192, bulk handling of raw sugar at, 794; car-193, 833; powered by turbines, 723-724, bonation plant installed at, 808; erected 741; quadruple sets of, 709, 722, 741; (1929-1930), 779-780; output of, 780; quintuple sets of, 709, 722-723, 741; receives sugar from Ord River district, seven sets of, 723; sextuple sets, 723; size

333; see also Colonial Sugar Refining

(1880), 51, 98; machinery upgrades to, 709,

of, 703, 719, 723, 741; treble crushing, Cunningham, Peter, 25 15, 192, 193, 202, 702 vertical, 14, 188; Curlewis, Frederick, 287, 288, 782 see also bagasse & cane carriers Curtin, Prime Minister John, 411, 787, 788 Crystal Brook Sugar Co., 51 cutter planters, 352, 359, 364-365, 576, 581, 588 crystal size (of raw sugar), 728-729, 746, 782 cutting, cane; see canecutters & cane harvesters crystallisation phase, 16, 181-182, 713-714, Czarnikow Ltd., 780 727, 745–746, 756–757 CSIRO, 412, 501, 503, 504, 506, 513, 554 D. 1135 cane variety, 150, 154, 470, 570, 578, CSR, see Colonial Sugar Refining Co. 580, 587 Cuba, 1, 3, 306, 318, 703, 771, 803, 823, 831 Daintree, Richard, 126 Cudgen locality, 659 Daintree River, 50, 316 Cudgen Mill, 200, 202, 237 dairying: canegrowers switch to, 53, 58, 65, 87, 271-Cudgen plantation: area under cane on, 80, 90, 92; established, 272, 303; combined with cane growing, 51; land reclamation on, 275, 402; loca-58, 65, 350; decline in New South Wales, tion of, 79; Pacific Islanders employed on, 305; provides quicker financial returns than 51, 85, 90; Sikhs employed on, 90; sold to cane growing in New South Wales, 65 CSR, 92; subdivided into small farms, 92 Dalbeg, 311, 660, 678 Cullen, Rod (Sugar Research Institute researcher), Dalrymple, George (explorer & public servant), 739 44, 49 cultivation costs, 376, 379 Daniels, Joe (cane breeder), 501 cultivation implements (of sugar cane): Dank's injector, 537 disc ploughs, 137, 343, 364, 379; drill weed-Daradgee locality, 64, 111, 432, 521 ers, 343; harrows, 164, 349; hoes, 124, Dare, Robert (historian), 32 125, 140, 343; horse-drawn, 124, 130, Darkwater Mill, 97, 130, 179, 181 133, 349, 360; ploughs, 124, 140, 379; Darling, Governor Sir Ralph, 25, 32 rippers, 379; rotary hoes, 302, 343, 355, Darwin Botanic Gardens, 50 360, 362, 386, 535, 555, 833; stubble-David North Plant Research Centre, 500, 501, shaver, 352, 378; trash ploughs, 348, 354, 502, 565 355; see also tractors & steam ploughs Davids mechanical cane unloaders, 211, 833 cultivation methods (of sugar cane): Davids, Smith William (mill manager & invenapplying fertiliser, 126, 127, 130, 132, 133, tor), 211, 833 136, 164, 343, 345-347, 353-354, 357-Davidson, John Ewen (sugar planter), 49, 81, 83, 359, 368-373, 382-385; fallowing, 131, 143, 182 322, 376; field creation and design, 123, DDT, 541, 544, 549, 553 Deakin, Alfred, 58, 219 127; green manuring, 131, 132, 134, 164, 354-355, 359, 374, 375; minimum Deakin government (Commonwealth), 60, 219, tillage, 376-380, 386, 454; ploughing, 124, 130, 133, 137, 341-342, 364; Dean, Horace, 96 ratooning, 11, 352, 358, 378, 380-381, Decauville rail, 207 386; soil enhancement, 343-344, 375; Deeral, 404, 440 soil preparation, 124, 378; stone and defence, national; role of Australian sugar indusboulder removal, 123, 124, 133, 361; try in, 112, 785, 834 stubble shaving, 378; stumping, 123, deforestation, 65-66, 361, 835; for firewood, 127-128, 133, 160, 361; subsoiling, 124, 189-190, 194 131, 378, 411; trash blanketing, 378de Keating, Thomas (author), 128 379, 380, 383, 386, 411, 453–455, 556; DeLissa, Benjamin (sugar planter), 99; see also trash conservation, 348, 355; trashing, Delissaville plantation & Riverside Mill 125-126, 130, 133; weed control, 124, Delissa Pioneer Sugar Co., 50 125, 366-368, 379 Delissaville plantation, 75, 85

delivery of sugar (to consumers):

as liquid sugar, 809, 818; in hessian or jute bags, 810; in bulk, 810; in retail packages, 810, 811

Demerara, 81, 148, 202

Denham, Premier Digby, 61, 62, 111, 220

Department of Agriculture, New South Wales:

assists in cane variety improvement, 149, 472; assists in controlling cane diseases, 592; formation of (1890), 129; imports cane varieties during 1890s, 147; promotes green manuring and trash conservation amongst canegrowers, 353; see also Wollongbar Experiment Station

Department of Agriculture and Stock, Queensland: appoints soil conservation officers, 431;
Arthur Bell becomes Under-Secretary of, 571, assists in cane variety improvement, 148-149; formation of (1887), 129, 159; imports cane varieties 1890s, 146–147; prohibits importation of moles to combat cane grub attacks, 161; see also Kamerunga & Mackay State Nurseries

Department of Harbours and Marine, Queensland, 734

Department of Health, Queensland, 629

Department of Local Government, Queensland, 734

Department of Primary Industries, Queensland, 419, 431, 450–451, 452, 453, 454, 507, 513, 602; see also Kairi State Farm & Walkamin Research Station

Department of Public Health, Queensland, 529 Department of Public Lands, Queensland, 45, 293, 557

Department of Public Works, New South Wales, 400

Department of Railways, Queensland, 207, 215, 345

deregulation (of the Australian sugar industry), 318–319, 321, 323–324, 328–329, 815, 834

Derham, Frank, 80, 213 (sugar planter); see also Hambledon plantation

derricks; see cane derricks Despeissis, Jean (field advisory officer), 123 diatomite pressure filtration, 242, 786 Dickson, Acting Judge, 617, 618, 619 Dickson Award, 617, 618, 697 dieldrin, 546, 548, 555 diesel locomotives, 661 diffuser or diffusion unit:

at Broadwater Mill, 200; at Cudgen Mill, 200; at Fairymead Mill, 723; at Inkerman

Mill, 741; at Invicta Mill, 756

diffusion, 15, 200, 723, 741, 756

Directorate of Manpower, 633

diseases (of sugar cane); see cane diseases

displaced persons (DPs), 635–636; see also canecutters

Dixon, James (CSR employee), 294

Doherty, William, 287, 288

domestic sugar rebate, 783, 785, 804

Don Gough trash planter, 365, 380

Donnan, Robert (CSR employee), 402

Donnelly, Bert (engineer), 724

Donnelly shute, 724-725, 726, 833

Doolbi Mill:

competing for cane, 217, 218; converted from a juice mill to a factory manufacturing sugar, 194; closure of (1924), 698; erected (1890), 55, 193; machinery upgrades to, 194, 705

Dorr clarifier, 726

double crushing in Australian sugar mills, 183, 186, 191, 192, 702

double crushing trains (in Australian sugar mills): at Inkerman Mill, 741; at Kalamia Mill, 705; at Marian Mill, 755; at Victoria Mill, 297, 722; proposed at Macknade Mill, 296–297

double pushers, 710

Douglass, William (author), 629

downy mildew (cane disease):

contributes to pre-World War II yield plateau, 512; control methods for, 578, 587, 589, 590, 591; investigations into, 565, 579; present in Queensland, 570; susceptible cane varieties, 573; trials to breed cane varieties resistant to, 572; see also B. 208 cane variety

DPs; see displaced persons

drainage (of cane):

Beenleigh district, 127, 425, 427; Bingera plantation, 134; Cairns district, 414; Clarence River district, 407, 413, 427, 428, 437, CSR's plantations, 130, 132; cost of, 128; Herbert River district, 407–408, 414, 425, 433–434, 436, 439; impact of lack of on sugar cane, 13; lack of,

127, 400–404, 407, 412–413, 435–436; Innisfail district, 423–424, 436; Mackay district, 414; Maroochy district, 404, 414, 433, 439; Mossman district, 433, 439; New South Wales, 400–401, 407, 412–413, 427–429; Ormiston plantation, 127; promoted by CSR, 132, 400–402, 407, 413, 429; Richmond River district, 402–403, 407, 413, 428, 437–439; Tully district, 408, 425; Victoria plantation (Mackay), 133; use of tractor scoops, 408; Tweed River district, 400, 402, 407, 413, 427, 428, 429, 437, 438, 439

drainage process (for making sugar crystals), 16, 177

drainage schemes:

Chinderah, 402; Condong Plains, 402; East Wardell, 402; Garradunga, 310; Keith Hall, 402; Mundoo, 424–425; Ripple Creek, 425; Robb Swamp, 402

drainage trusts and unions, 400, 402, 413, 414 Draper, Alex, 626

drays, 203-205, 210

droopy top (cane disorder), 375; see also trace elements

drop planters, 140–141, 343, 349, 352; see also cane planters

Drynie plantation, 87

Drysdale Brothers & Co.:

advised not to irrigate so much, 139; attitude to land disposal, 105; becomes Pioneer Sugar Mills Ltd. in 1914, 107; builds Inkerman Mill 1914, 63, 111-112; builds tramlines, 208; credit for farmers, 106; farmer debts to, 106; encourages employees to become tenant farmers, 105; leases land to farmers, 91, 105; number of workers allocated by to bagasse drying, 190; pays same price for sugar cane as Australian Estates & Mortgage Co. Ltd., 218; supplies fertilisers to farmers, 136; employs analytical chemist at Pioneer Mill, 200; relations with suppliers, 219; trials plantation agriculture using only Europeans, 91-92; upgrades Pioneer Mill 1890s, 193; see also Pioneer Sugar Mills Ltd. & Pioneer plantation (Lower Burdekin)

Drysdale, George (sugar planter), 59, 133 Drysdale, John (sugar planter & mill manager): and Inkerman Estate irrigation, 397; attitude to Chinese canegrowers, 107; credit for farmers, 106; develops spear principle, 135–136; faces firewood shortages at Pioneer Mill, 195

Duggan, John (politician), 312

Dulverton plantation, 85

Dumbleton plantation, 87, 90

'dummying', 80

Duncan Stewart & Co. (sugar mill machinery maker), 184, 192, 701

Duncraggan plantation, 83, 86, 163

Dungeness, 215

Dupont cane variety, 160, 161

Dupont, Daniel (sugar boiler), 197

Duval, Louis (sugar boiler), 197

dwarf disease, 572, 587, 580

Eagleby Mill, 272, 351

East Moreton Farmers' Association, 92

Easterby, Harry (chemist and BSES Director):

acknowledges the need for BSES assistance to mill-owners, 703; comments upon extent of machine planting in Queensland, 343; comments upon Piddington Royal Commission, 773; concludes that the BSES needs a plant pathologist, 569; criticises performance of Queensland' sugar mills, 203, 702; evidence to Gunn Royal Commission, 1930, 349; evidence to Piddington Royal Commission, 1919, 702; initiates cane variety improvement program, 467, 468; member of Harris Royal Commission, 276; supports the practice of trash burning, 347–348; testing cane varieties, 149, 150

Eatonvale plantation, 79

economisers, 195

EEC; see European Economic Community effers:

evaporating surface of, 727, 744, 757; manufactured by Walkers Ltd., 185; use of quadruple effets, 192, 202, 699, 703, 711, 721, 727; use of quintuple effets, 192, 202, 711, 721, 727, 757; use of sextuple effets, 757; use of triple effets, 183, 186, 192, 193, 699, 701, 703, 711, 719; use of effets pioneered in Australia by CSR, 183–184

effluent ponds (at Australian sugar mills), 733 effluent treatment plants (at Australian sugar mills), 735, 736, 737, 740 Egan, Brian (plant pathologist), 580, 597, 602, Eigenhus, Ir. J. (mill technologist), 707, 708 Eight Mile Plains, 583 Eimcobelt vacuum filters, 727 El Arish, 274, 379, 440 electric motors (in Australian sugar mills), 712, electricity-generating plants (in Australian sugar mills), 712, 717, 719, 729 Elliott River, 405 electrification and steam economy in Australian sugar mills, 712 electrification of Australian sugar mills, 202, 712, 717, 719, 729 embargo on sugar exports from Australia, 769, embargo on sugar imports into Australia, 276, 318, 324, 621, 770, 774, 784, 814, 815, English immigrant labourers; see British immigrant labourers entrainment arrestors, 727, 744 entrainment prevention, 727, 744 environmental protection (legislation for in Queensland), 735-736, 738-739 environmental protection (legislation for in New South Wales), 740 Equalisation Scheme, 285-287 erosion: see soil erosion ethanol, 732 Eton, 101, 207 Eton Irrigation Area, 325, 448 Etwell, Cecil (inventor), 365 Etwell billet planter, 365 European Economic Community (EEC), 318, 803 European labour (in Australian sugar industry): use of encouraged by excise and rebate system,

58-59; used on sugar plantations, 84-85, 130, 133; wages for, 60-62 European ploughmen, 130, 133 Europeans (capacity to live and farm in the tropics), 89 Evans Deakin Industries Ltd., 701 evaporation (of cane juice): batteries of open pans, 15, 181, 183; historical, 15-16; multiple effets, 183, 711-712, 727, 744-745; see also entrainment prevention evaporators; see effets excess sugar, 280, 289, 301, 302, 303, 310, 313

excise and rebate system, 58-59, 63, 341 expansion of Australian sugar industry: 1864-1874, 45-49; 1878-1884, 50-52; 1893-1900, 56-58; 1920s, 273-276; 1930s, 282, 285; 1950s, 293-306; 1960s, 307-312; 1970s, 313-315; 1980s, 315-318, 322–325; 1990s, 329–333 export markets (for Australian raw and refined sugar) Asia, 803, 820, 821, 823; British Malaya (Malaysia), 801, 803, 821; Canada, 296, 780, 801, 803, 821; China, 803, 820, 821; Great Britain, 277, 280, 284, 285, 292, 780, 801, 803; New Zealand, 801, 821; Japan, 796, 801, 803, 821; Papua New Guinea, 823; Russia, 803, 821, 823; Singapore, 803, 821; South Korea, 803, 821; Taiwan, 823; USA, 803, 823 export quotas; see International Sugar Agreement export sugar rebate (Commonwealth of Australia), 773, 776, 777, 785, 804 extraction (of cane juice): by crushing rollers, 14-15; by diffusion, 15, 200, 723, 741, 756; historical methods of, 14-15 extraneous matter, 643-644, 662 factories, see sugar mills Fairgrieve, Andrew (analytical chemist & CSR employee), 189, 197, 198 Fairydale and Moore Park Settlement Scheme, 299-300 Fairymead mechanical cane harvester, 625, 646, 647, 649 Fairymead Mill: cane cleaner installed (1940), 717; computerised process control adopted in, 749; CSR considers purchase of, 251; difficulties in selling its mill whites, 253; diffuser installed, 723; disposal of fly-ash at, 739; erection of, 186; experiments with apron feeders at, 724; filterability of sugar from criticised by CSR, 781; loss of assigned land to competing crops, 322; machinery upgrades to, 192, 713, 719, 723, 744; Kolan River and Isis districts, 217; tramlines at, 207; see also Young, A., H. & E. (Bundaberg)

Fairymead plantation:

area under cane on, 80; crop rotation practiced on, 134; CSR considers purchase of, 251; Gilbert and Ellice Islanders employed on, 90; irrigation at, 136; mechanical cane stripper employed on, 365; mechanical harvesting of cane on, 625, 631, 645–646, 717; night harvesting at, 665; operates beyond 1904 using only European workers, 92; steam ploughs on, 349; see also Young, A., H. & E. (Bundaberg)

Fairymead Sugar Co. Ltd.:

combats Fiji disease outbreaks on its plantations, 592, 593; employs Aboriginal canecutters during World War II, 630; extends irrigation on its plantation, 405; introduces mechanical harvesting on its plantation, 646; invests in Howard Cane Harvesters Ltd., 625; organises Fairydale and Moore Park Settlement Scheme, 299–300; part of company merger to form Bundaberg Sugar Co., 749; patented its mechanical cane harvester, 646; see also Bundaberg Sugar Co.

Falkiner cane harvester, 624, 638; see also cane harvesters

Falkiner, Ralph (grazier & inventor), 623

Fanning, Edward (merchant), 83

Fanning, Nankivel & Co. (merchants & sugar brokers), 243, 245, 254

Farleigh Cooperative Sugar Milling Association, 281

Farleigh Estate Sugar Co. Ltd., 91 Farleigh Mill:

adopts relative percentage scheme, 697; boiler station upgrade at, 747; ceases manufacturing mill whites, 248; crushing rate at, 731; loss of assigned land to urban expansion, 322; machinery upgrades at, 705, 709, 712, 741, 755; manufactures mill whites, 236; mill peak of, 281; receives cane by government-owned railways, 657; tramlines at, 208, 659; treatment of waste waters at, 732, 736, 737; waste water from, 734

Farleigh plantation, 88, 90, 91, 134 farmers; see canegrowers

farm peaks, 289

Farquhar, Walter (CSR's Inspector of Mills), 132, 154, 194

Farquhar, William (sugar planter), 160

Federation of Australia, 58

Federation of Chambers of Commerce Far North Queensland, 733

feed chutes; see Donnelly shutes

feeder, continuous pressure, 710, 720, 724

feeding devices (of cane into crushing rollers):

apron, 724; continuous pressure, 710, 720, 724; Donnelly chutes, 724–725, 833; horizontal and vertical pushers, 705, 709, 724, 833; SRI, 725–726; toothed pressure, 726

Feinc string discharge filter, 727

feral pigs (in sugar cane), 540, 550, 556, 557

Ferguson Wood, E.J. (plant pathologist), 404, 569, 576

Ferney plantation, 126

Ferricks, Miles (politician), 258, 259

fertiliser distributors, 343, 364, 379, 380, 384, 542, 543

fertilisers:

aqua-ammonia, 371, 376; bagasse, 126, 127, 130, 133; BSES mixtures, 353-354; filter muds, 357, 712-713, 732; fly ash, 130, 739, 740; guano, 126, 134, 347; inorganic, 347, 352, 357, 368, 370, 371; manufactured by CSR, 131; meatworks manure, 134, 347, 368; molasses, 130, 347, 353, 357, 368; organic, 347, 371; price of in Australia, 346, 372, 373, 376, 383; rationing of during World War 11, 358-359, 360; shortages of, 358-359, 360; spread mechanically, 164, 343; sulphate of ammonia, 347, 354, 358, 371, 372, 383, 385; superphosphate, 130, 134, 186, 347, 369, 371, 376, 383; supplied by milling companies, 130, 136; suppliers of, 130, 136, 345, 347, 357, 371, 372, 373, 383; urea, 371, 372, 376

fertilising (of cane);

amount applied per ha, 357, 359, 369, 373, 383; cost of, 376; cattle penning, 126; extent of reduced during World War 11, 359; green manuring, 131, 132, 134, 164, 354–355, 359, 374; guided by foliar analysis, 370; improved application rates after 1920, 347; limited use of before 1900, 126; recommended rates for, 370, 373,

382-383; soil analysis for, 126, 347, 370; trials about, 131, 354; use of aqua ammonia, 371, 376, 383; use of bagasse, 126, 130, 133; use of guano, 126, 134, 347; use of meatworks manures, 134, 347, 368; use of mill by-products, 126, 127, 130, 133, 136, 357; use of molasses, 130, 347, 357, 359, 368, 371; use of superphosphate, 134, 186, 347, 369, 371, 376, 383; use of urea, 371, 372, 376, 383, 384, 385 fields; see paddocks CSR's plant breeding facility in, 471; sugar industry in devastated by Fiji disease, 565; sugar imports from, 771 Fiji disease: breeding Fiji disease resistant cane varieties, 498, 501, 507, 594-595; BSES investigations into, 571, 573, 594-595; cane varieties susceptible to, 509-510, 571, 572, 592, 593, 604; control methods for, 577, 589, 592-595, 603, 604; discovery of insect vector of, 573; identification of, 566, 568; outbreaks of in Australia, 472, 503, 570, 575, 584, 591-592, 600, 603; outbreaks of in Fiji, 565 filterability (of Australian refining sugars):

filter cake or press, 712 filter muds, 357, 700, 712-713, 726, 732 filter presses, 700, 712, 721, 726

causes of poor, 726; complaints about, 726, 781, 801; good filterability preferred by

refiners, 714 filters; see rotary vacuum filters Finch Hatton, 63, 209, 218, 410, 429 Finnish immigrants (to Australia), 109, 637 Fiona (ship), 214 fires; see cane fires firewood (for sugar mills), 84, 189-190, 194,

209, 710

fish kills (in watercourses near Australian sugar mills), 733, 734

Fisher, Prime Minister Andrew, 60, 261 Fisher government (Commonwealth), 220, 259,

Fisherfield Mill and plantation, 126, 127, 212 First Fleet, 21

Fitzgerald, Dr Ross (historian), 797

Fitzgerald, Thomas (sugar planter), 184; see also Te Kowaii Mill & Innisfail plantation

Fives Lille & Co. (sugar mill machinery maker, Paris), 184, 197, 200

Flaminia (ship), 636, 637

Flat Top Island, 213

Fletcher, George & Co., (sugar mill machinery maker, Derby), 184, 701

Fletcher, Stewart Ltd., (sugar mill machinery maker) 744; see also SRI clarifier

flocculants, 726, 744

flood or furrow irrigation, 400, 442-443

flood mitigation (in sugar-producing districts), 408-409, 427-430, 433-434

floods, 49, 79, 81, 409, 427, 429-430

Florida (as a source of cane varieties), 499, 503 fly-ash:

disposal of, 450, 739, 740; methods to reduce amount of, 739, 740; troubles residents near sugar mills, 731-732, 738; used as soil amelioration agent, 450

fly-ash arrestors, 738, 739, 740 fly-ash dewatering plants, 739 fodder cane plots, 574, 592

Foley, Ben, 302

foliar analysis, 370

Food and Agriculture Organisation (FAO), 806

Food Prices Boards, 261 Foresthome locality, 407

Formiatti, Denis, 615

Forrest, Edward, 256 forty-hour week (in Australia), 719

Foulden Mill and plantation, 81, 182, 237, 244

Foveaux, Lt. Col. Joseph, 22

Fowler, John & Co. (railway equipment manufacturer), 207

fractional liming, 707, 708, 715, 833

Francis, Grosvenor, 705; see also Doolbi Mill

Fraser government (Commonwealth), 318, 448

Freeman, Hunter (CSR employee), 292, 524, 525

Fred Haig Dam, 420

Freighter Multi-Lift system, 667-668, 672

Frenchi cane beetle; see cane beetles

Freshwater, 271, 476, 477

Froggatt, Walter (entomologist), 163

front-end cane loaders, 639, 640, 641, 642, 643 frost:

damages crops of sugar cane in New South Wales, 48-49, 131-132; damage crops of sugar cane in southern Queensland, 52, 57, 132; damage crops of sugar cane at

Fiji:

Rockhampton, 49; forced abandonment of cane growing in parts of New South Wales, 48; impact of on cane plants, 12–13

frost-resistant cane varieties, 503

frost reduction trials, 131-132

fruit; see tropical fruits

fruit industry, Australian, 782, 783, 784

Fruit Industry Sugar Concession Committee, 783, 785, 804

fuel (for sugar mills):

bagasse, 189–190, 194, 711, 747; coal, 195, 711; firewood, 189–190, 194, 209, 711; furnace oil, 747; molasses, 732; sawdust, 747

fugal, see centrifugals

fungicides, 365, 582, 588, 599

funnel ants, 555

furnace oil, 747, 748

Fusion Ministry, 219

Gair government (Queensland), 793

Gair, Premier Vincent, 793

Gairloch Mill and plantation, 81, 83, 84, 89, 243

'Gammexane'; see BHC

ganger, 613, 614

Gard, Kenneth (CSR field technical officer and cane breeder), 471, 500, 529

Garradunga locality, 310, 432, 654

Garside, Dr Alan, 514, 515

Gatton Agricultural College, 129

Gaunt, J.K. (Ken) (engineer), 649

Gentlemen's Agreement, 621–622; *see also* British Preference League

German immigrants (to Australia), 85, 89, 105, 109, 252

German wagons, 203-204

Ghidella, Remo and Guido (canegrowers), 377

Gibbs Committee of Inquiry (1963), 307-308

Gibbs, Mr. Justice Harry, 307

Gibson, Angus (sugar planter), 218, 254; see also Bingera plantation & Bingera Mill

Gibson, Dr Arthur J., 110; see also Ranking Royal Commission 1911

Gibson & Howes Ltd.:

attitude to land disposal, 105; builds a dam to impound effluent, 734; builds railways, 208; builds weir on Burnett River, 405; decides to maintain plantation agriculture, 92; experiment with molasses as a fertiliser, 347; extends irrigation to canegrowers, 405; manufacture of mill whites, 236, 253; mechanises cultivation methods, 351; part of company merger to form Bundaberg Sugar Co., 749; see also Bingera Mill & Bingera plantation

Gibbs, Bright & Co. (merchants & sugar brokers), 95, 244, 245, 250, 254

Gilbert and Ellice Islands, 90

Gillies, William (politician), 569, 774

Gilpin, Dr Alan, 738

Gin Gin Central Mill:

bagged sugar at, 796; erection of, 56; fails to operate from 1901–1903, 110; financial difficulties of, 303; machinery upgrades to, 723, 729; mill peak at increased, 303, 306; SRI clarifier installed at, 744

Gin Gin district, 56, 57, 432

Gipps, Governor George, 26

Girault, Alexandre (entomologist), 164, 523

Giru, 209, 274, 447

Giru Weir, 447

Givens, Thomas (politician), 256

Glanville Refinery (Adelaide):

bulk handling of raw sugar at, 794; carbonation plant installed at, 808; closure of (1991), 817; destroyed by fire (1926), 779; erection of (1891), 238; ionexcluding resin used at, 808; machinery upgrades to, 807; see also Colonial Sugar Refining Company

Glasgow, 2, 184

Glasziou, Dr Kenneth, 501; see also David North Plant Research Centre

gold discoveries, 45, 83, 185

Golden Circle Cannery, Brisbane, 818-819

golden syrup, 238, 786, 809

Goldfinch, Sir Philip, 280, 282

Gooburrum locality, 420, 591, 661

Goodwood Island, 96

Goodwood locality, 399, 661

Goodwood Mill, 201, 202, 250, 251, 698

Goodwood plantation, 83, 92, 134

Goondi Mill:

assignments transferred to Babinda and Mourilyan Mills (1987), 752; closure of (1987), 504, 527, 752; cooling tower erected at, 737; effluent treatment plant at, 737; historical records of, 6; loss of assigned land to, 322; machinery upgrades to, 710, 719; sugar exports from, 798,

799; weevil borer damage to cane supplied to, 532

Goondi plantation:

area under cane on, 90; Chinese tenants on, 107; control measures against cane beetles and grubs, 160; founded by CSR, 83; stump removal on, 128, 160; trashing of cane on, 130

Goondi Voluntary Pest Control Board, 527, 529 Gordon, Sir John, 62, 259

Gordonvale, 274

Goru cane varieties, 150, 151, 152, 153, 470, 521, 571

Goss government (Queensland), 326 Gough, Peter (canegrower & inventor), 365 Goulburn, Frederick, 23, 24 Government Domain, Brisbane, 477, 582 grasshoppers, 155, 538, 540, 549 Grafton, 93, 142, 816, 821 Grafton Experiment Station, 472 granulated activated carbon, 818, 819 Great Barrier Reef, 345, 836 Great Britain:

conference on forming Commonwealth Sugar
Agreement in, 294; conference on regulating international sugar production in,
282; exports of refined sugar to Australia,
32; imports of raw sugar from Australia,
277, 284, 292, 294–295, 780, 781, 801,
803; immigrant farmers sought from, 104;
joins EEC, 803; preferential tariff on sugar
from the Dominions, 780; refiners in demand lower strength sugars, 780; sugar
consumption in, 32, 786; workers from
recruited for sugar plantations, 88, 105

Great Depression (in Australia), 783, 784, 786 Greeks (in Australia), 275, 806 Green's General Foods Pty. Ltd., 815 green cane harvesting, 377–378, 385, 556

Green Hill Estate, 524, 525, 526 green manuring, 131, 132, 134, 164, 348, 354– 355, 359

Greenwood Mill, 193

greyback cane beetle; see cane beetles Griffith, Sir Samuel Walker:

> as Premier of Queensland, 52, 54, 55; opposition to Pacific Islander labour, 52, 86; promotes central milling system in Queensland, 100–101, 112

Griffiths, Fanning & Co., (merchants), 35

Grimes, Samuel and George (sugar planters & retailers), 94, 126, 243

Groom Royal Commission (1889), 54, 73, 80, 99, 107, 528

Groom, William Henry, 54

guano, 126, 134

Gumlu, 271, 308

gumming disease:

cane varieties resistant to, 150, 152, 154, 470, 578; cause of, 568; control measures for, 146, 575, 576–577, 590; description of, 144, 568; investigations into, 568, 571, 576, 579; losses from, 145; outbreaks of between 1893 and 1903, 57–58, 144–146, 153, 154; outbreaks of post–1910, 467, 470, 471, 474, 568, 570, 587; susceptible cane varieties, 469, 470, 568

Gunn, Hon. John, 782

Gunn Royal Commission (1931), 349, 350, 782–783, 787

Gutteridge Haskins and Davey Pty. Ltd., 425, 433, 434; see also flood mitigation

Gyles, John, 22-23

Gympie:

cane growing near, 330, 749; gold at, 45, 83, 185

gypsum, 450

Habana Mill, 200

Habana plantation, 89, 90, 160, 208

Hale, David (Sugar Research Institute researcher), 744

Halifax, 213, 409

Hall, Melmoth, 128

Halpin vacuum pan, 721

Hambledon Cane Nursery, 146, 150, 468, 500 Hambledon Mill:

acquired by CSR (1897), 193; assignments transferred to Mulgrave Mill (1991), 752; bagged sugar exported from, 796; ceases to manufacture mill whites, 248; closure of (1991), 752; connected to Trinity Inlet wharf by a tramline, 213, 215; erection of, 186; experiments at with mechanical cane unloaders, 211; historical records of, 6; landlocked, 325; loss of assigned land to, 322; machinery upgrades to, 193, 709, 710, 711, 713; manufactures mill whites, 236; sugar exports from, 213, 215; suppliers of refuse to harvest cane, 665

Hambledon Mill Suppliers' Committee, 638, 644 Hambledon plantation:

acquired by CSR (1897), 193; Chinese tenants on, 107; subdivided into small farms, 90; tropical fruit cultivation on, 80; see also Swallow, Thomas

Hamleigh plantation, 54, 83, 88, 155; see also Cowley, Alfred

Hanlon government (Queensland), 295, 300, 414, 789

Hanlon, Premier Edward ('Ned'), 294, 295, 788

Harbour Boards (Queensland), 794-795

Hardings Manufactures Pty. Ltd., 818

Harman, Roy (CSR chemist), 626

Harper, Hon. Neville, 324, 325, 816

Harper, Robert & Co. (importer), 245

Harris Royal Commission (1922), 275-276

Harris, William, 275

harvester groups; see cane harvester groups

harvesting, cane; see cane harvesting

harvesting, night, 655, 665

Harwood Island, 48

Harwood Mill:

acquired by New South Wales Sugar Milling Cooperative (1978), 751; boiler station upgrade at, 747; distillery attached to, 214; erection of (1873), 97; fly-ash arrestors installed at, 740; machinery upgrades to, 183, 192, 710, 711; receives last load of manually cut cane in New South Wales, 652; road transport of cane to, 672; sextuple effet at, 757; sugar refinery erected beside, 331, 815–816

Hastings River district, 23, 93, 181 Haughton River:

> flooding of, 433; flood mitigation along, 433; Giru Weir built on, 447; pollution of, 734; Val Bird Weir built on, 447

Haughton River district:

area of irrigated cane in, 399; bacterial mottle disease discovered in, 583; cane first cultivated in, 63; cane sent to Pioneer Mill, 63, 209; connected to Townsville by railway, 209; irrigation in, 399, 447; sugar mill erected in (1918), 209, 698

Haughton Sugar Co. Ltd., 282, 653, 722; see also Invicta Mill

Hawaii:

as a source of cultivation implements, 352; as a source of cane varieties, 143, 489; as a

source of milling innovations, 709; cane toads imported into, 535; damage to sugar cane in from weevil borer, 522; plant breeding techniques in, 468, 496; sugar experiment station established in (1895), 137; sugar millers troubled by extraneous matter following adoption of mechanical cane loaders, 644; visited by John Inverarity, 706; visited by Norman Bennett, 703

Hawaiian Sugar Planters' Association:

disseminates standarised milling results, 706; entomologist of, 521; Experiment Station of, 137, 473, 489, 495; forms Technological Department, 706

Hawke government (Commonwealth), 323, 448,

Hawke, Prime Minister Robert (Bob), 319, 320

headlands, 366, 367, 455, 654

heavy duty shredders, 743-744

Heck, Frank (mill-owner), 715; see also Rocky Point Mill

Heck, W.H. & Sons Pty. Ltd., 427, 718

Heck, William (mill-owner), 96, 701

Helensvale plantation, 127

Heinemann, Henry (mill-owner), 250

heptachlor, 548, 555

Herbert Cane Protection and Productivity Board, 527

Herbert, Premier Robert, 43

Herbert River:

discharge of waste water into from sugar mills, 736; erosion of river banks, 408–409; flood mitigation along, 409, 430; flooding of, 79, 409, 430, 433, 434; proposed dam on, 434

Herbert River Canegrowers' Executive, 637, 638 Herbert River district:

Aborigines employed as field labourers and canecutters in, 341, 631, 635; area under cane in, 46, 51, 56, 64; cane burning in, 627, 628, 629; cane first cultivated in, 46; cane grub attacks in, 158, 547; cane varieties in, 152–153, 470, 506, 509; collecting cane beetles in, 526; common rust disease outbreaks in, 599; drainage improvements throughout, 127, 407–408, 414 439; exports of sugar from, 213; flood mitigation in, 409, 430; growth in number of canegrowers in during the 1960s, 310; gumming disease outbreaks in, 144, 467, 471,

566, 568, 577, 578; hand collection of cane beetles in, 160; Italian canegrowers in, 133, 275; land suitability study for, 749; mosaic disease outbreaks in, 565; new assignments in, 310, 325, 330; night harvesting in, 655, 665; number of tractors in, 351; rat damage to crops in, 529; rat poisoning campaigns in, 528, 529, 530; rezoning of assignments in, 660; 'root rot' outbreaks in, 598; 'rust' disease outbreaks, 143; strikes of canecutters in, 627–628; swarms of grasshoppers in, 155; use of arsenic against cane grubs in, 526; weed control in, 368; wireworms prevalent in, 533; see also Victoria, Ripple Creek & Macknade Mills

Herbert River Improvement Trust, 409, 430 herbicides, 366–368, 376, 379, 386, 429 hessian bags, 780, 787, 807, 810

Heussler, Johann, 85; see also Pimpama plantation High Court of Australia, 257, 259, 693, 783

Higman, Professor Barry (historian), 74

Hill, Walter, 28

Hindus; see canecutters, Indian

Hinchcliffe, John (sugar planter), 128, 141

Hinchinbrook Channel, 215

Hinchinbrook Island, 345

Hinchinbrook Shire, 530, 629

Hinchinbrook Shire Council, 209, 409, 436

Hirst, John B. (historian), 32

Hitchcock, Brian (entomologist), 552, 555

Hodge cane planter, 352

Hodge, Charles (implement manufacturer), 352

Hodgkinson, William, 100; see also central sugar mills, Queensland

Hogarth, Dr Douglas ('Mac') (cane breeder), 496, 503, 507, 513

Houlbourne Island, 347

Homebush Mill:

closure of, 698; erection of, 186; restrictions on cane varieties grown for, 153–154; suppliers of agitate for Local Cane Prices Board, 698; suppliers prefer Malagache, 154; storage pond for waste waters at, 732; waste waters from pollute Sandy Creek, 732

Homebush plantation, 83, 84, 130, 131, 132

Home Hill, 63, 397, 409

Home Hill district:

cane first cultivated in, 63; Inkerman Irrigation Scheme in, 397, 398, 406; irrigation of cane in, 397; pineapple disease control trials in, 581; settled in 1910s, 63, 397; South Burdekin Water Board in, 417, 419; see also Inkerman Estate & Inkerman Mill

Hong Kong, 254, 255

Hope, Captain Louis (sugar planter), 28, 43

horizontal pushers or pusher feeders, 705, 709, 724, 833

horses:

replaced by tractors, 342–343; used in ploughing, 124, 130, 341

hot water treatment (of setts), 579, 584, 589, 596, 601, 602, 604

hot water treatment tanks, 589, 601, 602, 604; see also ratoon stunting disease & chlorotic streak disease

Howard, Arthur Clifford (inventor), 625; see also rotary hoe

Howard Cane Harvesters Ltd., 625

Howard, John (sugar planter), 99

Howard Smith and Co. (shipping agents), 214, 215

Howard Smith Industries Pty. Ltd., 749, 753

Howes Brothers (merchants), 243; see also Bingera plantation

Hughes, Cecil Graham (plant pathologist), 477, 482, 487, 489, 545, 579, 587

Hughes, William Morris ('Billy'):

attacks on CSR, 258, 261, 771; increases price of sugar in Australia, 273, 618, 619, 774; investigates sugar shortage (195), 769; ignores recommendations of Piddington Royal Commission, 774; makes agreement with CSR, 770

Hughes Nationalist government (Commonwealth), 774, 775

Hummock locality, 414

Hummock plantation, 160

Hungerford, Linda (historian), 311

Hunter River, 48

Hurrey, Charles (machinery inventor), 623

Hurrey, James (machinery inventor), 623

Hutcheon, John, 292

hydraulic pressure attachments and mill feeding, 15, 192–193, 833

Hyne, William (sugar planter), 81

Icery's monosulphite of lime process, 182, 186, 197

icing sugar, 16, 787, 809

Illingworth, Dr James (entomologist), 523, 524, 526

import embargo on sugar to Australia, 276, 318, 324, 621, 775, 776, 784, 814, 815, 834 imbibition, 15, 710; see also maceration implement sheds, 654-655 imports (of cane varieties); see collecting expeditions for new cane varieties imports of sugar into Australia: duties on, 38; from Bengal, 31; from Fiji, 771; from Great Britain, 32; from Hong Kong, 254; from India, 31, 32; from Java, 235, 237, 238, 254, 769, 771; from Mauritius, 32, 36, 255; from the Philippines, 31, 36, 235; from Taiwan, 233, 771 Incitec Fertilisers Ltd., 383, 554 indentured workers, 53, 83-85, 91, 834 India:

as a source of sugar imports into Australia, 31, 32; as a source of cane varieties, 481, 504 Indian cane varieties; see Co. cane varieties Indian myna birds, 155, 160, 835 Indians (immigrants to Australia), 90-91, 105 individual analysis (of the sucrose content of sugar cane), 155, 488, 691, 697; see also cane payment formula

industrial troubles, sugar industry; see strikes Industries Assistance Commission, 318-319, 775 Industry Commission, 327-328

Ingham Line locality:

cane first cultivated in, 274; rezoning of assignments in, 660; voluntary pest board in, 527

Inkerman Estate, 63, 111, 361, 397 Inkerman Irrigation Scheme, 397, 398, 406 Inkerman Mill:

acquired by CSR (1987), 752; boiler station upgrade at, 747; continuous centrifugals at, 757; continuous vacuum pan installed in, 756; crushing rate at, 731; diffuser at, 741; erection of (1913), 63, 111-112; fails to operate in 1915, 397; Japanese workers at, 620; machinery upgrades to, 709, 723, 727, 729, 744; mill peak of, 281, 282, 286; second milling train at (1975), 741

Innes, Alexander, 776 Innisfail, 64, 276 Innisfail district:

> Aborigines employed as field labourers in, 341; area under cane, 50, 56, 64; banana farms in, 275, 411; canegrowers diversify

into other crops in, 322; cane grub attacks in, 158, 522, 553; cane toads released in, 535; central mill erected at South Johnstone, 111; Chinese canegrowers in, 105; drainage improvements throughout, 407, 423-425; exports of sugar from, 799; German immigrants to, 89; hand collection of cane beetles in, 159; night harvesting in, 665; rat damage to cane in, 529; rat poisoning campaigns in, 528, 529; 'root rot' outbreaks in, 598; soil conservation measures in, 432; soil erosion in, 451; soil fumigation against cane grubs in, 525; strikes of canecutters in, 628; sugar exports from, 798, 799; weevil borer damage to crops, 521, 532; see also Goondi, Mourilyan & South Johnstone Mills, Innishowen Mill & plantation & Innisfail & Mourilyan plantations

Innisfail plantation, 88, 407 Innishowen Mill and plantation, 89, 197, 207 insecticides:

aldrin, 548, 555; BHC, 487, 541-544, 546, 547, 548, 552, 553; chlorpyrifos, 552, 553, 554, 555, 556; dieldrin, 546, 548, 555; DDT, 541, 544, 549, 553; ethoprophos, 551, 552, 553; fensulfothion, 552, 553; heptachlor, 548, 555; lindane, 546, 548; suSCon®Blue, 552, 553, 554, 555; terbufos, 552, 555, 556

insects; see pests (of sugar cane) intermediate carriers, 722

International Society Sugar Cane Technologists, 535, 626

International Sugar Agreement:

creation of 1937, 285; non-renewal of, 306, 311, 313, 318; objectives and effects of, 285; post-World War 11 renewals of, 300-301, 306, 313, 315

Interstate Commission, 261, 773 introgression breeding (of cane varieties), 501, 502 Inveragh plantation, 126 Inverarity, John (mill manager), 296, 706 Inverness Mill and plantation, 79, 81, 190

Invicta Mill (Haughton River district):

acquired by CSR (1975), 751; boiler station upgrade at, 747, 756; continuous vacuum pan installed in, 756; diffuser at, 756; extensions of tramlines for, 678; machinery upgrades to, 720, 722, 741, 756

mill peak of, 281, 282; pollutes Haughton River, 734; road transport of cane to, 670; re-erected at Giru, 209, 698; receives cane from Clare, Dalbeg & Millaroo, 660, 678; receives cane from the Ingham Line locality, 274, 660; receives cane by government-owned railways, 657; rezoning of assignments to, 660; see also Haughton Sugar Co. Ltd.

Invicta Mill and plantation (Kolan River district), 90, 92, 205, 209, 698

Ipswich district:

area under sugar cane, 52, 65; cane first cultivated in, 45; cane growing combined with dairying, 65; contraction in cane growing, 271; cotton growing in, 44; cultivation methods of canegrowers, 125; frostprone, 45, 79; important cane varieties in, 154; small millers in, 94–95; see also Woodlands Mill and plantation

Irrawarra plantation, 175 irrigation (of sugar cane):

Airdmillan plantation, 134; area irrigated, 399, 414, 441, 448; Bingera plantation, 136, 399; BSES critical of methods of, 400, 445; Bundaberg district, 136, 405, 414, 419-420, 441; Cairns district, 414, 449; causes soil salinity, 450; cost of, 136, 398; CSR's plantations, 130; Fairymead plantation, 136; flood or furrow, 442, 449, 450; Haughton River district, 447; Homebush plantation, 130; Home Hill district, 397-398; Isis district, 420; Kalamia plantation, 134; Lower Burdekin district, 51, 133-135, 397- 399, 406-407, 415, 417-418, 448, 449; Mackay district, 405, 414, 441-442, 448; Maryborough district, 441, 447, 449; number of irrigators, Queensland 136, 398; overhead, 443, 449; Palms plantation, 136, 405; Pioneer plantation (Lower Burdekin), 133-135; Proserpine district, 414, 441, 448; Qunaba plantation, 136; Seaforth plantation, 134; spear system, 135-136, 397, 399, 414, 441; spray or sprinkler, 406, 414-415, 443-444; travelling irrigators, 444; trickle, 449; Victoria plantation, 130

Irrigation and Water Supply Commission, Queensland, 404, 405, 407, 409, 417, 419, 420, 425, 436, 441, 447

irrigation methods; see irrigation (of sugar cane)

irrigation scheduling, 450

irrigation schemes (in Queensland), 397–398, 406, 419–420, 441–442, 447–448

Irvin, John (inventor), 379

Isis Central Mill:

boiler upgrades at, 711, 756; machinery at time of erection, 193; machinery upgrades to, 701, 709, 712, 719; supplies New Farm refinery with raw sugar, 240; tramline network for, 656, 659; treatment of waste waters at, 734

Isis Central Sugar Mill Co. Ltd., 659, 698, 756
Isis district:

area under cane, 56, 57; cane burning in, 627; cane from sent to Fairymead Mill, 217; cane grub attacks in, 158, 522, 553; cane first cultivated in, 55; CSR erects sugar mill in, 56; exports of sugar from, 215; Fiji disease outbreaks in, 591; frost-prone, 13, 132; frost reduction experiments in, 132; gumming disease outbreaks in, 57, 144, 568, 570; important cane varieties in, 154; irrigation of sugar cane in, 420; juice mills in, 55, 193-194; land suitability study for, 749; mill-owners compete for cane in, 217; Pacific Islander canegrowers in, 105; R. Cran & Co. erects sugar mill in, 55; soil conservation experiments in, 430; soil conservation measures in, 431, 452; soil erosion in, 410, 411, 412, 432; soil fumigation against cane grubs in, 525; soldier fly infestations in, 547; swarms of grasshoppers in, 155; see also Isis Central, Doolbi & Childers Mills & Cran, Robert Snr

Isis Junction, 194

Isis Land Use Committee, 432

Island plantation, 87

Italian immigrants (to Australia), 88, 636–637, 806

Italians (and the Australian sugar industry):

as canecutters, 88, 109, 275, 630, 636–637; as farmers, 105, 109, 132, 275, 568; cultivation methods of, 132; discrimination against, 622; internment of during World War II, 630; purchase farms, 275; support for the Communist Party of Queensland, 622

Italy, 637

JA brand of sugar, 801, 803 Jacobs, Charles & Sons (sugar importer), 238, 245, 254, 255

jam manufacturers (Australian), 254, 773, 774, 705; firewood shortage at, 194; machin-782, 785 ery upgrades to, 701, 703-704, 709, 719; refining process trialed at, 818; Jamaica, 147 Jamaica train, 15; see also clarification trial of continuous boiling at, 746; see Japan (as a sugar market), 796, 801, 803, 821 also Australian Estates & Mortgage Co. Japanese immigrants (to Australia): Ltd. as canegrowers in Queensland, 105; as planta-Kalamia plantation: tion and mill workers, 1, 90, 107, 210, acquired by Australian Estates & Mortgage 620; hired by canegrowers, 105 Co. Ltd., 88; controlled by mortgagee, Jarra Creek locality, 292, 300 88; establishment of, 82; irrigation of Jarvis, Edmund (entomologist), 156, 162, 521, cane on, 134; Japanese workers on, 90; resumption of plantation agriculture on, 522, 523, 525, 526, 531, 534, 554; see 92; subdivided into small farms, 90, 91 also cane beetles & cane grubs Java: Kalkie Mill, 191 centre for cane breeding, 467; Queensland Kamerunga State Nursery, 137, 149 sugar planters gained experience in, kanakas; see Pacific Islanders 81; milling technology discoveries in, 708, Kater, Henry, 259 714; source of cane varieties, 470, 481, Keating, Hon. Paul (politician), 323 Keith Hall Estate, 78, 83, 131, 146 487; sugar experiment station established in (1888), 137; sugar imports into Austra-Kelly, Joseph (sugar planter), 49 Kemble, Francis (sugar refiner), 33 lia from, 235, 237, 238, 254, 769, 771; visited by Dr Kottmann, 130-131; visited Kerin, John (politician), 321, 324 by Norman Bennett, 703 Kerr, Bill (author), 638 Javanese immigrants (to Australia), 1, 87 Kerr, Dr H.W. (Bill): Johnston, Joseph, 249, 252 assists in the development of Donnelly shutes, Johnstone River, 50, 433 724; appointed BSES scholar in soils, Johnstone River district; see Innisfail district 353; assumes Directorship of BSES, 357; Johnstone Shire, 629 conducts fertiliser and soil tests, 353; Johnstone Shire Council, 436, 734 criticises irrigation methods on the Lower Jones, Henry (jam manufacturer), 254, 255 Burdekin, 400; evidence before Royal Joshua Brothers (sugar refiners), 235 Commission into Sugar Peaks, 1939, 357, Junction Mill, 691 715; promotes soil conservation measures, juice; see cane juice 410-411 juice clarification; see clarification (of cane juice) Kerr, John (historian), 3, 233, 660, 725 juice mill system: Keyline planting method, 430; see also Yeomans, Percival & soil erosion Bundaberg district, 54, 178, 189, 191, 193; Kiama, 48 criticised, 189; Isis district, 55, 193-194; Maryborough district, 175, 178, 189, Kidston, Premier William, 59, 110, 111 193; pioneered by Tooth & Cran, 1870s, Killer, John (engineer), 712 175-176 Killer process for muds, 712, 719, 721, 726, 733 Julatten, 316, 451 Kilner Brothers (machinery makers), 646 Julius, William (sugar planter), 51; see also Cud-Kimberley district, 52 Kinchant Dam, 441 gen plantation jute sacks, 719, 787, 792, 807, 810 King, George, 83 King, Henry Edward, 54 Kairi State Farm, 468 King, Norman (BSES Director), 307, 309, 354, Kalamia Mill: 368, 373, 430, 477, 481, 545, 594, 646 acquired by CSR (1975), 751; adoption of King, Lt Philip Gidley, 21 Petree-Thomas process at, 700; cane Kingsford, Richard, 193; see also Hambledon price award at, 696; continuous centrifplantation ugals in, 757; double crushing train in, Kinnear, Jack (inventor), 645

knives; see preparatory devices

Knobel, Alfred and Frederick (sugar boilers), 197 Knox, Sir Edward (1819–1901):

advises shareholders on capacities of CSR's refineries, 239; appointed manager of the Australasian Sugar Co., 34; early career in Australia, 34; fortune in jeopardy, 37; involved in establishment of CSR, 36; managerial style, 34, 37; offers prizes to encourage better cultivation methods, 129–130; plans Pyrmont Refinery, 235; rescues CSR 1858–59, 37; urged to plan for the eventual production of mill whites in Australia, 236; see also Colonial Sugar Refining Company

Knox, Sir Edward Ritchie, 644, 791, 792

Knox, Edward William (1847-1933): acknowledges that producers of mill whites damages CSR's trade in sugar, 248; admires triple effets, 183-184; as CSR's General Manager, 183; as CSR's Superintendent of Sugar Mills, 183; bans Walter Maxwell from accessing operating figures about CSR, 138; comments on the advantages of having sugar refineries in four Australian state capital cities, 239; comments on level of milling technology in Australian sugar mills, 202; comments on unsuitability of Southgate locality for cane growing, 98; criticises horse-driven sugar mills, 177; dispatches CSR officers overseas, 130, 183; expresses disappointment about the cultivation methods of canegrowers, 98, 130; evidence before 1911-1912 Royal Commission, 259-260; expresses concern about soil erosion in the Isis district, 410; instigates investigations into better cultivation methods, 131; observes Herbert River district could benefit from drainage schemes, 404; opposes cane price-fixing legislation in Queensland, 690, 692; orders undergrowth cleared on Goondi plantation to reduce threat from cane beetles, 161; predicts failure of small millers in New South Wales, 95; promotes employment of analytical chemists by CSR, 197, 199; promotes trash conservation, 348; rejects juice mill idea for New South Wales, 189; tolerates activities of Poolman family, 247; upset by criticisms of CSR, 259; vets plans for Marian & Nerang Central Mills,

102; visits West Indies, 183; warns of a sugar shortage (1915), 769; see also Colonial Sugar Refining Company

Knox, James, 94, 128

Kolan River and district, 193, 205, 217, 272, 419, 420, 544

Koppa plantation, 81

Koorooroo plantation, 126

Kottmann, Dr Gustav (chemist):

compiles agricultural circulars, 131; developed P.O.C.S. formula, 199; experiments with bagasse exhaustion and diffusion, 198, 200; expressed concern about effectiveness of hand collection of cane beetles, 161; observed lack of drainage in cane growing areas in New South Wales, 127; recruited by CSR, 198; reports upon cultivation methods in Java, 130; reports upon methods to control cane beetles and cane grubs, 161

Koumala, 330, 659, 679 Krajewski crusher, 701

Kununurra, 332, 333

Labor Party (Australia), 258, 261 laboratory (in sugar mills), 692, 693

Laboratory Manual for Queensland Sugar Mills, 707, 720

labour shortages (of field workers and canecutters) during late 1860s, 45, 83; during the 1880s, 80, 85, 128; during the 1890s, 90; during 1940s, 291, 359, 361, 412, 629–633, 635–636; during 1950s, 303, 636–637

labour trade (indentured workers), 52–53, 58–59, 83–85, 91, 834

land assignment system; see assignments

land clearance for cane growing, 66, 123, 361; see also bulldozers

land graders, 423

land legislation:

Queensland, 44, 50, 100; New South Wales, 74

land levellers, 423, 437

land planes, 423, 437, 446

land prices (in Queensland), 43-44, 50

Land Protection Branch, Queensland, 557

land suitability studies (for sugar cane), 749

Lang, Rev. John Dunmore, 27

Lawes, Sir John (plantation owner), 88, 236; see also Farleigh plantation

League of Nations, 284

leafhoppers, 573, 591, 592, 593, 594; see also Fiji disease

leaf scald disease:

breeding cane varieties resistant to, 498, 572, 580-581; control methods for, 577, 578, 587, 589, 595, 597; investigations into, 565, 572, 579; present in Queensland, 570, 602; susceptible cane varieties, 509, 571, 587, 595

legislation; see Acts of Parliament; Australia; Acts of Parliament, New South Wales; Acts of Parliament, Queensland; & Acts of Parliament, South Australia.

Legislative Assembly, Queensland, 220, 527, 690 Legislative Council, Queensland, 527, 690, 693, 694

legumes, 348, 354, 371, 374, 381 Lennon, William (politician), 690, 693 leptospirosis (Weil's disease), 355, 411, 529, 627, 628, 629

Leuconostoc bacterium, 653, 663 levellers (in sugar mills), 701 levellers (land), 423

lighterage system (of bagged sugar), 215, 798-799

lighters (sugar), 798 Lilley, Premier Charles, 45 lime:

> BSES advocates its addition to cane growing soils in North Queensland, 345; created from coral & shells, 345, 375; obtained from limestone mines, 345, 374-375; experiments with against wireworms, 533; used against cane grubs, 160; used as a soil enhancement agent, 126, 134, 136, 139, 143, 343, 345, 374; used in sugar mills, 15, 182, 183, 708, 715; used in sugar refineries, 240

limestone mines, 345, 374-375 liming (of cane juice), 707, 708, 715 lindane, 546, 548 Linnaean Society of New South Wales, 565 liquid sugar, 16, 809, 818, 819 Lismore, 48, 51, 55, 79, 137, 191, 317, 352, 427 Liverpool Creek, 64 Liversidge, Professor Archibald, 124, 127 Lloyd, Alfred (sugar planter), 87 loaders (of cane); see cane loaders loading cane; see cane loading and cane loaders

loading sugar:

bulk, 792-800; 821; by bags, 212-214, 216, 791, 796, 799; by mechanical conveyors,

Local Awards, 689, 691, 692, 693, 694

Local Sugar Cane Prices Boards, 329, 575, 663, 689, 690, 691, 692, 693, 696 754-755

locomotives, 207, 634, 656, 661, 662, 668, 669 locusts; see grasshoppers

Logan, Captain Patrick, 26

Logan River, 46, 100, 142, 205, 732

Loganholme Mill and plantation, 85, 89, 129, 182 London Chartered Bank, 88

Long, Edward (sugar planter), 160, 162, 200, 208; see also Habana plantation

Long Pocket locality, 271, 276 Lord Howe Island, 147

Lord, Simeon (merchant), 32

lorries, 623, 634

Louisiana:

source of cane varieties, 148, 503; sugar experiment station established (1885), 137; sugar millers in troubled by extraneous matter following adoption of mechanical cane loaders, 644; visited by Norman Bennett, 703

Lower Burdekin district:

area of irrigated cane in, 136, 399; area under cane in, 50-51, 53, 56, 63; artificial recharge of underground water supplies in, 415-418; BHC use in, 543; BSES establishes Sugar Experiment Station in, 488; cane grub attacks in, 553; cane first cultivated in, 50; cane varieties in, 153, 470, 484, 499, 504, 509; collecting cane beetles in, 526, 543; common rust disease outbreaks in, 599; discovery of abundant underground water supplies in, 134-136; downy mildew outbreaks in and their control, 587; drought-prone, 133-135, 417; feral pig damage to cane in, 550; firewood shortages 1890s, 195; irrigation in, 139, 397-400, 406-407, 415, 417-419, 442, 445, 448, 449-450; leaf scald disease outbreaks in, 595; linked to Townsville by railway, 209; Malay workers on sugar plantations in, 85; mill-owners compete for cane in, 217; new assignments in, 310-311, 325, 330; number of irrigators in, 136; number of tractors in,

342; potash-rich soils in, 358; rat damage to cane in, 530; rezoning of assignments in, 660; road transport of cane in, 658; saltwater intrusion in, 415–416; sodic soils in, 385; soil damage from over-use of irrigation water in, 139, 400; soldier fly prevalent in, 556; striate mosaic outbreaks in, 601; sugar exports from, 213, 215; trash blanketing in, 455; use of arsenic against cane grubs in, 526; wallabies damage cane in, 540, 544, 550; see also Drysdale Brothers & Co., Airdmillan, Inkerman, Kalamia and Pioneer Mills

Lower Mary River Irrigation Scheme, 447, 449 Lucinda (as a port), 215, 792, 793, 798, 800 Lucinda Bulk Sugar Terminal, 799, 800 Lucinda Harbour, 794 Lyne, Charles (author), 95 Lyne, Sir William (politician), 257 Lyons, Prime Minister Joseph, 284, 285, 783, 784, 785

M. 1900 cane variety, 470, 481, 487, 578, 587
Mabbro Mill, 94, 189
McAllep, William, 706
McAvoy, Sir Francis (Joe), 736
McCawley Award (1919), 773
McCawley, Mr Justice Thomas, 618, 619
McCormack government (Queensland), 406, 575
McCready, Hugh (sugar planter), 81; see also
Palmyra plantation

Macdesme Cooperative Mill Association, 219 MacDonald's Mill, 95, 96 McDougall, W. (entomologist), 533

McDougall, W. (entomologist), 533 maceration:

adoption in Australian sugar mills, 183, 186, 192; definition of, 15; effectiveness of tested by CSR, 200; increases wetness of bagasse, 190, 705; 'Nobel' system of, 722; phased out in Australian sugar mills, 722; use of criticised by Dr Walter Maxwell, 202; use of criticised by William McAllep, 706

Macgregor, Peter (engineer), 211 Mcllwraith, Sir Thomas, 50, 54, 55, 101 machinery manufacturers (agricultural):

Bonel Brothers, 380, 645; Nuttall's Farm Supplies, 365; Populin Enterprises, 380; Toft Brothers, 642, 647; Wyper Brothers, 364, 640, 649 machinery manufacturers (sugar mills):

Atlas Engineering Co., 184; Bundaberg Foundry Ltd., 700, 701; Cameron's Foundry, 709, 718; Chapman & Co., 184; Duncan Stewart & Co., 184, 192, 701; Evans Deakin, 701; Fives Lille Co., 184, 197, 200; Fletcher, Stewart Ltd., 184, 701; Glasgow, as centre for, 184; Manlove, Alliot, Fryer & Co., 184, 187; McOnie, W. & A., 184, 187; Mirlees, Tait & Watson, 184, 187, 188, 192, 193, 234, 723; Queensland Foundry, 185; Raff, Alexander, 184; Smith, A. & W. & Co., 184, 187, 193, 212; Smellie, Robert & Co., 184; Sutton, J.W. & Co., 185, 188; Victoria Foundry, 185, 207; Vulcan Foundry, 185, 189; Walkers Ltd., 185, 188, 189, 192, 193, 701, 718, 756

Mackay, Angus (author), 100, 128, 143 Mackay:

as a port, 213, 215, 371, 792, 793, 798, 799, 800; bulk handling of sugar at, 792, 799, 819, 821; commission agents (for sugar) in, 244–245, 246, 253; machinery manufacturers (sugar mill) in, 185, 207; Victoria Foundry, 185, 207

Mackay Bulk Sugar Terminal, 795, 799, 819, 821

Mackay district:

Aborigines employed as field workers in, 84, 341; area of irrigated cane in, 405; area under cane in, 46, 51, 53, 56, 63; bacterial mottle disease discovered in, 583; BHC use in, 543; cane first cultivated in, 46; cane grub attacks in, 158, 537, 522, 547; cane varieties in, 153-154, 470, 486, 499, 509, 691; central mills erected in, 101; collecting cane beetles in, 159, 163, 526, 536, 537; common rust disease outbreaks in, 599; downy mildew outbreaks brought under control in, 589; drainage improvements, 133, 414; dwarf disease discovered in, 572; dwarf disease brought under control in, 587; feral pig damage to cane in, 550; Fiji disease outbreaks in and their control, 510, 591, 595; firewood shortage in, 195; gumming disease outbreaks in, 144; irrigation in, 405, 441-442, 445, 448; Japanese canegrowers in, 105; land suitability study for, 749; leaf scald disease outbreaks in, 595; machinery manufacturers (agricultural) in, 365; mechanical cane harvesting in, 642; mechanical cane loading in, 642; mill-owners compete for cane in, 217-218; mill-owners in pay for cane on basis of weight, 153; mill-owners propose erecting a cooperative sugar refinery in, 256, 258; new assignments in, 325; Pacific Islander canegrowers in, 105, 108; pineapple disease control trials in, 581; ratoon stunting disease in, 486, 581; restrictions upon types of cane varieties grown in, 691; rezoning of assignments in, 660; road transport of cane in, 658; 'root rot' outbreaks in, 598; 'rust' disease outbreaks in, 143; small millers in, 93; sodic soils in, 385; soil erosion in, 410, 412, 432, 455; soil conservation measures in, 432, 451; soldier fly prevalent in, 545, 546, 547, 556; Sugar Experiment Station in, 143, 149; sugar exports from, 213, 215, 792, 793, 800; swarms of grasshoppers in, 155, 538, 540; trace element deficiency in cane growing soils in, 375, 385; weed control in, 368; wallabies damage cane in, 544, 550; weevil borer damage to sugar cane in, 530; wireworms prevalent in, 532, 533; see also Homebush, Plane Creek, Cattle Creek, Racecourse, North Eton, Farleigh, Marian, Pleystowe, Meadowlands, Palms & Habana Mills

Mackay Harbour Board, 794, 795 Mackay, John (pastoralist), 44 Mackay Outer Harbour, 215 Mackay Railway, 101, 207-208, 209 Mackay Refined Sugars Pty. Ltd., 819, 820 Mackay State Nursery, 137, 146 Mackay Sugar Co., 82, 133 Mackay Sugar Cooperative Association Ltd.:

closes North Eton and Cattle Creek Mills, 752; considers closing Pleystowe Mill, 752; formation of, 752; funds substantial upgrade to its mills (1990-1991), 755; invests in Racecourse Refinery, 819; Mill Closure Committee of, 752; joint venture with ED & F Man Holdings Ltd., 819, 820; purchases Pleystowe Mill from CSR (1988), 752

Mackay Sugar Crushing Co. Ltd., 98

Mackay Sugar Experiment Station, 137, 143, 149, 370, 467, 468, 476, 477, 486, 496 Mackay Sugar Manufacturers' Association, 218, 219, 286

Mackenzie, Premier Robert, 45, 92 Macknade Experiment Station, 471, 472, 473, 482, 484, 493, 495, 500, 503, 522, 561, 585, 600; see also Colonial Sugar Refining

Macknade Mill:

Company

amount of rat damaged cane supplied to, 530; boiler station upgrade at, 747; computerised process control adopted in, 748; crushing rate at, 731; machinery upgrades to, 192, 709, 710, 713, 727; manufacture of mill whites at, 243, 245; possible duplication of, 297; sold to CSR (1896), 250-251; treatment of waste waters at, 737

Macknade plantation:

damaged by flooding, 79; founder of, 81; land leased to small farmers, 89, 90; size of, 80; sold to CSR (1896), 250-251; sold to Fanning, Nankivel & Co., 83; subdivision of, 104

Macknade Voluntary Pest Control Board, 527, 549 Maclean, 96, 274, 604

McLean, Peter (public servant), 147, 148, 149

McLeay, Alexander, 26

Macleay River, 27, 48, 74, 93, 97, 129

Macnaughton Award, 617, 618

Macnaughton, Justice Allan, 619

McOnie, W. & A. (sugar mill machinery maker, Glasgow), 184

Macquarie, Governor Lachlan, 22, 23 Madsen, Otto (politician), 301, 306

McWalters, Peter (cane breeder), 468, 476

Magarey, Dr Robert (plant pathologist), 599

magnesium deficiency (in soils), 375, 385

Magnetic Island, 489

Magnolia plantation, 80, 90

Mahona cane variety, 474, 578, 584

maize, 44, 80, 87, 354-355, 381, 574, 579, 590

Malagache cane variety, 470, 580

Malay immigrants (to Australia), 85

Maltese immigrants (to Australia), 85, 105, 275

Malungavel plantation, 85, 124

Man Holdings Ltd., ED & F, 819, 820; see also Mackay Sugar Cooperative Association

Mandam Creek, 439

Mandam Drainage Board, 439 Manildra Group, 331, 815 Manildra Harwood Sugars, 815, 816 Manildra Harwood Sugars Refinery, 816, 817 Manlove, Alliot, Fryer & Co., (sugar mill machinery manufacturer, Nottingham), 184 Manning, Kenneth (author), 740 Manning River, 25, 48, 74, 93, 96 Mansfield, Justice Alan, 295, 299, 631 Mansfield Royal Commission (1942-43), 351, 360, 362, 631, 632, 633, 718

Mansfield Royal Commission (1950), 295-297 manuring; see fertilisers

Marburg, 52, 65, 271

Marburg district:

area under cane in, 52, 65; cane varieties in, 154; farmers switch to dairying, 271; use of German wagons in, 203; Woodlands Mill and plantation in, 79, 237, 271

Mareeba district, 325, 330, 451

Maria Creek, 64, 296

Marian Mill, 99

Marian Central Mill:

adopts relative percentage scheme, 697; computerised process control adopted in, 749; crushing rate at, 731; duplication of milling train at (1991), 755; erection of, 102; joins Mackay Sugar Manufacturers' Association, 218; machinery in at time of erection, 193; machinery upgrades to, 202, 701, 712, 723, 743; receives emergency government funding to operate, 751; road transport of cane to, 670; staffed with an analytical chemist, 200-201; suppliers switch to another sugar mill, 217; supplies sugar to Millaquin Refinery, 250; treatment of waste waters at, 734

Marian Central Milling Co., 201 Maroochie River Sugar Co., 188 Maroochy district:

> acid sulphate soils in, 441; area under cane in, 56, 57, 65; cane growing combined with tropical fruit in, 65; central mills erected in, 56, 99; drainage improvements & schemes in, 274, 404, 414, 423, 439; Finnish immigrants to, 109; frost reduction trials in, 132; gumming disease outbreaks in, 570; important cane varieties in, 154; lack of drainage on cane farms in, 404; new cane assignments in, 325;

outbreaks of Fiji disease in, 591; standover cane in, 302; trace element deficiency in cane growing soils, 375; see also Moreton Central Mill

Maroochy River, 205, 404, 414, 544, 657, 672 Mary River, 46, 52, 56, 58, 79, 99, 144, 177, 194, 205, 215, 217

Maryborough:

as port for sugar exports, 215-216; commission agents (for sugar) in, 244; machinery manufacturers (sugar mill) in, 185, 188, 189, 701, 756

Maryborough Central Mill, 99

Maryborough district:

Aborigines employed as field labourers in, 84; African black beetles in, 556; area under sugar cane in, 52, 53, 56, 58, 64-65; cane growing combined with dairying in, 58; cane growing combined with tropical fruit production in, 271; cane growing in during the 1850s, 27-28; competition for cane in, 216; central mill erected at Mt Bauple, 56; central mills in (1870s), 99; contraction in area under cane in, 58, 272; cultivation methods of canegrowers in, 124, 125; Fiji disease outbreaks in and control methods, 570, 587, 591, 592; frost-prone, 13, 53; gumming disease outbreaks in, 58, 144; irrigation in, 447; important cane varieties in, 154; juice mills in, 175, 178, 189, 193; land suitability study for, 749; road transport of cane in, 658; 'rust' disease outbreaks in, 143; small millers in, 94; soil conservation measures in, 452; soldier fly infestations in, 547; sugar exports from, 215-216; see also Mt Bauple Central Mill & Maryborough Sugar Factory

Maryborough Sugar Co., 82 Maryborough Sugar Factory:

> adopts relative percentage scheme at, 697; bagged sugar at, 796; burns sawdust in mill furnaces, 747; causes air pollution, 738; chemical control slow to be adopted in, 702; chimney upgrades at, 738; competing for sugar cane, 217; continuous highgrade vacuum pan installed at, 756; fly-ash arrestors installed at, 738; machinery upgrades to, 709, 713, 717, 722; mill peak of, 282; mill whites manufactured at, 237,

250; punting of cane to, 205; receives cane by government-owned railways, 657, 661, 671; road transport of cane to, 670, 671; state-wide price of cane finally accepted at, 696; storage of raw sugar at, 212

Maryborough Sugar Factory Prop. Ltd., 738, 749 massecuite, 16, 714, 727, 728, 749, 756

Massey-Ferguson (Australia) Ltd., 649

Massey-Ferguson mechanical cane harvester, 377, 649, 650, 651

Mathews, The Hon. Mr Justice Ronald, 665, 696

Matra, James, 21

Mauritian cane varieties, 141, 147, 152, 154, 470, 481, 487

Mauritius:

cane varieties from, 147, 470, 481, 487; CSR imports cane varieties from, 147; plant breeding techniques in, 496; sugar cane crops in damaged by cyclone, 303; sugar imports into Australia from, 32, 245, 254

Maxwell, Francis (sugar technologist), 112, 695 Maxwell, Dr Walter (Inaugural BSES Director):

advice to farmers, 139; appointed Comptroller of Queensland Bureau of Central Sugar Mills, 1904, 110; appointed Director, Bureau of Sugar Experiment Stations, Queensland 1900, 138; critical of the heavy use of maceration in Queensland sugar mills, 202; criticised by farmers, 139; hears of fuel use in Queensland sugar mills, 194; investigation into condition of Queensland sugar industry 1899, 123, 128, 202; investigation into performance of Queensland government-funded central sugar mills, 102; investigation into effectiveness of the bounty in promoting sugar production only by European workers, 257; orders Queensland's central sugar mills be staffed with analytical chemists, 110, 201; orders Queensland's central sugar mills to cease providing credit to non-European canegrowers, 107; raises issue of CSR and the QN Bank engaging in price-fixing, 257; retires 1909, 139; see also Bureau of Sugar Experiment Stations, Queensland

Meadowlands Mill, 207, 217 Meadowlands plantation, 81, 82 Meares, Richard (mill-owner), 181
meatworks manure, 126, 134, 347, 368
mechanical cane loaders; see cane loaders
mechanical cane planters; see cane planters
mechanical circulation in pans, 745
mechanical cane grabs (wharves), 206
Mechanical Harvesting Committee, 638–639,
642, 645, 649
mechanical pushers; see pushers

megass; see bagasse

Melbourne:

commission agents for sugar in, 243; headquarters of Victoria Sugar Co., 36; investors in sugar production from, 82–83; location of sugar refineries in, 36; shipments of Queensland sugar to, 212; sugar refineries erected in, 36, 235

Melbourne-Mackay Sugar Co., 83; see also Palms plantation

melting tanks (in sugar refineries), 240
Menghetti, Dr Diane (historian), 613, 615, 629
Menzies government (Commonwealth), 312,
428, 804, 805

Menzies, Prime Minister Robert, 804, 805 Meringa Sugar Experiment Station, 477, 478, 496, 498, 506, 507, 508, 509, 522, 524, 534, 535, 579

Meston, Alexander, 49; Archibald, 143; William, 94

Metarhizium anisopliae (fungal pathogen), 163, 554; see also cane grubs

metrology service (of BSES), 707, 720 Miara Mill, 698

mill ash; see fly-ash & mill by-products mill awards; see local awards mill by-products:

fly-ash, 130, 450, 731, 732, 739, 740; bagasse, 15, 126, 127, 130, 133, 189, 190, 375, 731, 732, 747, 748; molasses, 16, 130, 357, 359, 371, 732, 737; mud, 357, 712–713, 732

mill chemists; see chemists, analytical

mill machinery; *see* carriers, crushing rollers, effets, pans, preparatory devices & shredders.

mill machinery manufacturers; see machinery manufacturers (sugar mills)

mill mud:

disposal of, 712; Killer process, 712, 719, 733; pollutes watercourses, 732–733; recovery of sugar from, 712; use as a fertiliser, 357

mill-owners (Australian):

agree to manufacture refining sugars for CSR, 200, 248-249; and 1911 strike, 61-62; and cane burning, 625-629; and cane price fixing legislation, 689-695; and Productivity/Cane Payment Package 1994, 755; competing for cane, 216-221; complain about CSR being the only buyer of raw sugar in North Queensland, 251; complaints about mill peaks, 281-282, 286, 288; criticised by CSR for poor quality sugar, 249, 781-782; curtail capital expenditure during late 1910s, 700-701; curtail capital expenditure during 1980s, 754; employ analytical chemists, 197-201; form Australian Sugar Milling Council Pty. Ltd., 754; financial difficulties of during the 1980s, 751-752; form Sugar Research Institute, 719-720; industry organisations representing their interests, 60, 753-754; invest in extensive mill upgrades 1950s, 718-719, 721-722; invest in new mill machinery 1890s, 191-193; invest in new mill machinery 1900-1914, 202-203; invest in new mill machinery 1990s, 755-757; manufacturing mill whites, 236-237, 248-252; obtain licences to discharge waste waters into watercourses, 735; oppose cane burning, 626-629; oppose deregulation in 1980s, 319; paying the same price for cane, 218-220; prices paid for cane, 217, 218, 220, 689-697; prone to switch refiners in late 1890s and 1900s, 251; providing credit to suppliers, 106-107; purchasing wood from farmers, 106; receive credit from CSR, 248; receive credit from the Queensland National Bank, 250; receive financial assistance from the Queensland government in mid-1960s, 312; responding to concerns about water and air pollution, 734-740; sale of raw sugar to CSR, 82, 245-246, 248-249, 252; suffer firewood shortages, 194-195; suffer cost-price squeeze during the 1930s, 708-709; support formation of Australian Sugar Producers' Association, 60

mill peaks:

increased after World War 11, 293; increased during the 1950s, 297–299; increased during the 1960s, 303, 307, 309;

increased in 1939, 288–289; introduced, 280–281; not reached during World War 11 and immediately afterwards, 291, 292; not reached in New South Wales, 303, 306; *see also* Peak Year Scheme

Mill Suppliers' Committees, 279, 284, 288 mill whites:

demand for in Australia, 253–254; Dr Walter Maxwell comments upon the lack of mill white producers in Australia, 258; manufacturers of in Australia, 182, 236–237, 244, 248–251; production of (process), 16; production of discouraged by CSR, 96–97; sales to Australian manufacturers, 254

Millaquin and Yengarie Sugar Co.:

acquired by the Queensland National Bank, 234; avoids competition with Gibson & Howes Ltd., 218; closure of Yengarie Refinery (1900), 194, 234; erects Millaquin Refinery at Bundaberg (1882), 189, 233–234; formation of, 233; irrigation on its sugar plantations, 136; see also Cran, Robert Snr, Millaquin Refinery, Yengarie Refinery & Queensland National Bank

Millaquin juice mill, 194, 772, 777

Millaquin Mill:

adopts relative percentage scheme, 700; boiler station upgrade at, 747; disposal of fly-ash at, 739; exceeds mill peak deliberately, 287; fly-ash arrestors installed at, 738; fractional liming first used at, 715; John Killer Chief Engineer at, 712; machinery upgrades to, 710; receives cane from Mt Larcom district, 64; rezoning of assigned land to, 661; treatment of waste waters at, 737; see also Queensland National Bank

Millaquin plantation, 92

Millaquin Refinery:

converted into a factory that can handle raw sugar, 250; description of, 234; exports of sugar from, 215; machinery upgrades to, 234, 250, 786, 811, 814, 818; opened at Bundaberg (1882), 189, 234; operates only six months a year, 772, 789; output of, 771, 779, 789, 811, 818; partially destroyed by fire (1927), 779; relies on juice from local millers, 189; waste waters from, 136; see also Cran, Robert Snr & Queensland National Bank

Millaquin Sugar Co. Ltd.

appointed as a refining agent by the Commonwealth government (1915), 770, 771; appointed as a refining agent for the Queensland Sugar Board, 777; extends irrigation on its plantations, 405; finances upgrades to Millaquin Refinery, 810–811; funds conversion of Millaquin juice mill into complete raw sugar factory, 777; part of company merger to form Bundaberg Sugar Co., 749; shares Australian refined sugar market with CSR, 771; sponsors advertising campaign to reduce declining sugar consumption in Australia, 812

Millaroo, 311, 488, 660 Miller, William (storekeeper), 94 Milne, Andy (engineer), 352 minimum tillage, 319, 376–380, 386 Mirani, 207, 209 Mirani Weir, 441

Mirrlees, Tait & Watson and successor companies (sugar mill machinery makers, Glasgow), 184, 187, 188, 192, 193, 234, 723

Mizzi, Laurence and Paul (canegrowers and inventors), 380, 649, 672

Mocatta, George, 664

molasses:

burnt in sugar mill boilers, 732; carried on CSR ships, 214; export of, 371; pollutes watercourses, 732; product of raw sugar manufacture, 16; trials to determine if useful as a fertiliser, 347, 353; used as a fertiliser, 347, 368, 357, 359, 371; used as a stock food supplement, 732; used to manufacture power alcohol, 732; see also Australian Molasses Pool & Australian National Power Alcohol Co.

mole drains, 407
moles (proposed importation to Australia), 161
Moloney, Larry (inventor), 644
Mon Repos Mill and plantation, 92, 250
Monduran Dam, 420
monopoly:

applied to Colonial Sugar Refining Company, 256–259, 261, 782; Colonial Sugar Refining Company aims to establish one over Australian sugar market, 35, 255; parliamentary opposition to, 256–258; see also anti-monopoly and anti-trust measures

monosulphite of lime process, 182, 184 Mooball Creek and district, 275 Mooloolah River, 45 Moore government (Queensland), 280, 406 Morehead, Premier Boyd, 55 Moreton Bay, 79 Moreton Bay Penal Station, 26 Moreton Bay Sugar Co., 27 Moreton Central Mill:

acquired by Bundaberg Sugar Co. (1988), 752; acquired by Howard Smith Industries Pty. Ltd. (1976), 749; effluent pond at, 735; efforts to increase its cane supply, 205; erection of, 56; food grade raw sugar manufactured at, 818; fly-ash arrestors installed at, 738; land suitability study for, 749; machinery in at time of erection, 193; machinery upgrades to, 699, 701, 712, 722, 743; mill peak at, 282; punts deliver harvested cane to, 205, 657, 672; road transport of cane to, 672; short of cane, 110; supplies New Farm refinery with raw sugar, 240; treatment of waste waters at, 733

Moreton Central Sugar Mill Co. Ltd.:

accepts cane punted along Maroochy River, 205; defaults on repayments to Queensland Treasury, 110; finances major upgrade to Moreton Mill, 722; owner of cane farms, 733, 749; promotes good cultivation methods amongst its shareholders, 137

Moreton district; *see* Maroochy district
Morton, Clive (author), 613, 626, 636, 641, 642
mosaic disease, 565, 566, 568, 570, 571, 578, 601, 602

Mossman district:

Aborigines employed as field labourers in, 341; area under cane in, 50, 56, 64; cane first cultivated in, 50; contraction in area under cane during the 1900s, 64; drainage improvements in, 433, 439; introduction of canetainers in, 665–666; land suitability study for, 749; night harvesting in, 655; rat poisoning campaigns in, 528; road transport of cane in, 658; shortage of European canecutters in during the 1900s, 64; soil fumigation against cane grubs by canegrowers, 162; sugar exports from,

215, 798, 799; sulfur deficiency in cane growing soils in, 385; tachinid flies thrive in, 521; wireworms attack crops in, 533; see also Mossman Central Mill

Mossman Central Mill:

acquires new suppliers on Atherton Tableland, 316, 325; adopts relative percentage scheme, 697; amount of burnt cane supplied to, 626; boiler station upgrade at, 711, 719; computerised process control at, 748; continuous vacuum pan installed at, 746; introduction of canetainers at, 666; machinery in at time of erection, 193; machinery upgrades to, 709, 711, 723, 724; mill whites manufactured at, 251–252; Prince, Lou, 661, 665; road transport of cane to, 666, 670; road transport of sugar from, 799; tramline network of, 666; sugar exports from, 215, 798, 799; uses a computer to calculate cane payments, 748

Mossman Central Sugar Mill Co. Ltd., 139, 251, 528, 678, 703, 748, 752

Mossman River, 733, 734 motor lorries, 623, 634 Mourilyan, 536

Mourilyan Bulk Sugar Terminal, 795, 799, 821 Mourilyan Harbour, 795, 798

Mourilyan Mill:

acquired by Bundaberg Sugar Co. (1988), 752; adopts maceration, 186; adopts relative percentage scheme, 697; analytical chemist at, 197, 200; assignments from Goondi Mill transferred to (1987), 752; boiler station upgrade at, 747; connected to Liverpool district by tramline, 64; continuous crushing at (1987), 754; ceases to manufacture mill whites, 248; continuous vacuum pan installed at, 746; cooling tower erected at, 737; erection of, 186; extent of weevil borer-damaged cane supplied to, 556; fuel supply of, 195; machinery upgrades to, 699, 722, 727; manufactures mill whites, 236, 245; night shift at, 186; receives cane by government-owned railways, 657, 661, 671; sugar exports from, 798, 799; tramlines for, 207; unloading cane at, 210

Mourilyan plantation:

British workers recruited for, 87–88; cultivation methods on criticised, 125; Japanese

workers recruited for, 90; soil analysis on, 133; stump removal on, 160; subdivision of, 89, 92; taken over by Union Bank of Australia Ltd., 88; Union Bank of Australia Ltd. threatens closure of (1906), 92

Mourilyan Sugar Co., 200, 236

Mt Bauple, 274

Mt Bauple Central Mill:

cane moved by motor lorries to, 623, 634; closure of (1950), 699; competing for sugar cane, 217, 218; erection of, 56; fails to operate in 1902, 110; financial difficulties of, 788; machinery upgrades to, 719; receives cane by government-owned railways, 657

Mt Bauple Cooperative Milling Association, 137

Mt Cotton plantation, 250

Mt Etna, 347

Mt Larcom, 64

Mt Perry, 208

Mt Tamborine, 51

mud; see mill mud

mud pond, 712

Muir, David (Agent-General for Queensland), 294 Muir, Robert (sugar planter), 81; *see also* Benowa plantation

Muir, Ronald, 628, 638

Mulgrave Central Mill:

adopts relative percentage scheme, 697; amount of burnt cane supplied to, 626; amount of weevil borer damaged cane supplied to, 556; assignments transferred from Hambledon Mill to (1991), 752; bagged sugar exported from, 796; boiler station upgrade at, 719; disposal of fly-ash at, 739; investigations into sour storage rot of chopped cane at, 653; landlocked, 325; machinery in at time of erection, 193; machinery upgrades to, 202, 701, 703, 709, 741, 744; offers bonus to suppliers for growing the Badila cane variety, 155; opposes expansion in sugar production during mid-1970s, 315; staffed with an analytical chemist, 200; sugar exports from, 215

Mulgrave Central Mill Co. Ltd., 529, 626 Mulgrave River, 50, 433, 733, 737 Mulgrave Shire River Improvement Trust, 433 Multiple effets; see effets Multiple evaporation; see effets Mundoo Swamp Drainage Scheme, 424–425 Mungomery, Reginald (entomologist), 531, 534, 535, 536, 543, 545, 573

Munro, Colin (sugar planter), 87, 212

Murphy, Dr Denis (historian), 692

Murwillumbah, 51, 55, 427

Murray, Peter (sugar planter), 49; see also Rockhampton district

Murray River, 49, 296, 433, 434, 514,

Murray Upper locality, 330, 678, 679

Murry, Rod (Sugar Research Institute researcher), 668

muscovado sugar, 231

Mutarnee, 330

Mutual Control Scheme, 707, 728

myna birds, 155, 835

Myrtle Grove Central Mill, 99

Nambour, 56, 65, 738 Nambour district; see Maroochy district Nankivell, Thomas (merchant), 83 narrow gauge tramlines; see tramlines Nashua plantation, 82, 83 National shredder, 701, 708, 709, 720, 722 Nationalisation (of Australian sugar refineries), 256, 261-262 Natural Disaster Relief Arrangements, 433 NCo. 310 cane variety, 591, 592, 593, 594, 595 Neame, Arthur and Frederick (sugar planters), 81, 194, 251; see also Macknade plantation Nebia plantation, 82 Neilsen, Peter (extension officer), 503 nematodes, 550-551, 586 nematocides, 551

closed (1918), 272, 698; controlled by the Bureau of Central Sugar Mills, Queensland, 110; erection of, 102; idle machinery at sold, 701; mill whites manufactured at, 237, 253, 254; short of cane, 110

Nerang district, 53, 56, 102; see also Benowa, Birribi & Nerang Central Mills

Nerang River, 46, 53, 272 net titre (of sugar), 201, 246, 248, 714

Nerada plantation, 80, 90 Nerang Central Mill:

net titre (of sugar), 201, 246, 248, /14

New Farm Refinery (Brisbane):

bulk handling of raw sugar at, 794, 808; continuous operation at, 818; erection of (1893), 238–239; liquid sugar manufactured at, 809; machinery upgrades to, 239, 786, 814 output of, 239–240, 817; receives raw sugar from Condong Mill, 794; site enlarged, 239, 779; storage capacity exceeded at, 821; see also Colonial Sugar Refining Company

New Guinea:

as a source of cane varieties, 481, 487, 489, 497; cane variety collecting expeditions to, 146, 467, 470, 471, 489; possible site for a sugar refinery, 258

New Guinea cane varieties, 152, 154, 471, 474, 489, 497, 578; see also Badila, Goru, Korpi, Oramboo & Mahona cane varieties New South Wales:

African black beetle attacks in, 512, 533-534,

544; area under cane in, 48, 58, 65, 274,

280, 291, 292, 303, 306, 311, 316, 317, 332; amount of fertiliser applied to crops of sugar cane in, 373; average area cultivated on a cane farm in, 386; Bureau of Sugar Experiment Stations, Queensland, assumes control of cane variety breeding for, 504; cane burning in, 634; cane grub attacks in, 548; cane prices in, 97; cane varieties in, 142, 152, 154, 474, 475, 482, 502, 503, 504, 512; continuous crushing in, 754; contraction of cane growing in, 65, 303; CSR becomes only miller in, 202, 217; CSR controls price of sugar in, 255; CSR erects central mills in, 97-98; cultivation methods of canegrowers in, 123, 124, 126, 348, 350, 355, 359; decline of hot-water treatment in, 596; drainage schemes in sugar-producing districts in, 400, 402-403, 414; Fiji disease outbreaks in, 472, 565, 578; flood mitigation in, 408, 427-428, 436-438; gumming disease outbreaks in, 144, 471, 474; identification of disease-free farms in, 577; important cane varieties in, 474, 482, 483, 494-495, 502, 504-505; Italian canecutters for, 637; land legislation

in, 74; location of sugar plantations in, 74;

mechanical cane harvester ownership in,

676-677; mechanical cane harvesting in,

650-652; mechanical loading of cane in,

640; number of canegrowers in, 108, 109,

303, 306; number of tractors in, 362; num-

ber of sugar mills in, 175, 177, 185, 191,

202; mill peaks in, 280-281, 290-291,

303-304; number of mechanical cane har-

vesters in, 673-674; output of sugar mills

in, 175, 176, 186, 201, 203; proposed abolition of sugar import tariff in 1895, 58; punting of cane in, 204–206, 657, 672; rat damage to cane in, 556; road transport of harvested cane in, 667–668, 672; small millers in, 93–96; soldier fly damage to crops of cane in, 547; size of sugar plantations in, 79; sugar consumption in during 1830s, 32; sugar import tariff in, 38, 58, 96; sugar imports to, 31; sugar prices in, 255; well suited for the production of sugar, 21; yield data for, 512, 513

New South Wales Cane Growers' Association, 290, 303, 350, 695

New South Wales government:

establishes Wollongbar Experimental Farm, 137; financial assistance to New South Wales canegrowers, mid-1980s, 330–331; funding for flood reduction, 408, 428; proposed abolition of sugar import tariff 1895, 58; petitioned to fund a cooperative central mill, 219; petitioned to overturn production restrictions, 290

New South Wales land legislation, 74

New South Wales Mechanical Harvesting Committee, 651

New South Wales Soil Conservation Service, 432 New South Wales Sugar Industry Study Group (1985), 330–331

New South Wales Sugar Milling Cooperative Ltd.:

adopts continuous crushing (1988), 754; assumes responsibility for hot-water treatment facilities at its sugar mills, 604; develops cane variety breeding program, 504; encourages cane growing, 331-332; ends marketing arrangements with the Queensland Sugar Board, 331, 815; expenditure on mill upgrades, 741; financial difficulties of, 751; formation of (1978), 751; introduces environmental protection measures, 740; invests in Manildra Harwood Sugars, 815; opposes building of Brisbane Bulk Sugar Terminal, 331, 821; prohibits cultivation of NCo.310 cane variety, 604; purchases CSR's New South Wales sugar mills (1978), 503, 751; requests financial assistance from New South Wales government in 1985, 330-331; trials organophosphate insecticides, 552

New South Wales Sugar Mills Association, 246
New South Wales Sugar Promotion League, 290
New Zealand (as a sugar market), 295, 801, 821
Newrybar Swamp, 317
N.G. cane varieties, 467, 470–471, 474
Nicklin, Don (engineer), 720
Nicklin, Sir Francis, 312
Nicklin government (Queensland), 307, 309, 311, 312, 417
Nielsen, Paul (extension officer), 503
night harvesting, 655, 665
Nindaroo plantation, 90, 134, 159, 161

nitrogen (for sugar cane), 345, 354, 370, 371, 382, 384–385

Nobel maceration system, 722

'noble' cane varieties, 9

Norfolk Island, 21-22

North, David (plant pathologist), 471, 481, 534, 565, 568, 572, 574, 575, 576, 578, 584

North Burdekin Water Board, 417, 419

North Coast Anti-Alien Society, 91

North Coast Railway, 274, 345, 659

North Creek, 207

North Eton Central Mill:

boiler station upgrade at, 747; canegrowers gain control of, 699; closure of, 752; competes for cane with other Mackay sugar mill-owners, 217; controlled by the Bureau of Central Sugar Mills, Queensland, 699; erected (1888), 101; grasshoppers destroy cane for, 540; joins the Mackay Sugar Manufacturers' Association, 218; loss of assigned land to urban expansion, 322; machinery upgrades to, 699; short of cane, 101; suppliers of switch mills, 217; supplies sugar to Millaquin Refinery, 250

North Eton Central Sugar Co. Ltd., 101, 217 North Eton Cooperative Sugar Milling Association Ltd., 752

North Isis Solider Settlement Area, 659

North Johnstone River, 64, 111, 734, 736, 737

North Queensland Fertilisers and Chemicals Ltd., 373

North Shore Refinery Co., 37

Northern District Sugar Industry Productivity Committee, 434

Northern Territory:

annexed by South Australia, 50; area under cane 1880s, 50, 53; cane growing encouraged in, 50, 75; cessation of cane growing in 1892, 56; Chinese canegrowers in, 50; control transferred to Commonwealth government (1911), 56; labour force on sugar plantations in, 85; possible site for sugar refinery, 258; sugar from sold in Adelaide, 255; sugar plantations, financed by Victorian and South Australian companies, 50, 83

Noyea plantation, 124, 127 Nuffield mechanical cane loader, 642 Nuttall cutter planter, 364–365 Nuttall's Farm Supplies, 365

Oakenden plantation, 82 Oakenden Sugar Co., 82 Oakwood Mill, 191 O'Brien, Claude (chemist), 697 Oliver-Campbell rotary vacuum filter, 713, 721 orange freckle (cane disorder), 375 Ord River District Cooperative, 333 Ord River Irrigation Area, 332, 832 Ord River Mill, 276, 333, 756, 757 organochlorine insecticides, 541-543, 552, 555 organophosphate insecticides, 552, 553 Ormeau plantation, 177 Ormiston Mill, 43, 179 Ormiston plantation, 28, 43, 124, 127 overproduction (of sugar): in Australia, 272, 277, 279, 301, 832; conferences on, 285-286, 301-302 Owen, Francis (inventor), 625 Oxley, John, 22, 23

Pachymetra root rot, 507, 515, 599, 602 Pacific Islanders:

as small farmers, 89, 105; certificates of authority to cultivate cane for, 108; cost of recruitment, 85; daily routine of, 84; employed on Cudgen plantation, 51, 85; feeding cane into crushing rollers, 179; first used in Queensland, 45; food for, 80; hired to small farmers, 105; housing for on plantations, 85–86; length of working week, 84; living conditions of, 85–86; not used by CSR in New South Wales, 190; number avoiding repatriation, 59; number recruited to Australia, 1; opposition to use of, 85; recruitment of prohibited 1885, 52, 85; recruitment of resumes 1892, 55; repatriation of 1906–1908, 2,

59, 108, 140, 341; Royal Commission reports on probable effects of withdrawal of (1888), 54; teams of collect cane grubs, 160; teams of collect grasshoppers, 155; tenant farmers on plantations, 89, 105; time-expired, 51, 85, 90; unloading cane at sugar mills, 210; use by mill-owners, 179, 190, 210; use by sugar planters, 83–85; use by small farmers, 105

Paddle, John R. (public servant), 110 paddocks:

cleared of stones, 361, 654; creation of, 123, 361, 434; full of stumps, 123; levelling of, 434, 446–447; redesigned to accommodate mechanical harvesters, 434, 453; surrounded by belts of timber, 127; use of bulldozers to create, 361; see also drainage

Page, Earle (politician), 284, 776, 783
Paget, Walter (sugar planter), 159, 161; see also
Nindaroo plantation
Palm Island, 354, 631, 633, 635, 637
Palmerston Plantation Co., 50, 83
Palms Mill:

ceases to manufacture mill whites, 248; closure of (1924), 698, 701, 703; description of, 186; erection of, 186; joins the Mackay Sugar Manufacturers' Association, 218; machinery of transferred to Kalamia Mill, 703; severely damaged by a cyclone (1918), 698; see also Australian Estates & Mortgage Co. Ltd.

Palms plantation:

irrigation on, 136; ownership of, 83, 88; resumption of plantation agriculture on, 92; subdivision of, 91; workforce on, 84 Palmyra plantation, 80 Pandora Mill, 187

Pans:

Bour, 181, 187, 188; calandria, 705, 721, 727, 745, 757, 779; conductivity in, 714; continuous boiling in, 746, 756, 757; continuous high-grade, 756; Halpin, 721; heating surface of, 727, 745; mechanical circulation in, 745; Moliereux, 192; number of in Australian sugar mills, 721, 727; pH electrodes in, 714; Webre, 713–714, 721; Wetzel, 181, 187, 188; Sutton's Atmospheric Evaporating, 188, 833; vacuum, 16, 182, 187, 188, 699, 703, 705,

713, 721, 727, 745, 746, 755 756, 757, phytotron, 500, 501 779,808 Pialba district, 52, 217, 218 Papua New Guinea, 821 Piddington, Albert, 773 Para grass, 367 Piddington Royal Commission, 343, 347, 694, paradichlorbenzene, 523, 525, 534, 536; see also 702, 773, 774 Pimpama plantation, 80, 84-85, 127 Parbury, Lamb and Co. (merchants), 244, 256 Pimpama Sugar Co., 82, 85 'Paris Green', 160 Pindar cane variety, 305, 370, 482, 484, 485, Paspalum spp., 534 487, 499, 502, 512, 584, 587, 596 pineapple disease, 364, 365, 579, 581, 582, 587, Pathology Farm (BSES), 372, 583, 594 Paxton, W.H. & Co. (merchants), 244, 246, 253 588, 602 Pioneer Mill, Brandon; Peak Year Scheme: introduced in Queensland 1930, 280; acquired by CSR (1987), 752; bagasse drying CSR agrees to include its New South at, 190; erection of, 186; experiments with Wales mills under, 280; opposition to feed chutes at, 724; fuel problem of, 195; from Queensland's sugar mill-owners, machinery upgrades to, 193, 709, 722, 281-282; Royal Commission on (1939), 723; price paid for sugar cane, 218, 219; 288-289; supported by sugar industry receives cane from the Haughton River organisations, 283 district, 63, 209; staffed with an analytical Pearlwell Mill and plantation, 143 chemist, 200; tramline extensions at, 208; Peck, Isaac (sugar refiner), 37, 246 see also Drysdale Bros. & Co. Pemberton Mill and plantation, 83, 92, 209, 218, Pioneer plantation, Brandon: 250, 252 housing on, 86; irrigation at, 133-135; map Pender levellers, 710 of, 86; subdivided into small farms, 90; Peru, 771 tramway system on, 208; use of meatpest control; see Cane Pest Control Boards & works manure on, 134; see also Drysdale, Cane Pest and Disease Control Boards John & Drysdale, George pests (of sugar cane): Pioneer plantation, Mackay, 81, 88, 207; see also African black beetles, 512, 533-534, 544, 555, Spiller, John Pioneer River, 44, 79, 136, 144, 213, 218, 441 556; army worm caterpillars, 548-549; cane grubs, 156-163, 522-526, 534-537, Pioneer Shire Council, 209 543-544, 547-548; caterpillars, 155; cica-Pioneer Sugar Mills Ltd., 107, 281, 653, 663, das, 549; cockatoos, 550; feral pigs, 540, 550, 556, 557; funnel ants, 555; grasshoppivot irrigators, 449 pers, 155, 538, 540; nematodes, 550-551; Plane Creek Central Mill: rats, 355, 528-530, 540, 544, 549-550, acquired by CSR (1987), 752; connected to 556-557, 627, 628; soldier fly, 545, 546-Carmila by tramline, 274; crushing rate 547, 555, 556; swamp hens, 540; termites, at, 731; mill peak of, 282; machinery 155; wallabies, 540, 544, 550; weevil borer, upgrades to, 701; receives cane by gov-348, 355, 477, 521, 522, 528, 530-532, ernment-owned railways, 657, 661, 671, 536, 538, 556; wireworms, 532–533, 555 679; road transport of cane to, 667; sup-Peter Faust Dam, 448 plies sugar to Millaquin Refinery, 250; Petree, Cuthbert (inventor), 700 tramlines for, 659, 679; Very Low Colour Petree-Thomas process, 700, 712, 833 sugar manufactured at (1995), 818 pH (of cane juice), 715, 749 Plane Creek Central Mill Co. Ltd., 274 Philippines, 32, 36, 37, 235, 703, 820, 821 Plane Creek Southern Cane Railway Extension, Phillip, Captain Arthur, 21 phosphatation process (in sugar refineries), 240, Plantation Creek, 213, 407, 417 786, 807, 808, 811 plantation whites; see mill whites

plantations; see sugar plantations

phosphoric acid, 16, 240, 242, 479, 496, 807

planters; see sugar planters planting (of cane); see cane planting Port of Brisbane, 331 plate and frame filter presses, 700, 712, 721, 726 Port of Bundaberg, 795, 798, 800 Pleystowe Central Mill: Port of Lucinda, 792, 793, 798, 800 acquired by CSR (1975), 751; boiler station Port of Mackay, 793, 798, 799, 800 upgrades at, 711, 729, 747; cane invert Port of Mourilyan, 798, 799 manufactured at, 803; competing for Port of Townsville, 215, 793, 796, 797, 798, 800 cane, 217, 218; electrification in, 715, Port of Urangan, 796, 798, 799 Port of Yamba, 816, 821 717; experiments with apron feeders at, 724; joins the Mackay Sugar Manufacturportable rail track, 617, 623, 642, 662, 691 ers' Association, 218; machinery upgrades potash, 345, 359, 370 to, 715, 717; mill whites manufactured at, Powell, Thomas (canegrower), 776 244; road transport of cane to, 671; sold power alcohol, 732 to Mackay Sugar Cooperative Associapreparatory devices (in sugar mills): tion Ltd. (1988), 752; treatment of waste bent tip knives, 705, 720; crushers, 15, 701; waters at, 733; withdraws from Mackay Pender knives, 710; revolving knives, 15, Sugar Manufacturers' Association, 218 192, 193, 701, 705, 743, 833; shredders, Pleystowe Central Mill Co. Ltd., 698 15, 191, 192, 701–702, 708, 709, 720, 722, 743; see also carriers Pleystowe plantation, 82, 88, 90 Pleystowe Sugar Co., 82 prices of cane; see cane prices plough-out orders, 574, 590, 592 prices of sugar in Australia (for producers): P.O.J. (Proefstation Oost-Java) cane varieties, 472, before 1900, 52, 191, 208, 234; 1900 to 1939, 474, 479, 481, 482, 484, 486, 487, 571, 63, 277, 701, 708, 772, 773, 774, 776, 572, 573, 578, 587, 591, 708, 715 777, 784, 785; 1940 to 1959, 787–788, polarisation (of sugar), 780, 781, 801 804, 805; 1960 to 1979, 313, 314-315, polariscope, 197 806, 814; 1980 to 1995, 316-317, 318, 320, 323, 324, 325, 326, 329; controlled politics: alien and coloured labour, 52-53, 55, 58-59, by the Commonwealth government, 701, 834; cane price fixing legislation, 689-693; 770–771, 772–773, 774, 777, 784, 787, Commonwealth government control over 804-806, 814; deregulation of (1989), sugar industry, 58-60, 769-771; deregu-815; influenced by world prices, 52, 63, lation and the Australian sugar industry, 208, 313 318-319, 321, 324, 328-329 834; proprices of sugar in Australia (retail): tectionism, 834 1900 to 1939, 772, 774, 777, 784, 785; 1940 Polish immigrants (to Australia), 636, 806 to 1959, 804, 805; since 1960, 806, 814 pollution; see air pollution & water pollution Prince, Lou (mill manager), 661, 665 polyelectrolytes (in clarification), 726 Pritchard, George, 776 Poolman Brothers (sugar refiners), 247 Privy Council, 259 Poolman, Frederick (sugar refiner), 235, 237, 247 Productivity/Cane Payment Package, 755; see also Pools (for sugar), 280, 284, 285, 286, 320, 323, Queensland Sugar Corporation proprietary central sugar mills; see central sugar 331; see also Peak Year Scheme Populin billet planter, 380 mills, proprietary Proprietary Sugar Millers' Association Pty. Ltd., Populin Enterprises (Home Hill), 380 Port Denison; see Bowen 315-316, 753, 754 Port Douglas, 271, 798, 799 Proserpine Central Mill: Port Essington, 26 adopts relative percentage scheme, 697; boiler Port Macquarie; 23-25, 28, 48, 95; see also Scott, station upgrade at, 756; canegrowers Thomas regain control over the mill, 699; con-Port Melbourne Sugar Refinery, 237 trolled by Queensland Bureau of Central Port of Cairns, 215, 793, 796, 797, 798, 799 Sugar Mills, 110; crushing rate at, 731;

Port of Bowen, 798, 799

extensions of tramlines for, 678; machinery in at time of erection, 193; machinery upgrades to, 699, 709, 712, 713, 724, 756; mill peak of, 282; receives cane by government-owned railways, 661, 671; receives emergency government funding to operate, 751; road transport of cane to, 671; sugar exports of, 213, 215; treatment of waste waters at, 733

Proserpine Cooperative Sugar Milling Association Ltd., 110, 678, 752

Proserpine district:

area under cane, 51, 53, 56; cane first cultivated in, 51; Crystal Brook Sugar Co., 51; flood mitigation in, 448; important cane varieties in, 153; irrigation in, 405, 441, 448; Japanese canegrowers in, 105; land suitability study for, 749; Pacific Islander canegrowers in, 105; road transport of cane in, 658; sodic soils in, 385; soldier fly present in, 546; sugar exports from, 213, 215; wireworms prevalent in, 532

Proserpine River, 51, 433, 441, 448
Proserpine River Water Supply Scheme, 448
protection (for the Australian sugar industry), 58,
775, 776, 783–785, 834

pumps, 413, 438, 439

punts; see cane punting

pure obtainable sugar (p.o.c.s) formula, 199; see also commercial cane sugar (ccs)

pusher feeders:

double, 710; horizontal, 705, 833; replaced by vertical shutes, 724–725; vertical, 709, 833 Pyramid plantation, 88, 90, 160, 274 Pyrmont Refinery (Sydney):

affination station at, 241; bulk handling of raw sugar at, 793–794; bulk raw sugar storage bin erected at, 792, 793; bone char use at, 808; bone char-making plant closed at, 809; closed (1992), 817; description of, 235; erected (1878), 234–235; fertiliser manufactured at, 131; fire in (1918), 771; innovations in manufacturing processes at, 241–242, 809; liquid sugar manufactured at, 809; machinery upgrades to, 239, 779, 806; output of, 235, 239, 771, 777, 814; pollution reduced at, 809; products manufactured at, 809, 810; retail packaging plant established at, 810;

site for enlarged, 239; see also Colonial Sugar Refining Company

Q. 28 cane variety, 486, 581, 582

Q. 28 disease; see ratoon stunting disease

Q. 813 cane variety, 470, 472, 474, 481, 482, 484, 487, 569, 571, 573, 578, 587, 584; see also Queensland Acclimatisation Society

Q. series cane varieties, 381, 481–482, 486, 491, 493, 498–499, 504, 509

quadruple effets, 192, 202, 711, 721, 727

Quaid, George Snr (inventor), 639

Quaid's front end cane loader, 639-640

quarantine or isolation plots (for cane variety importations and introductions), 472, 488, 489

Queensland:

amount of fertiliser applied to crops of sugar cane in; 357, 359, 372-373, 383-384; anti-pollution legislation in, 735; area of irrigated cane in, 399, 406, 415, 441, 442, 448; area harvested by 'white' labour, 1900s, 60, 109; area under sugar cane in, 45, 46, 48, 50, 272, 273, 275, 287, 292, 310, 322, 325; average area cultivated on a cane farm in, 386; cane grub attacks in, 158-159, 522-523, 526, 540-541, 543, 547-548, 553-554; cane price-fixing legislation in, 689-697; cane varieties in, 142, 144, 152-154, 469-470, 480-481, 484, 486-487, 491-493, 499, 509-511; central sugar mills in, 98-99, 100-103, 110-111, 276; continuous (weekly) crushing in, 754; CSR erects New Farm Refinery in, 238-239; CSR expansion to, 82; cultivation methods of canegrowers in, 123-127, 341-386; disease control methods in, 142-146, 565-602; establishment of sugar cane quarantine districts in, 575; extent of green cane harvesting in, 454; location of sugar plantations in, 74, 75; feral pigs damage crops of cane in, 550, 556, 557; Italian canecutters for, 636-637; losses to cane crops from nematodes, 551; mechanical loading of cane in, 640-641, 642; mechanical harvesting of cane in, 646, 647, 649, 650; number of canegrowers in, 107, 109, 291, 298, 308, 314, 322, 325, 330; number of canegrowers in irrigating, 398;

number of mechanical cane harvesters in. 673-674; number of sugar mills in, 175, 176, 185, 191, 203, 698, 757; number of sugar plantations in, 74, 75; overall losses to cane crops from pests in, 557-558; ownership patterns of mechanical harvesters in, 654; prohibition on movement of cane into from New South Wales, 575; rat damage to crops of cane in, 528-530, 549-550, 556, 557; size of sugar plantations in, 79-80; small millers in, 92-94; soldier fly infestations in, 546-547; sugar industry in affected by 'rust' disease, 142-143; sugar industry contraction in during late 1880s, 53; sugar industry expansions in, 55-57, 63-64, 272-276, 287, 297-301, 308-311, 313-314, 316, 325-326, 329-330; weevil borers damage crops of cane in, 521, 522, 530, 556; waterways in polluted by effluent from sugar mills, 732-736

Queensland Acclimatisation Society, 147, 148, 474, 481, 486, 487; see also Q. 813 cane variety

Queensland Agricultural Bank, 106 Queensland Bureau of Industry, 287

Queensland Bureau of Sugar Experiment Stations; see Bureau of Sugar Experiment Stations, Queensland

Queensland Cane Growers' Association, 279, 300

Queensland Cane Growers' Council:

annual conferences of, 279, 280, 283; attempts to counteract negative publicity about the Australian sugar industry, 782; calls for the erection of an additional sugar refinery in Queensland, 789; complaints to about overproduction, 301; concerned about overproduction, 285; criticises Commonwealth government, 323; formation of, 279; forms Mechanical Harvesting sub-committee, 637; expresses disappointment at proposal to alter the Sugar Agreement of 1930, 784; levies members to promote mechanised harvests, 638; opposes cane burning, 628; opposes deregulation, 319, 321; opposes night harvesting, 665; rejects findings of Gibbs Royal Commission, 309; supports implementation of Equalisation Scheme, 286

Queensland Cane Harvester Corporation Ltd., 624, 638

Queensland Cement and Lime Co. Ltd., 345 Queensland Central Sugar Factory Co., 99 Queensland Council of Agriculture, 774 Queensland Court of Industrial Arbitration, 618, 619, 620

Queensland government:

accused of allowing sugar mills pollute watercourses, 734; acquires licence for the Petree-Thomas process, 699; acts as agent for Commonwealth government in acquisition of Australian-produced raw sugar, 770; approves introduction of Peak Year Scheme, 280; approached for financial rescue package for state's mill-owners 1965, 312; approves increased mill peaks, 288-289, 293, 297; asks Commonwealth government for sufficient workers to complete the 1943 harvest, 631; builds railways benefitting canegrowers, 207-208; establishes BSES 1900, 138; establishes Queensland Sugar Board, 776; establishes State Nurseries at Mackay and Kamerunga, 137; funds erection of central sugar mills, 100-101, 111, 276; funds flood mitigation works in sugar-producing districts, 433; funds irrigation schemes in sugar-producing districts, 420, 441, 448; funds new sugar infrastructure projects during the early 1990s, 329; imports cane varieties from Hawaii in late 1870s, 143; introduces Clean Air legislation, 738; introduces Clean Water legislation, 735; introduces fertiliser rationing during World War 11, 358-359; maintains tariff on sugar imports, 45; investigates central milling system in West Indies, 100; lobbied for more funds to control pests of sugar cane, 526; petitioned by Tooth & Cran about refining sugar in bond, 232; opposes sugar industry deregulation, 321, 328; petitioned to build central mills, 92, 100, 110; permits recruitment of Pacific Islanders 1868, 45; prohibits recruitment of Pacific Islanders 1885, 52, 86; provides emergency funding to the state's mill-owners (1982), 751; publishes brochure about opportunities to acquire land on sugar plantations, 103-104; rescinds prohibition on recruitment of Pacific Islanders (1892), 55; special grant to BSES in 1972, 594; urged to erect a state-owned sugar refinery, 256, 258; writs taken out against by CSR, 692–693

Queensland Harvesting Company Pty. Ltd., 652 Queensland Industrial Commission, 754

Queensland Industrial Court, 617, 628, 629, 640, 655, 696

Queensland National Bank:

acquires Millaquin and Yengarie Refineries, 234; closes Doolbi Mill (1924), 698; closes Yengarie Refinery (1900), 194; competes with CSR for sugar from Queensland mill-owners, 250; converts Millaquin Refinery into a factory that can handle raw sugar, 250; decides to maintain plantation agriculture on its Bundaberg properties, 92; financial support for Robert Cran & Co., 233, 234; funds establishment of sugar plantations and small mills, 82, 94; funds machinery upgrades to Millaquin Refinery, 234; loans to Queensland mill-owners, 250; market share agreements with CSR, 251, 252; purchases Mon Repos Mill (1899), 250; resolves to increase Millaquin Refinery's output, 250; undersells CSR in sugar products, 249; see also Millaquin & Yengarie Refineries and Millaquin & Qunaba Mills

Queensland Parliament, 207, 232, 256, 258, 299, 689, 693, 734, 735, 738, 770

Queensland Railways, 207, 208, 215, 659, 661, 667, 669, 671, 679, 793

Queensland Society of Sugar Cane Technologists, 707

Queensland Sugar Board:

accepts CSR's offer to finance sugar exports, 277; acquisition of excess sugar, 289, 301–302; arranges for the manufacture of the JA brand of sugar, 801; approves increased mill peaks for New South Wales, 317–318; authorises upgrades to the state's bulk sugar terminals, 821; borrows funds to augment sales proceeds from 1966 and 1967 crops, 312; builds Brisbane Bulk Sugar Terminal, 821; ceases to exist (1991), 327; controls sugar marketing in Australia, 776; formation of, 276, 776; plans for introduction of mechanised bulk sugar transport system,

792; relations with New South Wales Sugar Milling Cooperative, 331, 815; relations with CSR, 277, 777; retains CSR as its export agent after deregulation in 1989, 815; seeks new markets for sugar, 780–781, 801, 803, 821, 823; sponsors advertising campaign to improve sugar consumption in Australia, 812; stresses need for improved raw sugar quality, 801, 803

Queensland Sugar Corporation:

assumes role once held by Central Sugar Cane Prices Board, 327, 329, 754; develops new sugar markets, 823; formation of (1991), 327; reports on cane price formula, 754–755

Queensland Sugar Industry Defence Committee,

Queensland Sugar Industry Infrastructure Package (1993), 329, 436

Queensland Treasury, 101, 102, 110, 111, 397, 698, 795

Queensland University of Technology, 582 Quinlan, Gray & Co., 82 quintuple effets, 192, 202, 711, 721, 727 Qunaba Mill:

closure of (1985), 752; disposal of fly-ash at, 739; machinery upgrades to, 722; rezoning of assigned land to, 661; transport of cane to, 209; sugar from supplies Millaquin refinery, 798; treatment of waste waters at, 737; see also Queensland National Bank

Qunaba plantation, 136

Racecourse Central Mill:

boiler station upgrade at, 719; burns sawdust in mill furnaces, 747; cane invert manufacture at, 803; continuous vacuum pan installed at, 746; disposal of fly-ash at, 739; electricity installed in, 202; erected (1888), 101; joins the Mackay Sugar Manufacturers' Association, 218; loss of assigned land to urban expansion, 322; machinery upgrades to, 703, 705, 709, 710, 712, 713, 719, 723, 755; pollutes nearby watercourses, 734; receives cane by governmentowned railways, 657, 661, 671; shortage of cane late 1880s, 101; treatment of waste waters at, 734; staffed with an analytical chemist, 200–201

debts to Queensland Treasury, 101; farmer Richmond Mill, 99 debts to, 106; funds machinery upgrades Richmond plantation, 79, 88 to Racecourse Mill, 703; purchases large Richmond River, 28, 207, 274, 427, 474, 533 blocks of land for subdivision, 217 Richmond River County Council, 427, 428, 437 Racecourse Cooperative Sugar Milling Associa-Richmond River district: tion, 734 African black beetle attacks in, 533; area under Racecourse Refinery (Mackay), 819, 820 cane in, 48, 51, 274; cane first cultivated rail trucks, 642, 656, 658, 662, 668, 669 in, 28; canegrowers in form cane planting railways, 207-209, 656-657 cooperatives, 380; cane grub attacks in, rakes (of loaded rail trucks), 642 552; changing distribution of cane growing in, 65; cultivation methods of canegrow-Ramsay, Alexander (chemist), 149 Rankin, Lt-Col. Colin (politician), 220, 690 ers in, 123, 124, 350; CSR erects sugar Ranking, Robert (public servant), 59, 110 mill in (1881), 98; drainage improvements Ranking Royal Commission (1906), 59 in, 275, 402-403, 407, 408, 412, 413, Ranking Royal Commission (1911), 110-111, 271 427-428, 437, 438-439; drainage unions RapiDorr subsider, 744 in, 402, 412, 413; erection of Bagotville ratoon, ratoon cane, ratooning, 11, 349, 352, 354, Barrage in, 437; Fiji disease outbreaks in 358, 378, 380–381, 382, 386, 484, 486 and their control, 503, 595; frost-prone, ratoon stunting disease: 13, 48; gumming disease outbreaks in, control methods for, 581-582, 589, 596, 144, 471, 568; Indian canegrowers in, 105; 601, 602, 603, 604; discovery of, 579; Keith Hall Estate in, 78, 83, 131, 146; metransmission of, 581; susceptibility of Q. chanical loading of cane in, 428, 643; poor-28 to, 486; yield losses from, 585-586 ly drained, 402; presence of Sikhs in, 90; rats (in sugar cane): prone to frost, 13; soil conservation mea-BSES investigations into control measures, sures in, 432; small millers in, 93; tramlines 557; CSR efforts against, 528, 529, 549; in, 205; see also Broadwater and Rous Mills control measures against, 528, 529, 530, & Broadwater Experiment Station 540, 544, 549-550, 557, 627, 628; dam-Richmond River Sugar Co., 99, 191, 204, 208 Richmond River Valley Flood Mitigation Comage to cane crops from, 528, 529, 530, 540, 544, 549, 556, 557; different species mittee, 427 of, 528; see also Weil's disease Rio de Janeiro, 21, 31 raw sugar, see sugar, raw (in Australia) Ripple Creek, 407, 408, 409, 425, 439 rebate; see excise and rebate Ripple Creek Drainage Board, 439 red bills; see swamp hens Ripple Creek Mill, 236, 243, 250, 252 Redland Bay plantation, 79, 87 Ripple Creek plantation: red rot disease, 142, 570, 595, 602 area under cane on, 80; land leased to small red stripe disease, 572, 595 farmers, 89; purchased by CSR (1906), Reed, Dr John Hastings, 150, 697; see also 252; subdivision of, 91; see also Boyd, Hambledon Mill & relative percentage Robert scheme river bank erosion, 408-409, 429-430, 433 refining, sugar; see sugar, refined (in Australia) River Improvement Trusts, 409, 429-430, 433 refining qualities of raw sugar, 249 River plantation, 80, 197, 207 refractometer, 480 Riverside Mill, 99 Rehfelt, Carl, 96; see also Alberton Mill road transport (of cane): Reid, Jane (author), 720 cost of, 678; first used in Australia, 623; mill Reid, Walter & Co. (merchants), 244, 253 supply areas used in, 656, 658, 665-668, relative percentage scheme, 697 670,678 retention money (for canecutters), 613 road transport (of raw sugar), 794, 799, 821 revolving knives, 15, 192, 193, 743, 833 Roach, Brian (cane breeder), 500, 501

rezoning (of assignments), 659-661

Racecourse Central Sugar Co. Ltd.:

'roaming' provisions (of assignments), 321-322, Rous plantation, 90, 208 327 Row, John (politician), 664 Robb, John A., 92 Royal Botanic Gardens, Kew, 146 Robb, John & Co., 90, 105, 200; Royal Commissions and Inquiries see also Cudgen plantation (Commonwealth): 254 (1906); 62, 106, 201, 203, 220, 239, Robb Swamp Drainage Scheme, 402 Robb Swamp Drainage Trust, 400 242-243, 252, 253, 254, 255, 259-260 Robey, James, 36 (1911-1912); 343, 694, 702, 773, 774 Robey, Ralph, 36 (1919); 349, 350, 782–783, 787 (1930); Robey & Co. (sugar refiners), 36-37 805 (1952); 804 (1960) Robinson, Perry (plant pathologist), 585 Royal Commissions and Inquiries (Queensland): Rockhampton district, 49, 51, 53; see also Yep-100-101 (1885); 54, 73, 99, 107, 248, 528 poon Sugar Co. & Pandora Mill (1889); 59 (1906); 110-111, 271 (1911); Rockholme plantation, 126 271 (1916); 275-276 (1922); 287-288, Rocky Point Mill: 357, 715 (1939); 351, 360, 631, 632, excluded from operating under the cane 633, 718 (1942-1943); 292-293 (1946); price-fixing legislation, 691; Fiji disease 295-296 (1950-1951); (1963) affects cane supply to, 591, 592; financial Royal Commissions and Inquiries (Victoria), 255 difficulties of, 303; land suitability study (1896)for, 749; loss of assigned land to urban Rubyana Mill, 191 expansion, 322; machinery upgrades to, Russel, P.N. & Co. (sugar mill machinery manu-701, 718; mill peak of increased, 303, facturer), 184 307; modernisation program at, 722; Russell River, 110 Queensland's only privately-owned 'rust' disease, 45, 49, 52, 142, 143 sugar mill, 96; road transport of cane Ryan government (Queensland), 397, 526, 617to, 667, 670; state-wide price of cane 618, 689, 692, 693, 770 finally accepted at, 696; trial of contin-Ryan, Premier Thomas J., 220, 271, 618, 619, uous vacuum pan at, 746; works only 639, 689, 770 two shifts daily, 715; works three shifts daily, 731; see also Heck, W. H. & Sons saccharometer, 196-197 Pty. Ltd. Saccharum officinarum, 9, 489, 501 rodenticides, 540, 557, 558 Saccharum robustum, 9, 478, 489, 493, 497 Roderick, Colin (historian), 23 Saccharum spontaneum, 9, 477, 489, 490, 493, roguing, 574, 579, 589, 590, 592, 603, 604; see 497, 501 also Fiji disease salt water intrusion (of aquifers), 406, 415, 417, 'root rot'; see Pachymetra root rot 419, 450 rotary tipplers, 743 Sandridge Refinery (Melbourne), 36, 235 Roth, Henry (author), 123, 128, 182 Sandy Creek, 441, 732, 735; see also Eton Irriga-Rosewood Scrub, 52 tion Scheme Ross, Joseph Grafton (sugar refinery manager), 37 Sarina, 330, 645, 732, 749 Ross, Major Robert, 21 Saunders, Professor Kay, 620 Ross, Tom (inventor), 352 Savage Report, 320-321, 326, 331, 675 Ross, William Murray, 235 Savage, Russell, 320, 675, 751 Rossi Farming Co., 377, 649 sawdust, 747, 748 Rosstown Sugar Refinery, 235 sawmills, 747 rotary vacuum filters, 712-713, 721, 726-727, Sawyer, Graham (Sugar Research Institute re-757 searcher), 739 rotary filter mud; see filter mud Scott, Ray & Dixon (inventors), 645 rotary hoes, 302, 362, 386, 555, 625, 833 Scott, Thomas Alison, 23, 25, 78 Rous Mill, 191-192, 200, 204, 237, 248 screw presses, 14

scrub rakes, 361 Co. Ltd. and Kalamia, Palms, Airdmillan Scriven, Ernest, 139, 467 & Seaforth plantations Scullin government (Commonwealth), 782, 783 small farmers; see canegrowers Seaforth plantation, 82, 88, 90, 134 small millers: Searby shredder, 709, 719, 720, 744 causes of failure of, 95-96; criticised by CSR, season, crushing or harvesting: 94; distribution in Queensland, 93; districommencement of, 614, 719; continuous bution in New South Wales, 93; employcrushing during, 754; crushing records ment background of, 95; expenditure on for, 715, 731; disrupted by strikes, 60-62, sugar-making machinery, 94; motives to 220-221, 617-618, 620, 627-628, 665; become one, 92-93; nationality of, 95; lack of canecutters during, 617, 630-631, seek independence from CSR, 93; strate-633, 635; retention money for canecutters gies to raise capital, 94-95 Smellie, Robert (sugar planter), 87, 184; see also during, 613 Seaview Mill, 191 Mourilyan plantation Smellie, Robert & Co., 184 Smith, A. & W. and Co. (sugar mill machinery definition of, 10; planting of, 11, 124; 343, 352, 365, 380; soaked in quicklime to makers, Glasgow), 184, 193, 212 combat disease, 143; soaked in a solution Smith, Ernest, 287, 288 of lead arsenate to combat beetles, 534; Smith, George, 52 sprayed with fungicide, 365, 588 Smith, Graham (author), 651 Shann, Don (Sugar Research Institute researcher), Smith, John (CSR employee), 692, 694 Smith, Norman (sugar technologist), 707, 708 sharecropping, 73, 87 Smith, Thomas L. (sugar planter), 79, 237 Sharon plantation, 80, 92 Smith, Premier William Forgan, 277, 279, 282, 283, Shaw, Flora (journalist), 89, 189 285, 286, 287, 288–289, 409, 779, 786 Shear blade cane harvesters, 645 Smithfield, 414 sheds; see implement sheds S.N. series cane varieties, 471, 482, 495 Sheep Station Creek, 134 sodic soils, 385-386 Sherwood Mill, 94 soil analysis, 126, 134, 139, 347 soil compaction, 364, 386, 643 Shlomowitz, Dr Raph (economic historian), xi, 112,613 soil conservation measures: Shoal Bay plantation, 56 contour banks, 430-432, 451, 453, 454; shoaling (of rivers), 206-207, 215 lack of in Queensland, 410; promoted by Shogren, Dr Diana (political scientist), 62 BSES, 411, 431; promoted by CSR, 431; Short Inquiry (1916), 271 promoted by Department of Primary Short, William, 271, 287, 288, 776, 782 Industries, Queensland, 431, 451; slow shortage of labour; see labour shortages uptake by canegrowers, 432, 451, 452; see shredders, 15, 191, 192, 701, 708, 709, 719, 720, also soil erosion 722, 833 soil enhancement: side tipplers; see rotary tipplers addition of bagasse, 375; addition of gypsum, sign-on days, 614 450; addition of lime, 126, 134, 136, 139, 143, 343-347, 374, 386; addition of trace Sikhs (as sugar plantation labourers in Australia), elements, 375, 385; green manuring, 131, 90-91 'single desk' selling of raw sugar (in Australia), 132, 134, 164, 348, 374 328, 770, 823 soil erosion: S.J. series cane varieties, 469, 571, 587 attitude of canegrowers to, 431-432, 452; Skinner, Dr James (cane breeder), 487, 490, 507, BSES's efforts to combat, 410-411, 430-431, 453; CSR efforts to combat, 431; Sloane, William & Co. (merchants), 82, 83, 88; causes of , 410; investigations into extent see also Australian Estates and Mortgage of, 412, 451; location of, 410, 412, 430; present in Isis district 1890s, 410; see also soil conservation measures

soil fertility, 126, 127, 129, 139 soil fumigation:

chemicals used in, 162, 523, 525, 534, 536; cost of, 162; disrupted during World War 11, 359, 537; effectiveness of, 162, 536; extent of, 162, 163, 523, 537; disliked by workers, 162; promoted by Cane Pest Control Boards, 536; see also cane grubs, Blundell knapsack fumigant injector, Blundell machine injector & Dank's injector

soil maps, 354

soil salinity, 385-386, 450, 597

soils and cane growing, 14, 126, 139, 450

soldier fly, 545-546, 555, 556

soldier settlement (in Australia), 274, 292–293, 659

Solomon Islands, 83

Soper, Frederick, 326

sour storage rot (of chopped cane), 602, 653; see also Egan, Brian

South Africa, 502, 587

South Australia:

annexation of Northern Territory, 50; antisugar imports embargo meetings in, 784; companies based in invest in sugar plantations, 50; Charles Jacobs & Son supplies sugar to, 255; closure of Glanville Refinery in (1991), 817; CSR erects sugar refinery in, 238; CSR controls market for sugar in, 255; government of encourages cultivation of sugar cane in Northern Territory, 50, 75; see also Glanville Refinery

South Burdekin Water Board, 417, 419 South Johnstone Central Mill:

adopts relative percentage scheme, 697; amount of weevil borer damaged cane supplied to, 556; cascade aeration system to cool water at, 757; boiler station upgrade at, 747; crushing rate at, 731; effluent treatment plant at, 737; erected (1916), 111; machinery upgrades to, 709, 712, 713, 755; opposes expansion in sugar production during mid-1970s, 315; pollutes South Johnstone River, 737–738; receives cane by government-owned railways, 657, 661,

671; receives emergency government funding to operate, 751 strike at over British preference issue, 621; sugar exports from, 798, 799

South Johnstone Cooperative Sugar Milling Association, 635, 737–738

South Johnstone district:

rat poisoning campaign in, 529; shortage of canecutters in, 635; strike of mill workers and canecutters in 1927, 621; soil conservation measures in, 431; soil erosion in, 412; sugar mill erected in, 111

South Johnstone River, 111, 425, 734, 737

South Johnstone Sugar Experiment Station, 468, 469, 476

South Maroochy Drainage Area, 433

South Maroochy Drainage Scheme, 414

South Mossman River, 50, 737

Southgate district:

canegrowers suffer from poor drainage, 98; CSR erects sugar mill in, 97; cultivation of sugar cane in during late 1850s, 27

Southgate Mill, 97, 98

Spaniards (in Australia):

as canecutters, 60, 275, 637; as farmers, 275, 637

spear system, 135-136, 397, 414, 441; see also irrigation (of sugar cane)

Spiller, John, 81, 207; see also Pioneer plantation (Mackay)

spray or sprinkler irrigation, 406, 414–415, 443–444

Springhill Mill, 191

SRI clarifier, 744, 833

St Helena Island Penal Establishment, 45

Staiger, Karl (chemist), 143

Staines, Samuel (sugar planter), 81

stand-over cane, 301, 302, 303, 313, 315

steam (in sugar mills), 195, 710-712, 729, 747

steam (in sugar refineries), 807

steam bleeding, 711, 712

steam ploughs, 124, 130, 133, 134, 136, 349

Steindl, David (plant pathologist), 579; see also ration stunting disease

Stoddart, James (commission agent), 244

stone pickers, 361, 654

Stone River, 64, 209, 430

stones (in paddocks of cane), 123, 124, 133, 361, 654

stools (of cane), 9-10

storage, of raw sugar:

at sugar mills, 212, 717, 793, 796; at sugar refineries, 235, 792, 793, 794, 779, 780, 808

Stradbroke Island, 577

Strahan, James (engineer), 43

strikes: strikes:

canecutters (1934), 529, 627–628; farmers refusing to harvest cane (1914), 220–221; over Dickson Award (1916), 618; South Johnstone (1927), 621; sugar workers (1909), 60; sugar workers (1911), 61; Weil's disease (1934), 627–628

stump removal, 123, 160, 361

Sturgess, Owen (plant pathologist), 580

subsiders; see clarifiers

subsoiling, 124, 131

sugar, raw (in Australia):

acquired by the Queensland government, 770; bulk handling of, 792-796; commission agents for, 243-245; exports of, 276-277, 278, 284, 289, 780-81, 801-803, 821-823; first manufactured in New South Wales, 25; first manufactured in Queensland, 43; loading of (at ports), 211-213, 216, 791-792; imports of, 31, 32, 36, 38, 771; refining of, 33-38, 231-243, 771-772, 777-780, 786-787, 806-811, 814-820; transport of, 212-216, 791-800; nineteenth century marketing of, 243-246, 248-252; twentieth century marketing of, 770-772, 776-777, 801-803, 815-816, 821-823; shortages of, 31, 32, 769; strength of (net titre), 201, 246, 248, 714; supplied instead of refined sugar (1948), 789; world markets for, 296, 301, 306, 308, 313; see also prices of sugar in Australia (for producers), storage, of raw sugar & sugar mills (in Australia)

sugar, refined (in Australia)

competes with mill whites, 236–237, 253–254; delivery to customers, 809, 810; exports of, 820–821; interruptions to manufacture of, 779, 789; manufacturers of, 33–37, 231–243, 771–772, 777–780, 806–809, 815–820; market for dominated by Colonial Sugar Refining Company, 34–36, 255–256, 260; production of interrupted during World War II, 786–787;

sales to Australian manufacturers, 253; types of, 787, 809–810, 818; shortages of in Australia, 769, 789; twentieth century innovations in the manufacture of, 241–242, 786, 807, 808; see also mill whites, Australasia Sugar Refining Co., Colonial Sugar Refining Company, Cran, Robert & Co., Joshua Brothers, Millaquin Sugar Co. Ltd., Peck, Isaac, Poolman family, Tooth & Cran & sugar refineries (in Australia)

Sugar Agreements, Australia:

after World War II, 804–806, 814, 815; before World War II, 774, 776, 777, 783, 785; cessation of (1989), 815; during World War II, 787–788; introduced (1920), 774; sugar industry requests to alter, 787–788

Sugar and Coffee Regulations (1864), 43, 44, 45,

sugar and nutrition, 812, 813

Sugar and nutrition abstracts, 812

Sugar Australia Pty. Ltd., 820

sugar beet, 235

sugar bins (at sugar mills), 796

sugar boilers, 195–197, 714; see also Knobel, Alfred & Frederick

sugar brokers, 243-244

sugar cane:

arrowing of, 468, 490, 497, 502, 508; breeding new varieties of in Australia, 146-151, 467-515; climatic requirements for, 12-13; clusters of stalks of, 9, 10; genus Saccharum, 9, 478, 489, 493, 497, 501; diseases of in Australia, 57, 142-143, 144-146, 565-604; introduction to Australia, 21; pests of in Australia, 155-163, 521-558; soil moisture requirements for, 13-14; stools of, 9, 10; transport of to sugar mills, 203-216, 623, 656-672, 678-679; unloading of at sugar mills, 210-211, 743; varieties of, 141-155, 469-470, 474, 480-487, 491-494, 499, 501-502, 504-505, 509-512; see also cane loading, cane harvesting, cane unloading (at sugar mills) & cultivation methods (of sugar cane)

Sugar Cane Growers' Adjustment Scheme, 322 sugar cane leafhoppers; see leafhoppers

sugar cane prices; see cane prices

Sugar Cane Prices Board; see Central Sugar Cane Prices Board Sugar Committee of Inquiry, Commonwealth (1952), 805

sugar consumption:

in Australia, 231, 777, 786, 788, 806, 811, 813; in New South Wales during the 1830s, 32; in United Kingdom, 786

sugar cubes, 16, 809

Sugar Enquiry Committee, Commonwealth (1960), 804

Sugar Experiment Stations; see Bureau of Sugar Experiment Stations, Queensland Sugar Experiment Stations Board, 276, 598 sugar imports; see imports of sugar (into Australia) Sugar Industry Award, 613, 633, 639, 655 Sugar Industry Package of 1993, 329 Sugar Industry Rescue Package, 321 Sugar Industry Task Force (1992), 328, 820 Sugar Industry Tribunal, 755 Sugar Industry Working Party (1985), 320, 675 Sugar Industry Working Party (1989), 326, 675 Sugar Infrastructure Package (1993), 679 Sugar Journal and Tropical Cultivator, 128 sugar loading; see loading sugar

sugar mills (in Australia): absence of cleanliness in, 703; adopt multiple crushing, 186, 191, 192, 193; air pollution from, 738-740; animal-powered, 54, 73, 177, 188; annual sugar output, 175, 186, 201, 203, camouflaged during World War II, 717; co-efficient of work in, 699, 702, 703; competing for cane, 216-220; computers in, 748-749; cost to erect, 94, 111, 193, 276; electricity in, 202, 712, 715, 717; crushing rates in restricted during World War II, 718; double crushing trains in, 297, 705, 722, 741, 755; equipped with rotary tipplers, 743; equipped with rotary vacuum filters, 712-713, 726; equipped with vacuum pans, 182, 187, 188, 713-714, 721, 745–746, 756; equipped with weighbridges, 202; evaporating surface of effets in, 727, 744, 757; fuel demand of, 194-195, 747-748; horse-driven, 54, 73, 177, 188; hourly crushing rates in, 715, 731, 749, 755, 756; juice, 175-176, 189, 191; level of technology in compared to overseas sugar mills, 183, 202, 706; machinery upgrades to, 177, 182-184, 188-189, 191, 192, 193, 202, 699–701, 703, 705, 709-714, 718-729, 741-746, 755-757; miss-match between crushing and evaporating capacities, 702-703; night shifts at, 186, 192; nineteenth century innovations in, 183-184, 186, 191-193; number in Queensland, 175, 176, 185, 191, 757; number in New South Wales, 175, 176, 185, 191, 757; number of vacuum pans in, 713, 721, 727, 745; pollution from, 712, 731-738; staffed with analytical chemists, 110, 197-201; twentieth century innovations in, 705, 708-715, 722-723, 724-729, 738–740, 743–746, 748, 756–757; upgraded with steam-driven machinery during the 1870s and 1880s, 177; weekly crushing rates, 703, 731; yearly crushing volumes, 703, 715, 731, 749, 757; see also cane unloading (at sugar mills), coefficient of work, machinery manufacturers (sugar mills) & Peak Year Scheme

sugar mill machinery (manufacture of); see machinery manufacturers (sugar mills)

Sugar North Ltd., 753

Sugar Peaks; see Peak Year Scheme

sugar plantations (in Australia):

area cultivated on, 80; areal size of, 79-80; closure of, 53, 56, 57, 87-88, 91-92; distribution of, 74; housing for workers on, 85-86; labour force of, 83-85; location near watercourses, 78-79; non-cultivated lands, use of, 80; number in Australia, 74, 75; ownership of, 81-83; persist after 1904, 92; size of, 79-80; subdivision of, 89-92; unsuccessful sale of, 88; see also names of individual sugar plantations

sugar planters (in Australia):

affected by labour shortages, 57, 85; affected by 'rust' disease, 143; and Aborigines, 84, 88; background of, 81-83; efforts to reduce numbers of cane beetles and cane grubs, 159-160; employing Europeans, 84-85, 130; leasing land to farmers, 89-90, 104-106; leasing land to Chinese, 89; leasing land to Pacific Islanders, 89; opposition to loss of Pacific Islander labourers, 55, 59; recruiting Javanese workers, 87; recruiting Japanese workers, 90; relations with small farmers, 100; responses to labour shortages, 85, 87; sale of land to farmers, 89-91, 104-106; source of funding, 50, 82-83; terms for land disposal 1880s & 1890s, 89-90, 104-106

sugar prices; see prices of sugar in Australia (for producers) & prices of sugar in Australia

sugar products; see caster sugar, icing sugar, liquid sugar, sugar cubes, sugar, raw (in Australia), sugar, refined (in Australia) & tablet sugar sugar rationing (in Australia), 786, 788 sugar refineries (in Australia):

agitation for one in North Queensland, 791; agitation for one in Tasmania, 789; acquired by the Queensland National Bank, 234; bone char usage at, 808; closed by CSR, 817; competition between, 35, 37, 246-247, 249-252, 819-820; damaged by fire, 779; erected by Australian Sugar Co., 33; erected by Australasia Sugar Refining Co., 237; erected by CSR, 234-235, 779-780; erected by Isaac Peck, 37; erected by Joshua Bros., 235; erected by Poolman family, 237, 247; erected by Robert Cooper, 35; erected by Robert Cran & Co., 233-234; erected by Robert Tooth & Co., 237; erected by Robey & Co., 37; erected by Thomas Bowden, 34; erected by Tooth & Cran, 81; erected by Victoria Sugar Co., 36, 235; erected by William Ross, 235; failure of due to CSR's price reduction policy, 35, 247; modified products manufactured at during World War II, 787; output of, 33, 36, 37, 771, 779, 781–782, 786, 787, 789; pollution reduced at, 809 products manufactured at, 33, 787, 809, 810, 811; proposed by Charles Jacobs & Sons, 238; proposed nationalisation of, 256, 261; shortage of hessian bags at, 807; shortage of raw sugar at, 789; shortage of workers at, 789, 807; steam economy in, 807; see also Colonial Sugar Refining Company, Millaquin Sugar Co. Ltd., Victoria Sugar Co. & sugar, refined (in Australia)

Sugar Research and Development Corporation, 503, 513

Sugar Research Institute:

Cullen, Rod, 739; formation of (1949), 719; Hale, David, 744; history of, 719; investigations into bagasse consumption and preservation, 747; investigations into cane trains and locomotives, 662; investigations into clarifier design, 720, 744; investigations into continuous vacuum pans, 746; investigations into design of feeders for sets of crushing rollers, 725-726; investigations into methods to reduce air and water pollution, 720, 735, 739; investigations into transport scheduling, 669, 720; Murry, Rod, 668; Sawyer, Graham, 739; Shann, Don, 725; Whayman, Ted, 744

Sugar Yield Decline Joint Venture, 513, 514 sulphate of ammonia, 347, 354, 358, 371, 372, 383, 385

sulfur deficiency (in soils), 385 sulfur dioxide, 182, 479, 489, 496 sulfuric acid, 16, 182, 473, 496 Sullivan, Victor (politician), 313, 314, 315, 316 Summerville Mill, 94

Sunshine Sugar, 815 Supreme Court of Queensland, 692

suSCon®Blue (insecticide), 552, 553, 554, 555 Sutherland, Dr Keith (CSR's Director of Research), 500

Sutton's Atmospheric Evaporating Pan, 188 Swallow & Ariell Ltd. (biscuit manufacturers),

Swallow & Derham (sugar planters), 213, 236; see also Hambledon plantation

Swallow, Thomas (sugar planter), 80, 213; see also Hambledon plantation

swamp hens, 540

Swayne, Edward (politician), 159 Sydney:

commission agents for sugar in, 244; Kent Brewery, 231; merchants importing sugar, 31-32; sugar machinery makers in, 184; sugar refineries erected in, 33-35, 37, 234-235

Sydney Botanic Gardens, 23 Sydney Morning Herald, 95, 123, 127, 129 Sydney Sugar Works, 34

tablet sugar, 787 tachinid flies, 521, 522 Taiwan:

> as source of cane varieties, 495; as source of common rust disease, 600; sugar imports from, 233, 771

Tariff Board, 774-775, 788; see also Industries Assistance Commission & Industry Commission

tariffs: torricellian waters, 733, 736 on sugar imports into Australia, 245, 324, 328, Toscanella (ship), 637 Towns, Robert & Co., 32, 37, 49 329, 774-775, 815; on sugar imports into Townsville: New South Wales, 37; on sugar imports into Queensland, 45; suggested removal of as a port, 209, 215, 371, 793, 796, 797, 798, 800; bulk sugar terminal at, 795, 799, in New South Wales, 1895, 58 Tate and Lyle International, 753, 793, 816 821; commission agents at (for sugar), Taylor bag filters, 232, 240, 241, 786 245, 250; connected to Ingham by rail, Te Kowai Mill, 179, 184, 190, 207 272; connected to Lower Burdekin by Te Kowai plantation, 82, 83, 84, 88 rail, 209; sugar plantation at, 49 Technical HCH; see BHC Townsville Bulk Sugar Terminal, 795, 799, 821 tenanted sugar plantations, 89-90 Townsville Municipal Council, 209 termites, 155 tractors: thallium sulphate baits, 549, 557; see also rats (in first used by Australian canegrowers, 342-343; horsepower of, 363-364, 379; imsugar cane) The Canecutters, 636 pressed during World War II, 292, 359-The Cane Growers' Quarterly Bulletin, 354 360; models of, 342-343, 351, 362-363, The Queensland Canegrowers' Handbook, 354 379; number per cane farm, 362; slow Theodore government (Queensland), 275, 279, to be adopted by canegrowers in New 527, 776, 779 South Wales, 350; used to drive irrigation Theodore, Edward (Premier and Treasurer of pumps, 343, 398 Queensland), 397, 619 trade unions, 60-61, 242-243, 617-622, 627-Thomas, Nehemiah (inventor), 799; see also 629, 630, 655 Petree-Thomas process tramlines: Thornton (locality), 316 amount of cane moved by, 657, 670; ballast-Tierney, P. F. (canegrower & inventor), 638 ing of, 669-670; extension of, 208, 659, Tinana Creek, 194, 447 678, 679; first built in 1880s, 207; repairs to, 656, 669-670; see also transport (of Tingalpa, 45 tobacco growing (in Queensland), 310-311, 448 cane to sugar mills) Toft Brothers, 422, 642, 651, 653 tramways; see tramlines Toft Brothers Industries Ltd., 647, 649 transloader, 667 Toft, Colin, 647 transport (of cane to sugar mills): Toft, Harold, 647 by canetainers, 665-667; by road, 623, 634, Toft, Joseph Jnr, 632 656, 658, 665-668, 670-672 678, 679; Toft, Joseph Snr, 632, 638 by punts, 97, 204-207, 657, 671- 672; Toft hydraulic grab-type cane loader, 642, 643 by tramlines, 207-209, 656, 657, 659, Toft mechanical cane harvesters, 638, 647 666, 669- 670, 678, 679; by wagons, Toft mechanical cane loaders, 422, 428, 632-633, 203-205, 210; over government-owned 638, 639 railways, 55, 634, 656-657, 679 Toft, Stan, 638 transport (of raw sugar): toll refining, 777 by bags, 211, 213, 216, 796, 798; by rail, Tomlinson, Thomas, 140; see also cane harvesters 213, 215, 793, 794, 799; by road, 212, Toohey, John and James (brewers), 82 213, 794, 821; by ship, 213-215, 798-Tooth & Cran (sugar refiners), 81, 175, 231-233; 799; in bulk, 792-800, 821; see also bulk see also Yengarie Refinery handling of raw sugar Tooth, Edwin (brewer), 36 transport scheduling (of cane trains), 664, 669 Tooth, Robert, 81, 175, 231, 233 trash blanketing, 378, 379, 380, 383, 386, 411, Tooth, Robert & Co. (sugar refiner), 237 453-455, 514, 556 top rot disease, 570, 572 trash burning, 139, 347-348, 349, 359, 376, Torres Strait Islanders, 630, 635 411, 532, 538

trash conservation or retention, 348, 355, 359, 362, 374, 378, 453–455, 524 trashing (of cane), 125–126, 216, 365, 531 travelling irrigators, 444–445, 749 treacle, 809
Treacy lift, 658
Treasury Department, Queensland; see Queensland Treasury treble crushing in Australian sugar mills, 192, 193, 202, 702, 721

tree clearing, 123, 361

Trevor, Pyrce (inventor), 140

trickle or drip irrigation, 449

triple effets, 186, 192, 193, 202, 699, 701, 703, 711, 719

Triton cane variety, 305, 495, 502, 509, 512, 587, 596

Trojan cane variety, 471, 482, 484, 485, 487, 499, 512, 582, 584, 585, 587

tropical fruits, 65, 66, 87, 272

Tryon, Henry:

collected cane varieties in New Guinea during 1896, 146; lack of involvement in cane variety breeding trials, 149; identifies a fungal pathogen fatal to cane grubs, 554; identifies link between rainfall and grub attacks, 158; research into controlling cane grubs, 159, 162, 163, 554; records leaf freckle disease of sugar cane, 583

Tuckean Swamp, 437

Tully Cooperative Sugar Milling Association Ltd., 299, 368, 670, 699

Tully district:

acid sulphate soils in, 440; Bellenden Plains plantation, 49; cane first cultivated in, 49, 50; central mill erected in, 276; drainage improvements in, 408; feral pigs damage cane crops in, 540; growth in number of canegrowers in during the 1960s, 310; irrigation in, 405; isolation plots established in, 577; rejected as a locality for a central sugar mill in 1916, 271; 'root rot' outbreaks in, 598; weed control in, 368 Tully Mill:

canegrowers gain control of, 699; computerised process control adopted in, 749; crushing rate at, 731; crushes record amount of cane, 715; continuous vacuum pan installed at, 746, 756; effluent treatment plant at, 737; erection of (1924–25),

276, 701; exceeds mill peak deliberately, 287; machinery upgrades to, 701, 709, 712, 713, 724, 744; mill peak of, 281, 282, 286; possible duplication of, 295, 296, 299; receives emergency government funding to operate, 751; tours of, 752

Tully River, 50, 276, 425, 433, 434

turbo-alternators (in Australian sugar mills), 729 Turkmenistan, 478, 495

Turner, Neil (politician), 321

Tweed Herald and Brunswick Chronicle, 123, 219 Tweed River, 48, 51, 79, 274, 413, 437, 672, 740 Tweed River district:

acid sulphate soils in, 440; area under cane in, 48, 51, 55, 274, 275; cane grub attacks in, 552; cane first cultivated in, 48; changing distribution of cane growing in, 65; CSR's difficulties in leasing its land to tenants, 77, 90; CSR erects a sugar mill in (1880), 77, 98; drainage unions in, 400, 402, 413; drainage improvements in, 275, 400, 402, 412, 413, 429, 437, 439; decline in area under cane in, 303; Fiji disease outbreaks in and their control, 591, 592, 595; flood mitigation works in, 427, 437; flooding of, 413; frost-prone, 48; gumming disease outbreaks in, 568; lack of drainage in, 127; land reclamation in, 275, 402; mechanical loading of cane in, 428, 643; mosaic disease present in, 566; outbreaks of Fiji disease in, 591, 592, 595; outbreaks of gumming disease in, 474; prices received for cane in, 55; quarantine zone in, 575; small millers in, 93; wireworms damage cane in, 532; tramlines in, 205; see also Condong and Cudgen plantations

Tweed River Flood Mitigation Committee, 427 Tweed Shire Council, 427, 428 Tygalgah Drainage Union, 413

Uba cane variety, 470, 571, 578, 580 Ulmarra, 52, 94 underground water supplies, 135–136, 399, 414,

417, 419, 450 Union Bank of Australia Ltd., 88, 92, 125

unions; see trade unions

United Cane Growers' Association, 279, 526, 618, 696; see also Queensland Cane Growers' Association

United Kingdom; see Great Britain

United States; see USA University of Queensland, 582, 668 University of Sydney, 565 unloading, cane:

> at sugar mills, 206, 210–211; 743; from wagons to punts, 97, 205, 657; from wagons onto rail trucks, 210, 658–659; with mechanical grabs, 206

Upper Pioneer River Improvement Trust, 429 Urangan (as port for sugar exports), 216, 796, 798, 799

urea, 371, 372, 376, 383, 384, 385 USA:

> as a sugar market, 306, 781, 803, 821; cotton production in, 44; source of cane varieties, 143, 486, 503; sugar import quotas, 306

vacuum pans, 182, 187, 188, 699, 703, 705, 713–714, 721, 727, 755, 779, 756, 808

Val Bird Weir, 447

Vallance, L.G. (soil scientist), 430, 654

Vanuatu, 83

vapour bleeding; see steam bleeding

Venton, Ray (inventor), 647

Versatile Toft Ltd., 647

vertical louvre separator, 744; see also entrainment

vertical pusher feeders, 709, 833 Very Low Colour (VLC) sugar, 818 Vesta cane variety, 471, 482, 495, 584 Vichie, Martin ('Jim'), 625, 645 'Victor mills', 188 Victoria:

CSR controls price of sugar in, 255; demand for sugar in, 36, 83; import tariff on sugar in, 38; capital from invested in sugar plantations, 4, 50, 83; sugar refineries erected in, 36, 235, 237

Victoria Foundry, 185, 207

Victoria Mill, Herbert River district:

amount of rat damaged cane supplied to, 530; artificial wetlands constructed nearby, 737; computerised process control adopted in, 748; connected to Halifax by tramline, 213; duplication of (1953), 297, 722; continuous vacuum pan installed in, 756; crushes record amount of cane, 715; effluent treatment plant at, 735, 736; erection of, 186; largest sugar mill in Australia, 757; machinery upgrades to, 192, 709, 710, 711, 719, 744; tramline network for, 213,

659; treatment of waste waters at, 735; see also Colonial Sugar Refining Company

Victoria Mill and plantation, Mackay district, 82, 207

Victoria plantation, Herbert River district, 84, 130, 131

Victoria Sugar Co.:

amalgamated with CSR (1888), 238; CSR main shareholder in, 36; erects Sandridge Refinery (1858–59), 36; financial difficulties of, 237–238; formation 1857, 36; funds upgrades to Yarraville Refinery, 237; imports raw sugar from Philippines, 36; partner with CSR in Queensland, 82; purchases Yarraville Sugar Refinery, 235; Sandridge Refinery destroyed by fire 1875, 235; see also Colonial Sugar Refining Company

Victorian-based companies (with interests in sugar), 50, 82

Vilele Mill and plantation, 82, 88, 186, 213 Vulcan Foundry, Maryborough, 185, 188

wagons, 203-205, 210

Walkamin Research Station, 507

Walker, John & Co., 185; see also Walkers Ltd.

Walker, Robert (mill manager), 182

Walkers Ltd.:

develops heavy duty shredder, 743–744; formation of, 185; invests in Brisbane River Sugar Refinery, 237; manufactures Davids mechanical cane unloaders, 211; manufactures first triple effet in Australia, 185; manufactures machinery for Australian sugar mills, 185, 701, 718, 756

Walkerston Boiling Down Works, 81

wallabies (in cane), 540, 544, 550

Walrus (boat), 99

Walton, Thomas (analytical chemist & CSR employee), 198

Warner, Dr John, 489

waste water treatment plants (at Australian sugar mills), 734–737

waste waters (at Australian sugar mills), 712, 732–737

water canons, 449

water discharge licenses (of Australian sugar mils), 735, 737, 739

water pollution (near Australian sugar mills), 732–736; see also fish kills

Water Quality Council of Queensland, 736, 737, 739

water transport (of harvested cane), 204-206, Wheeler, Frederick, 292 656, 657, 659, 672 White Australia Policy, 58, 834 Waterford Mill, 732 'white' workers, 58, 59, 85, 341, 833 waterlogged soils and land, 300, 402, 404, 408, Whitlam government (Commonwealth), 441 439, 831, 832, 835 Wide Bay Farmers' and Planters' Association, 129 Wildlife Preservation Society of Queensland, 734 Waterloo Mill, 193, 701, 698 waterside workers, 789, 791, 792, 793, 794, 797 Williams, James, 23 Watson, Don, 326 Willis, Geoffrey (geographer), 670 Webb, Mr Justice William, 287, 288, 620, 621 Wilson, George (entomologist), 542, 569 Webb Royal Commission into Sugar Peaks, 287-Windemere Mill and plantation, 90, 209, 252 288, 357 windmills, 398 Webre vacuum pans, 713-714, 721 Windsor Mill, 191 weedicides; see herbicides wire netting, 540, 544, 550 weeds, 123, 124, 125, 128, 133, 343, 359, 366wireworms, 532, 533, 542, 543, 555 367, 376, 379, 381, 453 Wizard rotary vacuum filter, 713, 719, 720 weevil borers, 348, 355, 411, 477, 521, 522, 528, Wolfensberger, Otto, 307 530, 531-532, 536, 538, 556 Wollongbar Experiment Farm (near Lismore): weighbridges (in Australian sugar mills), 202, 748 established (1893), 137; receives imported Weil's disease, 355, 411, 529, 530, 627, 628, 629 cane varieties, 147; trials at with inorganic Weil's disease strike (1934), 529, 627-628 fertilisers at, 352; trials to identify suitable cane varieties for New South Wales at, 137, Wells, Thomas, 467 Wells, Walton (public servant), 430 149, 150 West Indies: women: cane growing in, 1, 128; central sugar mills as field workers, 359; as mill workers, 718; in, 100; centre for cane breeding, 146; late cooks for cane cutting gangs, 613 nineteenth century milling technology in, Woodburn, 51, 65, 94 183; visited by Edward W. Knox, 183 Woodlands Mill (Bundaberg), 191 Western Australia: Woodlands Mill and plantation, 79, 237, 271; see anti-sugar imports embargo meetings in, also Marburg district 784; CSR in 1897 contemplates erecting Woodford, 583 a refinery in, 239; CSR erects a refinery in Woods, John & Joseph (merchants), 91, 236, (1929-1930), 779-780; government en-243; see also Ripple Creek plantation courages canegrowing in 1885, 52; inves-Woodside Mill, 75 tigations in 1950s and 1960s into grow-Woongarra locality, 79, 420 ing sugar cane in, 332-333; Ord River Woongarra Shire Council, 209 Woongoolba and Area Drainage Committee, 425 District Cooperative, 333; Ord River Irrigation Area, 333; Ord River Mill, 276, Woongoolba Drainage Scheme, 425, 427 333; Robert Harper & Co. act as CSR's workers (in Australian sugar industry): agent in, 245; see also Cottesloe Refinery complaints about use of non-European work-Western Australian government, 52, 332, 333 ers, 91, 619-620; encouragement to em-Wet Tropics World Heritage Area, 557 ploy only European workers, 58-59, 60, 341; field, 84-85, 87-88, 90, 291, 292, artificial, 455, 737, 836; drainage of, 274, 341, 359, 613-614, 619, 620, 621-622; 317; freshwater, 316, 836; loss of in indentured, 1, 2, 45, 53, 58, 83-84, 834; Australian sugar-producing districts, mill, 620, 621, 718; refinery, 242-243; re-300, 316, 836 placed by machines, 341-343, 637-655; Wetzel pans, 181, 187, 188 shortages of, 45, 83, 85, 90, 291, 292, 359, wharf workers; see waterside workers 630-633, 635; strikes of, 60-61, 617-619, wharves, 213, 215, 789 620, 621, 627-628; see also trade unions Whayman, Ted (Sugar Research Institute world price of sugar, 36, 52, 63, 277, 282, 293, researcher), 744 307, 311, 785

World War I:

BSES suspends cultivation and fertiliser trials during, 347; impact on Australian sugar prices, 272, 769, 772–773; production of sugar in Australia during, 272, 769; operating costs for Australian sugar producers during, 273; shortages of fertilisers during, 345

World War II:

anti-Italian feeling during, 630 disruption to International Sugar Agreement, 285; disruption to Mutual Control Scheme, 707; disruption to sugar production during, 290-291, 718; field worker shortages during, 291, 359; fertiliser shortages during, 291, 358-359; impact on area under cane, 291; interrupts breeding cane varieties, 493; interrupts cane disease investigations, 580; interrupts pest control activities, 537, 540; interrupts rail transport of harvested cane, 634; measures to protect sugar mills during, 717; new cane harvesting techniques during, 634; shortages of workers during, 359, 629-631, 633, 717; sugar rationing in, 786; wire netting shortages during, 540; women assume new roles during, 359, 718

Wyndham, 333

Wyper Bros. (agricultural machinery makers), 364, 365, 640, 649

Yamba, Port of, 816, 821 Yarrabah, 635

Yarraville Refinery (Melbourne):

boiler and machinery upgrades to, 237, 239, 779, 807, 808, 814; bulk handling of raw sugar at, 794; descriptions of, 235, 242; erected (1873), 235; liquid sugar manufactured at, 809, 818; output of, 239, 777, 807; purchased by Victoria Sugar Co. (1875), 235; site for enlarged, 239; supplies South Australian market, 817; supplies Tasmanian market, 238; see also Colonial Sugar Refining Company

Yaryan evaporator, 192, 833
Yarwillpah plantation, 127
Yatala Mill and plantation, 87, 191
Yerra plantation, 175
yellow stripe disease; see mosaic disease.
yellow spot disease, 583, 584, 586, 595–596, 600, 602

Yengarie Boiling Down Works, 80, 231

Yengarie plantation, 80

Yengarie Refinery (near Maryborough):

acquired by Queensland National Bank, 234; closed (1900), 194, 234; erection of (1871), 175, 231; improvements to, 232; operates only six months a year, 233; purchases juice from local millers, 175, 177, 233; relies initially on imported sugar, 233; see also Cran, Robert & Co. & Queensland National Bank

Yeomans, Percival (mining engineer), 430

Yeppoon district, 271

Yeppoon plantation, 57, 90, 92

Yeppoon Sugar Co., 53, 57

yield (of cane):

affected by gumming disease, 144; affected by poor cultivation methods, 129; assisted by plant breeding, 512, 513; during World War II, 360; increased by better cultivation methods, 141, 513; increased by more fertiliser use, 383

yield (of sugar), 512, 513, 514

Young, A., H. & E. (Bundaberg):

adopt soil fumigation against cane grubs on Lynwood Estate, 162; asked by CSR to negotiate a deal to limit the amount of mill whites manufactured in Queensland, 250; decide to maintain plantation agriculture, 92; establish a tramline network at Fairymead plantation, 207; imports cane varieties, 147; manufacture mill whites, 237, 250; operate a cane nursery, 146, 148; offers to sell Fairymead Mill, 251; purchase estates in Kolan River and Isis districts, 217; recruits Gilbert and Ellice Islanders, 90; practice crop rotation on Fairymead plantation, 134; see also Fairymead plantation, Fairymead Mill & Fairymead Sugar Co. Ltd.

Young Brothers; see Young, A., H. & E. (Bundaberg)

Young, Charles (Kalamia plantation), 106-107, 194

Young, Charles (Fairymead plantation), 281, 410, 625, 645, 646

Yugoslav canecutters and immigrants (to Australia), 637, 806

zinc deficiency (in soils), 385, 514 zones of influence (in cane supply), 216, 218–220