

SUBJECT INDEX

- A, B, C process, 86
- absorption by soils, 168, 169
- Accrington sewage works,
 - cost of filters at, 286
 - settlement of effluent at, 245
 - size of septic tanks at, 91
- Achorutes purpurescens*, 282, 283
- Activated sludge process, the
 - American definition of, 316
 - aeration tank in, 317
 - cost of, 333
 - Davyhulme experiments on, 319
 - description of, 316
 - drying of sludge produced by, 318
 - flow of sludge through mains, 318
 - nature of sludge produced by, 318
 - origin of, 319
 - ratio of sludge to sewage in, 318
 - re-aeration of sludge in, 322
 - settling tank in, 317
 - volume of air required in, 319
- aeration of sewage,
 - at Lawrence, 119
 - results of, 119
- aerobic bacteria, 42
- Agriculture and Fisheries Board of, 155
- air compressors, 133, 137
- alumininoid ammonia, 31, 295
 - derivation of, 34
- Aldershot camp sewage farm,
 - average area sewaged at, 193
 - chalking of soil at, 166
 - composting of sludge at, 129
 - effluent temperatures at, 204
 - ripening of soil at, 164
 - sewage and rainfall treated at, 209
 - soil at, 164
- algae, 43, 195, 206, 215, 241
- Altringham sewage farm,
 - average area irrigated at, 193
 - sewage and rainfall treated at, 209
- Alumino-ferric, 86
 - manufacture of, 86
 - use of, at Heywood, 88
- ammonia, free, 31, 206, 221, 310
 - derivation of, 34
- ammonium sulphate, 151
- anaerobic bacteria, 42
- analyses of sewages, 34, 35
- Andover sewage works,
 - size of septic tanks at, 91
- Anglo-Continental Fertilisers Syndicate, 146
 - description of, 147
- annual variations in sewage flow, 49, 50
- anthrax, 294, 300
 - spores of, 300
- aquatica*, *Podura*, 282
- aquatic plants, 119, 206, 208
- argiolus*, *L.*, 285
- artificial processes, 2
 - application to L.G.B. to construct, 2
 - placing on a scientific basis of, 2
- Ashburton, 157
- ash from sewage sludge, 152
- asphalt, 121
- Atlanta sewage works, 266
- auriflua*, *L.*, 284
- Austrian pines, 177, 191
- automatic gauge, 39
 - automatic gear,
 - contact bed, 234
 - non-adaptability of, 234
- average sewage, analysis of, 34
- Bacillus coli*, 206, 295
- B. enteritidis*, 294
- bacteria, 42, 43, 221
 - aerobic, 42
 - description of, 42
 - facultative, 42, 118
- bacterial clarification of sewage, 118, 119
 - claims for, 118
- baffles, 133
- baffling walls, 80
 - depth of, 81
 - heavy sludge retained by, 81
- Baltimore sewage works,
 - filters at, 261
 - false floors at, 266
 - sterilisation at, 297
- Barker's mill principle, 269
- Barking,
 - contact beds at, 239
 - soil at, 161, 162
- Barrhead sewage works,
 - size of septic tanks at, 91
- bar screen, 61, 62
 - angle of, 62
 - objections to, 62
 - Plainfield, 64
 - work effected by, 62
- Basford,
 - sewage works near, 28
- Batavia sewage works, 266
- bates, 303

- bathwater, 31
 - exclusion of, from cesspools, 9, 10
- battering of filtering material, 263
- bauxite, 86
- Beaumont Leys sewage farm,
see Leicester sewage farm
- Beddington (Croydon) sewage farm,
 average area sewaged at, 193
 effluent temperatures at, 203, 204
 rye-grass at, 197
 sewage and rainfall treated at, 209
 soil at, 161, 162
 watermen on, 192
 years in operation of, 158
- beet, 197
- benzine,
 extraction of grease by, 111, 150
- Berlin sewage farm,
 fishponds on, 200
 health of persons on, 212
- Bio-aeration process, the Sheffield, 323-329
 - aeration tank in, 324
 - agitation method in, 324
 - analytical results obtained in, 327-328
 - bio-aeration extension scheme at Sheffield, 328
 - description of, 328-329
 - drying of sludge from, 328
 - moisture in sludge from, 328
 - origin of, 323
 - retention chambers in, 324
 - settling tanks in, 325
- Birmingham deodorising and partial purification plant, the, 332-333
- Birmingham sewage farm,
 cost of treatment at, 289
 digestion of sludge at, 96
 Dortmund tanks at, 95
 effluent at, 289
 effluent settling tanks at, 246
 jets or nozzles at, 271
 precipitation at, 88
 separator tanks at, 274
 septic tanks at, 95
 septic tank experiments at, 95
 slag and quartzite at, 239
 sludging land at, 131
 use of lime at, 88
- Blackburn sewage works,
 liming of septic liquor at, 96
- bleaching powder, 128, 132, 211, 280
- Bochum sewage works,
 sludge at, 147
- Bock,
 tank experiments by, 72
- Bolton sewage works,
 cost of pressing at, 141
 sludging land at, 131
- Boston (U.S.A.) sewage works,
 analysis of sewage at, 35
 disposal of sludge from, 143
 bourne water, 188
 Bradford sewage works,
 disposal of pressed cake at, 150
 grease extraction at, 149
- breeze, pan, 225
- breweries,
 character of wastes from, 307
 treatment of wastes from, 307
 volume of waste from, 307
 waste from, 35, 64, 83, 85, 86, 87,
 92, 98, 108, 160, 211, 212, 209,
 282, 306, 307
- waste from, at Burton, 307
 waste liquors from, 306
- bricks, Accrington, 264
- broad irrigation, 157, 158, 159
- Brockton (U.S.A.),
 screenings at, 64
- broom, 191
- brown paper,
 manufacture of, 301
- Bruges and Crimp,
 tables by, 49
- Brunnotte's screen, 63
- Brussels,
 Kremer process at, 111, 113
- brussels sprouts, 197
- Burnley sewage works,
 construction of contact beds at, 222
 cost of pressing at, 141
 pressing septic sludge at, 141
 size of septic tanks at, 91
- Burton-on-Trent sewage works,
 brewery wastes at, 307
- Bury sewage works,
 cost of pressing at, 141
- Buxton sewage works,
 cost of precipitation at, 89
 filter temperatures at, 248, 286
 flowers on, 191
- cabbage, 196, 200
- Callitricha verna*, 206
- calorific values of sludge, 145, 146,
 151, 152
- Calverley sewage works,
 cost of precipitation at, 89
- Cambridge Public Health Series, 28
- Cambridge sewage farm,
 average area sewaged at, 193
 capacity of tanks at, 81
 contour of land at, 172
 cricket-bat willows on, 191
 fruit trees on, 200
 plan and section of tanks at, 82
 price of sludge sold from, 156

Cambridge University Press

978-1-107-49472-5 - Sewage Purification and Disposal

G Bertram Kershaw

Index

[More information](#)

SUBJECT INDEX

343

- Cambridge sewage farm,
recovery of grease at, 149
settling tanks at, 81-83
sewage and rainfall treated on, 209
“sewage sick” land at, 195, 196
sludged land at, 131
sludging of tanks at, 81
use of bleaching powder at, 128
use of sludge sold from, 156
- Cam, river,
chemical condition of, 206
investigations of Purvis, regarding, 206
- capacity in contact beds, 225, 229, 230
cause of loss of, 237
- capillary action, 241, 268
- carbon dioxide, 221, 241
- Carchesium Lachmanni*, 283
- carp, 201
- carriers,
cleaning of, 184, 187, 188
closed, 185
deposits in, 184, 185
distribution by, 184
distributing chambers on, 185
- earthen, 184
electric alarms for, 186
gas ebullition in, 188
half-pipe, 186, 187
inverted siphon, 185
large, 184
level of, 184
main, 178, 185
number required of, 178
outlets to, 184, 186
perforated pipe, 186
pick-up, 187
plough-formed, 184, 187
position of, 178
ramps in, 184
settlement in, 184
sluice valve outlets to, 185
- stoneware, 184
stoppers for, 186
subsidiary, 178, 187, 188
temporary, 187
type of main, 185
underground, 186
- carrots, 197, 200
- casein, 309, 310
- Caterham, cesspools at, 13
- Caterham barracks sewage works,
analysis of sewage at, 34
- Caterham sewage works,
sand filtration at, 274
- cattle,
damage caused by, 209, 210
- cauliflowers, 197
- caustic soda, 280
- celery, 197, 200
- centrifugalising of sludge, 152-154
Cologne experiments on, 152
cost of, 154
electric power used in, 154
Schaefer-ter-meer system for, 152
- centrifugal pumps, 62, 84, 85
- cereals, 200
- cesspools, 8-14
construction of watertight, 14
cost of emptying, 10, 13-14
crops benefited by liquid from, 12-13
danger from leaky, 9, 11
deodorants for liquid from, 12
disposal of contents of, 11
exclusion of bath and rainwater from, 10
leaky, 9
nature of liquid from, 11
overflows from, 1, 11
pollution of subsoil by, 9
- pumps for, 12
slopwater, 26
tank for emptying, 26
village system of, 3
watertightness of, 9
- chalk,
dressing soils with, 166
fissures in, 167
flow of water from, 188
- chambers, grit, 66, 67
character of sewage, 34, 35
factors influencing, 48
- Cheltenham sewage works,
size of septic tanks at, 91
- chemicals, function of, 71
- Chesapeake Bay,
oyster layings in, 297
- Chester sewage works,
double filtration at, 262
- Chicago,
analysis of sewage, 35
Sanitary District of, 35
- chickweed, 198
- china clay, 70
- chlorides, 206
- chlorine,
derivation of, 34
- chloros, 280, 295
- Chorley sewage works,
composition of pressed cake from, 142
cost of precipitant at, 89
cost of pressing at, 141
cost of treatment at, 288
distribution on filters at, 270
- filters at, 259
price of pressed cake at, 143
use of gas for lighting at, 125
- chrysorrhœa, L.*, 284

344

SUBJECT INDEX

- chub, 201
- clarification of sewage,
 - bacterial, 118, 119
- clay, soil,
 - artificial lightening of, 167, 168
 - burning of, 167
 - cracking of, 183
 - underdraining of, 183
- Clifford,
 - experiments on land effluents by, 169
- Clifford tank inlet, 333
 - description of, 334
- clinkers, 225, 267
 - weight of, 227
- clogging,
 - of filters, 59, 60
- coal, 225
 - mixing sludge with, 145
 - use of, for pressing, 141
- coal washing, 311
 - water from, 311
- coke, 225, 267
- Colacit process, 152
- Colchester sewage works,
 - cost of pressing at, 141
- Coli, B.*, 206, 295, 296
- Collembola*, 283
- colloidal matter, 59, 101, 104, 118, 221, 228, 237, 238
 - description of, 238
- Cologne sewage works,
 - sludge treatment at, 152
- Columbus (U.S.A.) sewage works,
 - analysis of sewage at, 35
 - disposal of sludge from, 144
 - filters at, 261, 264
- comfrey, 196
- Commission, Royal Commission on Sewage Disposal, *see* Sewage Disposal Commission
- composition of sewage, 29-31, 33
- composting of sludge, 129
 - description of, 129
- compressors, air, 133, 137
- conservancy methods, defined, 4
 - good administration needed with, 27
 - recommendation in certain cases of, 28
- contact, duration of, 228, 230, 256, 257, 258, 267
 - short, 233
- contact beds, 217-252
 - access of air to, 228
 - action of, 221
 - aeration of, 240
 - aeration of effluents from, 246
 - American practice concerning, 228, 229, 233, 236
- contact beds,
 - automatic gear for, 234, 248
 - average depth of, 231, 232
 - bad drainage and aeration in, 237, 240, 241
 - bad working of, 220
 - burnt ballast, 226
 - capacity of, 225, 229, 230
 - capillary attraction in, 228, 229, 237, 241
 - clogging of, 217
 - clogging of fine, 228
 - coarse material stratum in, 231
 - consolidation of, 237, 239, 240
 - construction of, 222
 - cost of, 227, 248-250
 - cost of washing, 242, 243
 - cost of working, 250-251
 - depth of, 231, 232
 - description of, 218
 - disc valves for, 224
 - disintegration of, 226, 237, 240
 - distribution on, 227, 230, 232, 244, 249
 - disuse of, 242
 - dosing tanks for, 233
 - draining off of, 239
 - drawing off, 224
 - economic size for, 231
 - effluents from, 275
 - essentials of, 225
 - examples of, 251
 - fall necessary for, 231
 - feed channels of, 224, 247
 - filling and emptying of, 233
 - flies on, 246, 247
 - floors of, 222, 240
 - forking of, 239, 240
 - gain of capacity in, 242
 - gauging of, 222, 224, 225
 - grading of material for, 227, 228
 - gravel for, 225, 226
 - growths on, 237, 241
 - inlet valves for, 224, 225, 248
 - insects, worms, etc., on, 221
 - leakages in, 222
 - liquid content of, 229
 - loss of capacity in, 237-241
 - machine washing of, 243
 - Manchester, 220
 - materials for, 225-227
 - new, 233
 - new material for, 243
 - outlet valves for, 219, 225, 242, 248
 - oxygen in, 247
 - Plainfield (U.S.A.), 229
 - plan and section of, 220
 - preliminary treatment before, 217, 218, 239, 244

Cambridge University Press

978-1-107-49472-5 - Sewage Purification and Disposal

G Bertram Kershaw

Index

[More information](#)

SUBJECT INDEX

345

- contact beds,
 primary, 219, 222, 230, 237, 242, 247, 249
 purifying agencies in, 219
 rate of treatment of, 234, 238, 239
 resting of, 231, 242
 ripening of, 234, 235
 secondary, 219, 222, 229, 230, 237, 245, 249
 settlement of effluents from, 228, 245, 246
 shallow, 232
 single, double and triple, 219, 236, 246
 size of, 230, 231
 sluice valves for, 224
 sludge removed from, 244, 245
 smell from, 247
 streaming of, 244
 suspended and colloidal matter in, 237, 238
 temperatures of effluents from, 248
 tertiary, 219, 229, 230, 249
 time of filling, 230, 231
 triple contact, 249, 251
 types of drains for, 223
 underdrains of, 222, 227, 231
 upward filling of, 243, 244
 voids in, 225
 walls of, 222
 washing of, 217, 228, 240, 242–243
- continuous flow tanks, 69
 description of, 69
- copperas, 87
 use of, at Huddersfield, 88
- copper sulphate, 280
- Corbin bottles, 38
- cost of precipitation, 89
- cost of various sludge processes, 148
- Coventry sewage farm,
 evaporation at, 170, 171
 gaugings of effluent at, 170
 soil at, 170
- Craigentinny meadows, 157
- creamery wastes, *see* dairy wastes
- cresylate of lime, 314
- Crimp, 239
 hydraulic tables of, 40, 49
 sludge formula of, 123
- Cromer sewage works,
 explosion of gas at, 125
- Crossley Brothers Ltd.,
 experiments on burning sludge by, 151, 152, 302
- Crossthwaite,
 hydraulic tables by, 49
- Croydon,
 rainfall reaching sewers at, 54
 Latham's screen at, 63
- crude sewage,
 contact bed treatment of, 217
- cyanogen compounds, 314
- daily variations in sewage flow, 49
 causes of, 50
- dairies and creameries, 307–310
 cattle, and wastes from, 309
 cheese-making at, 307
 description of, 308, 309
 treatment of wastes from, 309, 310
 volume of wastes from, 309
 waste liquids from, 308, 309
- degree of purification required varies, 2, 43
- depth of contact beds, 231, 232
 of percolating filters, 259–261
- detritus, 121
 in sewers, 45
- detritus chambers, *see* grit chambers
- devil water, 314
- diagrams showing sewage flow, 51
- Dibdin slate beds, 116, 117, 118
 capacity of, 116
 description of, 116
- diffusion of sludge in water,
 at Barrow Deep, 143
- digestion of sludge, 96
- dilution,
 conditions for disposal by, 2
- dilution of sewage,
 by storm water, 56
- Sewage Disposal Commission on,
 60
- subsoil water and, 50, 52, 58
- discharge of sewage into,
 rivers prohibited, 1
- disinfection of sewage, 296, 297, 298
 cost of, 298
- disposal of crops, 200
- dissolved oxygen and fish life, 201, 202
- distribution,
 contact bed, 232, 233
 labour required for, 191, 192
 percolating filter, 268–273
 sub-surface, 232
- distributor,
 choking of, 269
 clogging of holes in, 279
 dash-plate, 272
 feed channels to, 270
 fine material as, 270
 jet, 259, 269
 peat as a, 270
 revolving, 269
 size of, 259
 stationary, 259
 Stoddart tray, 259
 tipping trough, 259, 269, 272

Cambridge University Press

978-1-107-49472-5 - Sewage Purification and Disposal

G Bertram Kershaw

Index

[More information](#)

346

SUBJECT INDEX

- distributor,
travelling, 269, 270
various kinds of, 268–273
- Dorking sewage works,
composition of pressed cake at, 142
cost of precipitation at, 89
destruction of growths at, 279–281
salt experiments at, 257
septic tanks at, 95
tank experiments at, 74
- Dortmund tanks, 74, 76, 108, 109,
110, 245
cost of original, 110
depth of original, 110
description of, 108
plan and section of, 109
removal of sludge from, 108
- dosing tank, 233, 311
description of, 233
- draw-off arms, 133
- Dublin sewage works,
disposal of sludge from, 143
Dixon's process at, 147
- duration of rainfall, 53
- Dursley,
soil at, 161, 162
- Ealing sewage works,
burning of sludge cake at, 144
cost of precipitation at, 89
cost of pressing at, 141
- early sewers, 1
- earth closets, 14–15
automatic, 15
supply of earth for, 15
- effluents,
aeration of, 201, 246
aeration of contact bed, 246
channels for, 266
curves showing temperatures of,
204
land, 36, 203, 204
outfalls for, 188–190
settlement of contact bed, 245, 246
settlement of filter, 274–277
temperature of, 203, 204, 248, 286
temperature of contact bed, 248
temperature of filter, 285–286
tests for, 213, 214
variations in, 36, 169
- eighth report,
Sewage Disposal Commission's, 60
- Ekin's tables, 49
- Elberfeld sewage works,
sludge incineration at, 145
- Emscher Association, 128
- Emscher tank, *see* tanks, Imhoff
- enteric fever,
flies and, 5
statistics concerning, 5
- enteritidis sporogenes, B.*, 294
- entirely separate sewage system, 48
increase in sewage flow with, 48
- Esholt, Bradford sewage works at, 149
sludge main at, 150
- esparto grass, 301, 302
gasifying sludge from, 302
- Essen-N.W. sewage works,
sludge from, 147
- evaporation, 168–171
amount of, 169, 170
crops and, 168
fine soils and, 169
meaning of, 168
rate of, 168
temperature and, 169
- Exeter (Belle Isle) sewage works, 79
cost of contact treatment at, 251
flowers at, 191
size of septic tanks at, 91
- Exeter (St Leonards) sewage works,
analysis of sewage at, 34
digestion of sludge at, 96
explosion of gas at, 125
size of septic tanks at, 91
- experiments,
Leeds, settlement, 83
Schmidt's, at Oppeln, 75
settlement, 72
Sheffield settlement, 83
soil purification, 160–162
Steuernagel's, 72, 75
- explosions with septic tanks, 125
- "faciloil," 128
cost of, 128
- facultative bacteria, 42
- faeces and analyses, 60
sampling and, 60
- false floors, 265, 266
- farm, sewage, *see* sewage farms
fellmongers' yards, 302, 303
"limes" from, 303
treatment of wastes from, 303
- waste liquors from, 302, 303
- fermentation defined, 221
- ferric sulphate, 86
- ferrous sulphate, 86, 280
- ferrozone, 86
- Fieldhouse tank, 113
claims for, 116
collecting chambers in, 115
description of, 113, 115
objects of, 113
plan and section of, 116
removal of scum and sludge from,
115
- roughing chambers in, 113
- scumboards of, 115
- sludge valve in, 115

SUBJECT INDEX

347

- film of water filters, 159
- filters,
 - clogging of, 59, 60
 - Ducat, 278
 - fine, 218
 - flushing of, 259
 - percolating, 252–290
 - rectangular, 266
 - sand, 238, 245, 278
 - straining, 122, 238, 245
- filter presses, *see* presses
- filtration areas, land
 - area required for, 171, 172
 - crops on, 172
 - description of, 159
 - embanking of, 159
 - ploughing of, 159
 - proportion sewage of, 173
 - suspended matter on, 159
- fish,
 - caustic alkali and, 202
 - consumption of oxygen by, 202
 - effluent ponds and, 200, 201
 - polluted waters and, 201
- Fisher,
 - investigations by, 195
- fishponds,
 - passing effluents through, 200, 201
- Fletton bricks, 264
- flies, as vehicles of disease, 28
- flooding land with sludge, 130, 131
 - conditions necessary for, 130
- flotation of sewers, 49
- fluorescin, 36
- formula for strength of sewages, etc., 33
- Frankfort-on-Main sewage works, centrifugalising sludge at, 152
 - sludge incineration at, 145
- Friern Barnet sewage works, cost of precipitation at, 89
- frost,
 - effect of, on distributors, 269, 270
 - effect of, on land treatment, 203
- fruit trees, 13, 199, 200
- fungus, 283, 306
- gas from septic tanks, 97, 125
 - effects on concrete of, 97
 - use of, for lighting, 125
- gas liquor, spent, 234, 246
 - nature of, 311
 - Radcliffe's process for treating, 311–314
 - treatment of, 311–316
- gauge, automatic, 39
- gauging sewage flows, 39
 - conditions to be observed in, 41
- gauging sewage flows,
 - slide rule for use in, 40
- Germany, rivers in, 60, 61
- screening in, 61
- settling towers in, 117
- Gilbert and Lawes, experiments on soils by, 162
- Glasgow sewage works, cost of pressing at, 141
 - disposal of sludge from, 143
- Gloversville, analysis of sewage from, 35
- golden osier, 199
- gorse, 191
- gradients of sewers, 48, 52
- grain crops, 200
- granite, 225
- gravel, 121, 225
- grease, recovery of, 149, 150
 - price of, 150
- Great Harwood sewage works, cost of pressing at, 141
- grips, distribution, 184, 187, 197
- grit, disposal of, 65
 - production of, 123
 - removal of, 124
 - settlement of, 59, 70, 71
 - utilisation of, 124
- grit chambers, 66–67, 97, 122, 125
 - American practice regarding, 66, 67
 - capacity of, 66
 - disposal of detritus from, 124
 - German practice regarding, 67
 - plan and section of, 61
 - use of sludge from, 168
 - velocities for, 66, 67
 - Worcester (U.S.A.), 67
- Grossmann's sludge process, 150, 154, 155
 - description of, 154
 - fertiliser from, 154, 155
 - grease obtained by, 155
- growths,
 - at Leeds, 281
 - cost of destroying, 281
 - gelatinous, 234, 277
 - grey, 190, 195, 214
 - green, 202, 203, 215
 - percolating filter, 278, 279
 - removal of, 241, 279
- Guildford sewage works, cost of precipitation at, 89
 - Fieldhouse tank at, 116
 - septic tanks at, 95
- gullies, 45, 121
 - choking of, 45
 - separate system and, 47
 - unsealing of, 45

- Haileybury college sewage works,
 slate beds at, 117
- Halberstadt sewage works,
 drying of septic sludge at, 128
- Hale activated sludge treatment
 works, 322-323
- Halstead sewage works,
 slate beds at, 117
- Hambrook soil, 161, 162
- Hampton,
 separate sewage system at, 48
- Hampton sewage works,
 cost of contact beds at, 249
 cost of contact treatment at, 251
 description of, 249
 resting of contact beds at, 242
 sludge on contact beds at, 245
 treatment of crude sewage at,
 217
- Handford, 27, 28
- Hanley sewage works,
 cost of pressing at, 141
 size of septic tanks at, 91
- Hanover sewage works, 145, 152
 disposal of sludge at, 130
- Harburg sewage works, 153
 centrifugalising sludge at, 154
 settling tanks at, 153
- Hartley Wintney sewage works,
 size of septic tanks at, 91
 temperature of contact effluent
 at, 248
- Hatfield,
 brewery waste at, 211
- Hatfield sewage farm, 85
 average area irrigated at, 193
 evaporation at, 169
 lucerne on, 199
 plan and section of sludge area at,
 132
 plan and section of tanks at, 84
 sludge disposal at, 131
 tanks at, 85
 terracing of land at, 177
 watermen on, 192
- health on sewage farms,
 Sewage Disposal Commission on,
 212
 Dr Carpenter on, 212
- Hendon sewage works,
 cost of precipitation at, 89
- Heywood sewage works,
 cost of precipitation at, 89
- High Wycombe sewage works,
 slate beds at, 117
- Horfield sewage works,
 cost of precipitation at, 89
 filter experiments at, 260, 261
 hourly proportions of sewage flow,
 52
- Horfield sewage works,
 hourly variations in sewage flow,
 50-52
 causes of, 51, 52
- Huddersfield sewage works,
 digestion of sludge at, 96
- humus,
 in soils, 165, 166, 245, 247
 tanks for, *see* tanks
- Hyde sewage works,
 cost of pressing at, 141
- hydraulic mean depth, 48
- hydraulic tables, 49
- hydrolytic tank,
 plan and section of, 105
- Ilford sewage works,
 digestion of sludge at, 96
 explosion of gas at, 125
 filter experiments at, 261
 salt experiments at, 257, 258
- Imhoff tank, 100-101
 description of, 101
 objects of, 101
 plan and section of, 102
 sludge from, 110
 views of, 103
- incineration of sludge, 144-146
 at Bury, 145
 at Ealing, 144
 at Withington, 144
 foreign practice regarding, 145, 146
- India,
 septic tanks in, 92
- insanitary conditions,
 danger of, 3
 early, 2
- intensity of rainfall, 53
- Iris*, A., 285
- iron oxide, 166, 181
- iron, persulphate of, 309
- irrigable area, 171, 192, 193
 crops on, 172
 proportion sewaged of, 173, 192, 193
 sewerage of, 192
 surface slope of, 172
- irrigation, ridge and furrow method
 of, 196
 area required for, 171, 172
 area under, 192
 labour required for, 191, 192
- Jenning's Chicago screen, 63
- jets for filters, 259, 271, 272
 Gregory's, 271
 head required for, 272
 Stearn's regulating valve for, 272
 spacing of, 272
 Taylor's, 271
 Weand's, 271

SUBJECT INDEX

349

- Kenilworth sewage works,
 double filtration at, 262
 kiers, 301
 kier liquor, 302
 Kingston-on-Thames sewage works,
 86, 89
 contact beds at, 146
 cost of A, B, C process at, 89
 precipitation process at, 86
 Knowle sewage works, 97
 Kremer clarification process, 110-113
 cost of, 111
 description of, 110
 plan and section of tank used in,
 112
 results obtained by, 111
 sludge digestion chambers in, for,
 111
 tank used in, 110, 111
 Kremer-Schilling process, 110, 113,
 114
 at Withington, 113
 description of, 113
 plan and section of tank used in,
 114
 results obtained by, 113
- lactic acid, 307, 309
 lagoons, sludge, 125
 access to, 127
 construction of, 126, 127
 deodorants for, 128
 depth of, 125, 127
 description of, 125
 disadvantages of, 127
 draining of, 126
 drying of sludge in, 127, 128
 flies and, 127
 Imhoff on, 129
 Leipzig, 128
 liquor draining from, 126
 perforated flooring for, 126
 removal of sludge from, 127
 section of, 126
 siphon for, 126
 situation for, 128
 smell from, 127, 128
 South Norwood, 127
- land, cost of laying out, 190
 cropping of, 195
 drying-off of, 180, 192
 laying out of, 176-178
 levelling of, 190
 objects of underdraining, 179
 over-sewaging of, 195
 ploughing of, 192
 ponding of, 195
 price of, 216
 resting and working of, 193-195
 sewerage of, 194
- land,
 "sewage-sick," 195, 196
 terracing of, 176, 177
 underdraining of, 179-183
 land treatment of sewage, 1, 59, 121,
 125, 131, 157-217
 American practice regarding, 175,
 176
 area required for, 172, 173, 174
 bacteriological side of, 2
 cost of, 215, 216
 effluents from, 277
 filtration effluents from, 169
 filtration with, 157, 158, 159
 good examples of, 158, 216
 insistence on, 2
 preliminary processes for, 160
 purifying agencies in, 158
 rate of treatment with, 172, 173
 results obtainable by, 157
 Rivers Pollution Commission on, 2
- larvae, 247
 Latham, Baldwin,
 rainfall investigations by, 54
 rotary screen devised by, 63
 laundry waste, disposal of, 8
 sewage flow affected by, 50
 trouble caused by, 10
- laurels, 191
 leakage to sewers, 49, 52
 Leeds sewage works, 97
 digestion of sludge at, 96
 experiments on contact beds at,
 239
 experiments on tank processes at,
 124
 rate of flow experiments at, 93
 screenings produced at, 63
 septic tank experiments at, 93, 95
- Leicester sewage farm,
 average area sewaged at, 193
 lightening soil at, 168
 sewage and rainfall treated on, 209
 sludging land at, 131
 underdrainage system at, 183
 watermen on, 192
- Leigh and Atherton sewage works,
 cost of pressing at, 141
- Leyton sewage works,
 cost of precipitation at, 89
 cost of pressing at, 141
- ignite process, 145
 Lille,
 digestion of sludge at, 96
- lime, 86, 87
 brewery wastes and, 307
 dressing soils with, 166, 195
 milk of, 133
 percentage of, required for press-
 ing, 139

- lime,
 - phosphates of, 155
 - use of, at Birmingham, 88
 - Burton, 87
 - Huddersfield, 88
 - for pressing, 133
- Limosina pumilio*, 283
- Lincoln sewage farm,
 - flowers on, 191
 - fruit trees on, 200
- Little Drayton sewage works,
 - analysis of sewage from, 34
 - Ducat filter at, 278
- Local Government Board,
 - land treatment and, 1
 - loans and, 190
 - storm water and, 99
- lucerne, 197, 199
 - crops obtained from, 199
- Luton sewage works,
 - chalk soil at, 167
 - Travis tank at, 101-108
- macadam, 121
- Maidenhead sewage works,
 - cost of pressing at, 141
- Maidstone sewage works,
 - flowers on, 191
 - treatment of crude sewage at, 217
- Malvern,
 - gas liquor at, 315
- management of sewage farms,
 - importance of good, 213
 - points concerning, 213
- managers, effluent test for, 213, 214
- Manchester sewage works,
 - cost of contact treatment at, 250, 251
 - digestion of sludge at, 96
 - disposal of sludge from, 143
 - experiments on gas from sludge at, 151
 - Roscoe contact beds at, 238
 - size of septic tanks at, 91
- mangolds, 196, 197, 198, 210
 - irrigation of, 198
 - sowing of, 198
- manholes,
 - flooding of, 45
- Mannheim sewage works,
 - centrifugalising of sludge at, 152
- manure, farmyard, 198
- manurial value of sludges, 155, 156
 - Sewage Disposal Commission on, 155
 - Voelcker's conclusions on, 155, 156
- Massachusetts Bay, 144
- Massachusetts State Board of Health,
 - experiments on filtering materials by, 267
- Massachusetts State Board of Health,
 - experiments on sludge distillation by, 151
- McHattie,
 - investigations by, 195, 196
- Merrin's osier, 199
- microbes, 247, 300
 - anaerobic and facultative, 42
- Middleton sewage works,
 - cost of pressing at, 141
 - midges on filters, 282, 283, 284
 - Milroy lectures, 16
 - mineral matter, 122
 - moisture in sludge, 149
 - montejus, 137
 - mortality,
 - from disease in war, 15
 - mortality statistics,
 - sometimes misleading, 3
 - Native Guano process, 86
 - Naugatuck river, 144
 - Nelson sewage works,
 - cost of pressing at, 141
 - pressing of septic sludge at, 141
 - New Brunswick sewage works,
 - sterilisation recommended at, 297
 - Newcastle-under-Lyne sewage works,
 - double filtration at, 262
 - "new kind" osier, 199
 - nitrates, 34, 203, 206, 221, 223, 267
 - as indicating subsoil water, 40
 - nitrification, 267
 - in cold weather, 203
 - nitrifying bacteria, 43
 - nitrites, 43, 221
 - nitrogen, 155
 - non-pathogenic bacteria, 42
 - Normanton sewage works,
 - cost of precipitation at, 89
 - North Plainfield (U.S.A.) sewage works, false floors at, 266
 - Nottingham sewage farm,
 - average area sewaged at, 193
 - crude sewage treatment at, 125
 - effluent temperatures at, 203, 204
 - sewage and rainfall treated at, 209
 - sludge disposal at, 158
 - subsoil at, 166
 - waterman at, 192
 - years in operation of, 158
 - Nuisance,
 - definition of, 129
 - oedema, malignant, 294
 - Oldbury, gas liquor at, 315
 - Oldham sewage works,
 - pressing of septic sludge at, 141
 - Grossmann's sludge process at, 150, 154, 155

Cambridge University Press

978-1-107-49472-5 - Sewage Purification and Disposal

G Bertram Kershaw

Index

[More information](#)

SUBJECT INDEX

351

- organic matter in sludge, 122, 124, 144
 organic nitrogen, total,
 derivation of, 34
 osiers, 199
 best kinds of, 199
 soils suitable for, 199
 Oswestry sewage works,
 analysis of sewage at, 34
 composting of sludge at, 129
 Otto-Hilgenstock process, 314, 315
 outfalls, effluent, 188–190
 gauging facilities at, 189
 manholes on, 189
 multiple outlets for, 189
 position of, 188, 189
 submerged, 190
 tide flaps for, 190
 overflows, storm, 55–59
 oxide, iron, 166
 oxidised nitrogen,
 derivation of, 34
 oxygen,
 river water content of, 205
 plants giving off, 206
 oxygen absorption test, dissolved, 32,
 157
 Sewage Disposal Commission on,
 32, 205
 pail closets, 5, 8
 absorbents for use with, 6
 advantages of earth, 6
 crops benefited by contents of, 12,
 13
 disadvantages of, 5
 disposal of contents of, 7
 earth, 5, 8
 emptying of, 6, 7
 frequent emptying of, essential, 7
 flies should be excluded from, 7
 rules for use of, 6–7
 pan, 166, 181
 plough, 166
 paper, manufacture of, 301, 302
 bleach liquor from, 301
 esparto grass used in, 301, 302
 esparto sludge from, 302
 materials used in, 301
 nature of wastes from, 301
 sludge from, 302
 soda used in, 301
 treatment of wastes from, 302
 washings from, 301
 Paris sewage farms,
 lucerne on, 199
 partially separate sewage system,
 46–47
 areas cut out from, 46
 particulate solids, 104
 Pasteur, 42
 pathogenic bacteria, 42
 spores of, 294
 peat, 301, 309
 acidity of, 167
 antiseptic action of, 167
 distribution by means of, 167, 270
 retention of moisture by, 167
 sprinkling sludge with dust of, 167
 Pearse,
 analyses of sewage by, 35
 peppermint, 196, 198, 199
 cost of, 198
 planting of, 198
 percentages of sewage flow, 52
 percolating filters, 252–290
 Accrington experiments on, 260
 aeration of, 256, 265
 American practice regarding, 261
 blowing air into, 256
 clogging of, 277
 coarse material, 254
 construction of, 262
 cost of, 286, 287
 cost of, Columbus, 289
 cost of (filtering) material for, 286
 cost of working, 287–289
 deep, 261, 273
 depth of, 259, 260, 261
 description of, 252
 destruction of growths on, 279–
 281
 development of, 253
 disintegration of material in, 277
 distribution on, 259, 268, 272
 distributors for, 255, 268–272
 dosing tanks for, 255
 double filtration by, 262
 drying off of, 254
 duration of contact in, 252, 256–
 258, 267
 efficiency of, 256
 effluent channels of, 263, 266
 experiments in America with, 253
 false floors for, 265
 feed channels for, 266
 filtering materials for, 267
 fine material, 254, 256
 floors of, 263
 flushing through, 277
 forking material of, 277
 gauging facilities for, 266
 grading of material for, 268
 growth on, 279
 Horfield experiments on, 260, 261
 Ilford experiments on, 261
 insects on, 282–285
 inspection chambers for, 266
 intermittent, 255
 jets for, 271, 272
 kinds of, 254

- percolating filters,
 - materials for, 267
 - medium-sized material, 254
 - moving distributors for, 269, 270
 - ponding on, 278, 279
 - preliminary treatment for, 253
 - rates of filtration for, 273, 274
 - removal of material from, 278
 - resting of, 278, 279
 - salt experiments with, 257, 258
 - sampling chambers for, 266
 - settlement of effluents from, 274, 275
 - settling tanks for use with, 274, 275, 276
 - shape of, 259
 - shallow and deep, 279
 - siphon for dosing, 255
 - size of, 259
 - size of materials for, 267–268
 - slope of floors of, 263
 - smell from, 281, 282
 - solids in effluent from, 274
 - spring flush-out from, 282, 283
 - stationary distributors for, 270
 - Stoddart trays for, 260
 - straining of effluents from, 274
 - supply of air in, 252
 - suspended solids in, 256
 - temperatures of effluents from, 285, 286
 - tests of various materials for, 226
 - tipping troughs for, 272
 - underdrainage of, 256
 - underdrains of, 264, 265
 - usual depth of, 261
 - walls of, 263, 264
 - washing material of, 277
- permanent pasture, 197
- persulphate of iron, 309
- permanganate, potassium, 206
- Philadelphia sewage works,
 - burning of sludge at, 145, 146
- Phlebotomus papatasi*, 284
- Pierids*, 285
- piggery sewage, 310, 311
 - nature of, 310
 - strength of, 310
 - treatment of, 310, 311
 - urine in, 310
- Plainfield (U.S.A.) sewage works,
 - contact material at, 64
 - cost of contact treatment at, 256
 - cost of screening at, 64
 - cost of washing contact material at, 243
 - scum removed from contact beds at, 245
- ploughing of soils, 166, 194, 195, 197, 210
- Podura aquatica*, 246
- Poduridae*, 283
- pollution of rivers legalised, 1
- Poore's system, 16–22
 - at Andover, 18
 - description of, 16, 17
 - disposal of slops in, 19, 20, 21, 22
 - good supervision needed for, 22
- potash, 155
- Potsdam sewage works,
 - calorific value of sludge from, 145
- Prasiola crispa*, 241
- precipitants, 86–89
 - experiments on various, 87
 - merits of various, 87, 88
 - methods of adding, 86, 87
- precipitation tanks, 69
- precipitation, chemical, 86–90
- nuisance from, 90
- Sewage Disposal Commission on, 85
- Sewage Disposal Commission on cost of, 89
- use of, in hot weather, 85
- pressed sludge cake, 135
 - analysis of, 142
 - burning of, 144
 - composition of, 142
 - disposal of, 143
 - price realised by, 143
 - percentage of moisture in, 141
 - thickness of, 140
 - weight of, 139, 140
- presses, filter, 120, 133
 - Bradford, 150
 - capacity of, 140
 - description of, 136, 137
 - filter cloths for, 135, 137
 - filtering area of, 140
 - Johnson's, 133, 134, 136
 - Johnson's Pyramid, 140
 - reduction of moisture by, 133
 - view of large, 136
- pressing of sludge, 120, 123, 132–142
 - American practice in, 142
 - chemical mixer for, 133
 - cost of, 140, 141
 - description of, 133
 - plan and elevation of plant for, 134
 - power required for, 139
 - pressure required for, 137
 - rams for, 133, 134, 135, 137
 - screening prior to, 133
 - time required for, 139
 - twin system of, 138
- Prestolee sewage works,
 - cost of, 286, 287
 - distribution on filters at, 270
 - size of septic tanks at, 91

Cambridge University Press

978-1-107-49472-5 - Sewage Purification and Disposal

G Bertram Kershaw

Index

[More information](#)

SUBJECT INDEX

353

- privies,
 insanitariness of, 5
 flies attracted by, 5
- producer, gas,
 for spent tan, 304, 306
- Providence sewage works,
 cost of pressing at, 142
 disposal of pressed cake from, 130
 dumping of sludge cake at, 143
 pressing at, 142
- Psychoda phalaenoides*, 284
- Psychoda sexpunctata*, 284
- Psychodidae*, 282, 283, 284
- Public Health Act, 1875, 1
 section 4 of, 11
- pulp, wood, 301
- pumps, centrifugal, 62
- pumping,
 effects of regarding suspended matter, 104
- pump well, 122
- pures, 303
- purification of sewage,
 agencies causing, 32, 43
- Purvis,
 on "sewage-sick" land, 195, 196
 on river Cam, 206
- putrefaction defined, 221
- pyridine, 314
- quiescent settling tanks,
 description of, 69
- quantity of screenings produced, 63
- quartzite, 225, 239, 267
- quicklime, 280
- Radcliffe sewage works,
 cost of precipitation at, 89
- Radcliffe's process for gas liquor, 311–314
- rainfall,
 combined system of sewers and, 54
 duration and intensity of, 53
 run-off from, 53
 scouring effects of, 45
 sewage flow and, 53
 sewage flow increased by, 46
- rainwater,
 combined sewers and, 44
 filtration of, 22
 separators for, 24, 25
 tank for, 23
 use of, for drinking, 22
 utilisation of, 22
 yield of, from roofs, 24
- rainy days,
 average number of, 42, 58
- rams, for sludge presses, 133, 134, 135, 137
- Ranunculus aquatilis*, 206
- rate of flow through septic tanks,
 Fowler on, 93
 Harding and Harrison on, 93
 Watson and O'Shaughnessy on, 93
- ratios,
 of screen area to sewage flow, 62
 of sewage flow, 52
- Rayner,
 investigations of river Cam by, 206
- Reading (U.S.A.) sewage works,
 filters at, 261
- Reading, separate system at, 48
- Recklinghausen sewage works, 100
- Imhoff tanks at, 100
 sludge at, 147
- Red Bank (U.S.A.) sewage works,
 sterilisation at, 297
- rennet, 118
- resting of land, 193, 194, 195
- Rhyl,
 rainfall reaching sewers at, 54
- Richmond sewage works,
 cost of pressing at, 141
- ridge and furrow irrigation, 196
- ridging plough, 198
- Riensch-Wurl screen, 63
- river Cam,
 self-purification of, 206
- rivers,
 classification of, 206
 flora and fauna of, 208
 Sewage Disposal Commission on, 206
 temperatures of, 204–208
- Rivers Pollution Commission, 1868, 1, 2, 161, 162, 163, 291, 292
- Robert's rainwater separator, 24, 25
- cost of, 25
 particulars of, 25
 use of, 24
- Rochdale sewage works,
 cost of precipitation at, 89
 percolating filters at, 97
 pressing of septic sludge at, 141
 recovery of grease at, 149
- Royal Sanitary Institute, 169, 195
- Congress at York of, 4
- Royton sewage works,
 cost of precipitation at, 89
 cost of pressing at, 141
- Rugby sewage farm,
 average area sewaged at, 193
 sewage and rainfall treated on, 209
 soil at, 166
 underdrainage at, 177
 watermen at, 192
- run-off due to rainfall,
 factors affecting, 54
- Rushden gas works,
 Radcliffe's process at, 314

K. S. D.

23

- Russo-Japanese war, 15
 rye-grass, Italian, 192, 196, 197, 200,
 210
 cuttings from, 197
 frost and, 197
 sowing of, 197
- saggars, 225
 Salford sewage works,
 disposal of sludge from, 143
 sampling of sewage, 36-42
 duration of, 41, 42
 precautions to be taken in, 37
 Sawbridgeworth sewage works,
 triple contact at, 251
 Schuylkill river, 297
 screening,
 American practice regarding, 64
 screenings,
 covering for, 65
 deodorising, 66
 disposal of, 65, 66
 flies and, 65, 66
 quantity produced of, 63
 removal and drainage of, 64, 65
 weight of, 64
- screens, 59-66
 automatic, 62, 63
 bar, 61
 Brunnotte's, 63
 cage, 62
 fine solids unaffected by, 66
 forms of, 61
 Jenning's, 63
 Latham's, 63
 plan and section of bar, 61
 protection of filter presses by, 62
 protection of pumps by, 60, 62
 Riensch-Wurl, 63
 sludge pressing and, 59
 Smith's Carshalton, 62, 63
 tank liquor, 271
 Weand, 63
 Windschild's, 63
 wire mesh, 62, 63
- scum,
 on septic tanks, 80, 97
- scumboards,
 depth of, 80
 inlet and outlet, 80
 quiescent tank, 80
 use of, 80
- Scioto river, 144
 Scotch firs, 177, 191
 seaside towns,
 sewage flow at, 50
 seasonal variations in sewage flow,
 49
 cause of, 50
- sedimentation tanks, *see* settling tanks
- selection of tank process, 98, 99
 Sewage Disposal Commission on,
 98, 99
- separate sewerage system, 46-47, 122
 advisability of installing, 47
 less sludge with, 47
 smaller sewers used with, 47
 storm overflows and, 48
- septic tanks, 69
 average depth of, 92
 bacteria in, 90
 Cameron's experiments on, 90
 capacity of, 92
 covered, 94
 density of sludge from, 95
 depth of, 91, 92
 digestion in, 90, 91, 96
 dimensions of various, 91
 experiments on open and closed,
 93
 experiments on flow through, 93
 explosions in, 125
 gas bubbles in, 91
 gas evolved from, 125
 gases from, 97
 inlets to, 92
 liming of liquor from, 95
 nature of liquor from, 90
 nuisance from, 98
 open and closed, 93, 94
 outlets to, 92
 over-septicisation in, 92, 93
 passage of storm water through,
 96, 97
 percentage digestion of sludge in,
 96
 rate of flow through, 93
 removal of solids issuing from, 95
 rising of sludge in, 91
 scumboards for, 92
 settlement obtained in, 90
 shape of, 90, 91
 sludge produced in, 124
 sludge removal from, 91, 94, 95
 sludge storage in, 92
 temperature in, 94
 treatment of liquors from, 94
 weirs for, 92
- septic sludge,
 difficulty of pressing, 139, 140, 141
- Sesiid*, pupae, 284
- settlement,
 Bock and Schwartz on, 72
 Cologne experiments on, 72
 factors influencing, 70, 71
 Imhoff on, 72
 rate of, 70
 Steuernagel on, 72
 temperature as affecting, 71
 time required for, 83

SUBJECT INDEX

355

- settling tanks, 66, 69
 section of, 68
- settling towers,
 description of, 117
 efficiency of, 117
 removal of sludge from, 117
- sewage,
 aeration of, 118, 119
 analyses of domestic, 34
 analyses of American, 35
 average samples of, 36
 bacterial clarification of, 118, 119
 chance samples of, 36
 composition of, 29–31, 33
 corresponding samples of, 37
 crude, 59
 distribution of, 178
 domestic, 29–30
 factors influencing flow of, 31
 flow of, maximum, 52
 flow of, minimum, 52
 flow of, fluctuations in, 45, 49–52,
 53
 flow of, diagrams showing, 51
 flow of, per head, 175
 gauging of, 38, 39
 grease in, 149
 hourly variations in flow of, 30
 irrigation of, 157, 158, 159
 land filtration of, 158, 159
 land treatment of, 159
 oxygen taken up by, 33
 purification of, by land, 158
 purification of, in villages, 3
 rate of treatment of, 172–175
 Sewage Disposal Commission on,
 29
 strength of, 29, 31–33, 173
 strong, average, and weak, 34
 suspended matter in, 60
 taking average samples of, 36–42
 trade refuse mixed with, 29, 35
 water supply and, 3
 water supply influences, 29
- sewage disposal,
 cost of works of, 27, 28
 for villages, 25–28
- Sewage Disposal Commission,
 see Authorities cited
- “sewage-sickness,” 195, 196
- sewage farms,
 carriers on, 184–188
 cattle on, 209, 210
 cost of laying out, 190
 cropping of, 195
 crops for, 192, 196–200
 distribution of sewage on, 191, 192
 farm buildings on, 178, 179
 flowers on, 191
 fruit trees on, 199, 200
- sewage farms,
 health on, 212, 213
 horse labour on, 210
 laying out of, 176
 letting of, 210
 management of, 176, 213, 214
 osiers on, 199
 planting trees on, 177, 178, 190, 191
 position of carriers on, 178
 roads on, 178
 “sewage-sickness” on, 195, 196
 size of plots on, 178
 sludge disposal on, 177
 smell from, 190, 210–212
 subletting of, 210
 volume of liquid treated on, 208,
 209
 weeds on, 198
- sewage flow,
 increase in, caused by rain, 173
- sewerage systems, 44–48
 combined, 29, 44–46, 58, 122
 entirely separate, 48, 58
 modifications of, 46, 48
 objections to separate, 47
 partially separate, 29, 58, 122
- sewer gas, 45
- sewers,
 choking of, 45
 flotation of, 49
 flushing of, 44, 45, 46
 gradients of, 48
 rain reaching, at Croydon, 54
 rain reaching, at Rhyl, 54
 use of wrong size of, 48
 velocity in, 48
 ventilation of, 44
- shallow burial of sludge, 131, 132
 description of, 131
 objections to, 132
 trenches for, 131, 132
- Sheffield sewage works,
 digestion of sludge at, 96
- Sheringham,
 explosion of gas at, 125
- sills,
 gauging, 41
 tank, 76
- storm overflow, 55, 56
- “Simplex” surface aeration process,
 329
 aeration tank in, 331
 description of, 329–331
 duration of treatment in, 331
 power used in, 331
 revolving cone used in, 331
- site for sewage works, 212
- slag, 225
- Slaithwaite sewage works,
 size of septic tanks at, 91

23—2

356

SUBJECT INDEX

- slate beds, 116, 117
- slopwater,
 - disposal of, 7–8, 19, 20, 21, 22, 26, 27, 31
 - initial outlay for, 21, 22
 - use of, for flushing closets, 30
- sludge, 69, 71
 - bye-products from, 148, 149
 - calorific value of, 145, 146
 - centrifugalisation of, 152, 153
 - composition of, 121
 - composting of, 129
 - cost of disposal of, 148
 - deodorants for, 127, 128
 - destructive distillation of, 151
 - difficulty in disposal of, 85
 - digestion of, in septic tanks, 96
 - disposal by dilution of, 143, 144
 - disposal of, 120–156
 - Dixon's process for, 146, 147
 - dyeworks, 130
 - effects on crops of, 155, 156
 - Emscher tank, 128, 145
 - factors causing, 121, 122
 - fertilisers from, 146, 147
 - filling in waste land with, 129, 130
 - flooding of land with, 130
 - gradient of drains for, 79
 - grease extraction from, 149
 - grease in, 120, 149
 - grit chamber, 168
 - grit in, 122
 - Grossmann's process for, 154, 155
 - incineration of, 144, 146
 - irreducible matter in, 122
 - lagooning of, 125–128
 - lagoons for, 120
 - Manchester experiments on, 151
 - manurial value of, 155, 156
 - mixing cinders with, 129
 - mixing peat dust with, 146
 - moisture in, 120, 123
 - moisture in centrifugalised, 152
 - organic matter in, 122
 - percentage of moisture in, 79, 84
 - ploughing in of, 166
 - pressed, 130
 - presses for, 120
 - pressing of, 132–142
 - rams for, 133, 134
 - recovery of grease from, 139
 - seeds in, 147
 - septic tank, 128
 - settling tank for, 135
 - sewerage systems and, 121
 - shallow burial of, 131, 132
 - slow decomposition of, 131
 - specific gravity of, 79
 - traffic and, 121
 - value of, 156
- sludge,
 - variable character of, 121
 - volumes produced of, 124, 125
 - weight formula for, 123
 - weight of, 79, 123
- sludge digestion, 332
 - analysis of sludge, 336
 - at Baltimore, 337
 - at Carshalton, 337
 - at Royton, 337
 - Birmingham process of, 332–337
 - description of, 336
 - disposal of sludge, 336–337
 - origin of, 334
 - tank capacity required for, 334–335
- slurry, 226
- smell,
 - conditions favouring, 211
 - sewage farms and, 210–212
- Smith's Carshalton screen, 63
- soils, 158
 - absorptive power of, 164
 - action of, on sewage, 163, 164
 - aeration of, 164, 165
 - alluvial, 165
 - artificial lightening of, 168
 - bacterial activity in, 165
 - Bunter sandstone, 165
 - calcareous, 165
 - capillary action in, 163
 - chalk, 165, 167
 - characteristics of, 162, 163, 164
 - chemical composition of, 162
 - classification of, 165
 - clay, 165
 - coarse gravelly, 180
 - cracking of, 194
 - experiments with, 162
 - heavy loam, 165, 166
 - interstices in, 163
 - lateral filtration through, 166
 - light loam, 165, 166
 - loam, 165
 - marl, 165
 - particles of, 163
 - peat, 167
 - physical conditions of, 161, 163, 164
 - preparation of, 168
 - purification effected by, 160, 161, 162
 - rate of filtration through, 163, 164
 - ripening of, 164
 - sandy, 162, 163, 165, 166
 - sewaging retentive, 194
 - surface area of, 163
 - surface attraction in, 163
 - underdrainage of, 179–183
 - variability of, 159, 172, 179
 - various, 165–168

SUBJECT INDEX

357

- solids, different kinds of, 101
- soot,
 - as a deodorant, 132
- Southampton sewage works,
disposal of sludge from, 143
- sour land, 195
- Southend, 143
- South Norwood sewage farm,
average area sewage at, 193
effluent temperatures at, 204
lightening of soil at, 168
sewage and rainfall treated at,
209
years in operation of, 158
- Spandau sewage works,
centrifugalising of sludge at, 152
- spawning of fish, 203
- Sphaerotilus*, 283
- spores, 294, 300
- Staffordshire bricks, 264
- Staines, cesspools at, 13, 14
- stamping of pipe joints, 47
- standby tanks, 46, 55, 99, 100
plan and section of, 101
- Steiner's dyeworks, 130
- sterilisation, 290-299
 - chloros for, 295
 - complete, 294
 - cost of, 295, 296, 298
 - difficulties in the way of, 291
 - effluent, 59
 - heat for, 295
 - Houston's report on, 292, 293-296
 - hypochlorites for, 297
 - ozone for, 295
 - partial, 294, 295
 - Phelps on, 297-298
 - Sewage Disposal Commission, 290
 - storm overflows and, 291, 292
- Stockport sewage works,
cost of pressing at, 141
- Stoddart trays, 270
- Storm overflows, 44, 48, 54-59, 99,
100
 - attention required by, 56
 - deflecting plate, 56
 - description of, 55
 - discharges from, 56, 58
 - local and main, 55
 - necessity of, 54
 - screens for, 56
 - scumboards for, 56
 - Sewage Disposal Commission on,
55
 - suspended matter from, 58
 - types of, 55, 56
- storm water, 44, 45, 124, 193, 209, 235
 - pumping of, 46
 - Sewage Disposal Commission on,
99, 100
- storm water,
tanks for, 46, 99, 100
treatment of, 55
volume of, reaching sewers, 54
- Strand filters, 337-339
 - description of, 338
 - distribution on, 338
 - manure produced from, 338
 - nitrogen removed by, 338
 - optimum temperature, 338
 - origin of, 337
 - Wainfleet installation, the, 338
- Stratford-on-Avon sewage works, 63,
64
 - cost of screening at, 64
 - screenings produced at, 64
 - strength of sewage, 29, 32, 173
 - chlorine and, 31
 - experiments by McGowan on,
32-33
 - formulae for, 33
 - strong sewage,
analysis of, 34
- Stuttgart sewage works,
sewage incineration at, 145
- subsoils, 165
 - physical characteristics of, 162-
164
 - sandy gravel, 166
 - variations in, 172
 - various, 165-168
- subsoil water, 29, 30, 31, 36, 42, 49,
50, 52
 - effects of, on sewage flow, 52
 - leakage of, to sewers, 58
 - nitrates as indication of, 40
 - rise and fall of, 49
- sulphocyanides, 314
- sulphuretted hydrogen, 98, 314
- sulphuric acid, 86, 280
 - use of, at Bradford and Rochdale,
87
 - sunlight and plants, 208
- surface irrigation, 157, 158, 159
 - definition of, 157, 158
- surface water, 44, 53
 - leaping weirs for, 56, 57
- suspended solids, 59
 - contact beds and, 237, 238, 239,
267
 - meaning of, 35
 - rate of settlement of, 70, 71, 72
 - removal of, 59, 253
 - standard for, 275
- tables, of sewer discharge
and velocity, 49
- tank, rainwater, 23
 - capacity of, 25
 - construction of, 25

- tanks, 67-119
 baffling walls for, 80, 81
 Cambridge settling, 81-83
 capacity of, 73
 circular, 74
 Clifton, 72
 continuous flow settling, 69, 72,
 76, 77, 80, 97
 cross section of, 77
 currents in, 75
 depth of, 76, 77
 Dorking, 73
 Dortmund, 74, 108, 109
 draw-off arms for, 79, 80
 drop outlets for, 79
 eddies in, 76
 effluent settling, 122, 245, 246
 equalisation effected by, 84, 90
 Fieldhouse, 113-116
 Halton, 72
 Hatfield, 85
 hot liquids in, 75
 humus, 207, 245
 Imhoff, 76, 100, 101, 102, 103, 118
 inlet channels to, 76
 interchangeable use of, 85
 Kremer clarification, 110-113
 limits of depth of, 76
 main features of, 71
 nuisance from, 90
 number of, 81
 Oswestry, 73
 outlets for, 79
 parallel working of, 83
 precipitation, 69, 70, 73, 97
 quiescent settling, 69, 75, 77, 79,
 83
 quiescent precipitation, 70
 rate of flow through, 72, 73, 74
 results obtainable by various, 73
 Rochdale, 76
 scumboards for, 80
 septic, 69, 70, 73, 79, 90-98
 serial working of, 83
 settling, 69, 70
 Sewage Disposal Commission on,
 98
 shallow rectangular, 76, 77
 shape of settling, 74
 slope of floors of, 77
 sludge channels for, 77
 sludge drains for, 79
 sludge from various kinds of, 124,
 125
 sludge scrapers for, 78
 sludge sumps for, 78
 sludging of, 77, 78
 sluices for, 76, 78
 spare, 74
 storm-flow through, 74
- tanks, storm water, 99, 100
 suction, 52
 telescopic draw-off for, 80
 temperature of liquid in, 75
 Travis, 100
 uniform cross-section of, 77
 varying flows through, 74
 Viersen, 77
 weirs or sills for, 79
 weir penstocks for, 76
 working of, 83
 tank treatment, 67, 68
 objects of, 68
 various kinds of, 68, 69, 70
 tannery wastes, 83, 85, 86, 98, 160, 212
 tanning, 303-306
 "limes" from, 303
 nature of liquids produced from,
 303
 substances used in, 303
 tan liquor from, 303
 treatment of wastes from, 303
 utilisation of spent tan from, 303-
 306
 tar-macadam, 121
 tarred roads and sludge, 46
 temperatures,
 contact bed effluent, 248
 effluent, 203, 204
 river water, 205-206
 test for effluents, 213, 214
 tetanus, 294
 tetrachloride of carbon, 111
 tiles, drainage, 265
 purpose made, 265
 towers, settling, 117
 Towns Improvement Clauses Act,
 1847, 1
 trade wastes, 35, 299-316
 transpiration, 168, 170
 meaning of, 168
 Travis,
 on sewage purification, 101-104
 Travis tank, 100, 101
 aims of, 105, 108
 colloids in, 105, 106
 description of, 101-108
 removal of sludge from, 107
 view of, at Luton, 106
 typhoid fever, 4
 germs of, 58, 59
- Ulva latissima*, 241
 underdrainage, 179
 clay soils and, 183
 Leicester sewage farm, 183
 sandy soils and, 166
 underdrains, 179-183
 air vents for, 182

SUBJECT INDEX

359

- underdrains,**
 - depth of, 180, 181
 - diameter of, 182
 - distance apart of, 182, 183.
 - fall given to, 182
 - filling in over, 181, 182
 - functions of, 179
 - laying of, 182
 - main, 182, 183
 - manholes on lines of, 182
 - Mansfield's tile, 265
 - percolating filter, 264, 265
 - Stiff's tile, 265
- units,** number of tank, 81
- value** of sewage sludges, 156
- valves** of pump, 62
- variations** in sewage flow, 49, 50, 51, 52
 - in soils and subsoils, 159
- vegetables,** 196, 197
 - grit produced from, 123
- velocity**, in sewers, 48-49
 - in grit chambers, 66, 67
 - in tanks, 72, 73, 74
- vents**, smell from, 45
- Viersen**, tanks at, 77
- Wakefield** sewage works,
 - filter inspection chamber at, 266
- Wanne-Nord** sewage works,
 - Imhoff tanks at, 101
- Wanne-Nord** sewage farms,
 - population draining to, 101
 - views of Imhoff tanks at, 102, 103
 - views of sludge drying beds at, 103
- washings from streets, 56
- wastes, trade, 299-316
 - discharge of, 300
 - equable flow of, 300
 - literature on, 299, 315, 316
 - solid and liquid, 300
- Waterbury** (U.S.A.) sewage works,
 - analysis of sewage at, 35
 - disposal of sludge from, 144
- water closets, introduction of, 1
 - flushing of, 8
- water, filtration of, 159
- watermen, 191, 192
- water plants, 43, 119, 190
- water supply,
 - variations in, at various towns, 30
- weak sewage, analysis of, 34
 - dilution of, 58
- Weand** rotary screen, 63
 - power required for, 63
- weeds**, 198, 199
- Weir**,
 - leaping, 56, 57
 - penstock, 76
 - Travis tank, 107
- Willesden** sewage works,
 - cost of precipitation at, 89
 - cost of pressing at, 141
- willow trees**, 191
- Wimbledon** sewage works,
 - cost of pressing at, 141
 - lightening of soil at, 168
- Winchester** quart bottles, 38, 60
- Winchester** sewage farm,
 - chalk soil at, 167
- Windschild's** screen, 63
- Withington** activated sludge unit, 319-321
- Withington** sewage works,
 - burning of sludge cake at, 144
 - cost of pressing at, 141
 - fine coal used for pressing at, 141
 - particulars of pressing at, 141
- Withnell** sewage works,
 - cost of precipitation at, 89
- Wolverhampton** sewage works,
 - cost of pressing at, 141
 - evaporation at, 169
 - ripening of soil at, 164
- Woodpaving**, 121
- wood pulp**, 301
 - chemical, 301
- woolscouring liquor**, 62, 83, 87, 139
- Worcester** (U.S.A.) sewage works,
 - analysis of sewage at, 35
 - cost of working grit chambers at, 67
 - deposit removed from grit chambers at, 67
 - disposal of pressed cake from, 130
 - grit chambers at, 67
 - sludge pressing at, 142
- working** of tanks, 83
- yeast**,
 - used in Dixon's process, 147
- Yeovil** sewage works,
 - size of septic tanks at, 91
- York** sewage works,
 - cost of precipitation at, 89
 - disposal of sludge at, 129, 130
 - pressing of septic sludge at, 141
 - size of septic tanks at, 91
 - temperature records at, 285

INDEX OF AUTHORS

- Adams, 119, 201, 202
- Alexander, 49
- Allen, 119, 128, 142, 143, 145, 156
- Ardern, 319, 322–323
- Baker, 119
- Bar, 119
- Barnett, 43
- Bell, 63, 119, 156
- Black, 206, 217
- Bock, 72
- Bolton, 88, 329, 331
- Bowles, 315
- Bruges, 49
- Brunnotte, 63
- Bryant, 253
- Buchanan, 119
- Calmette, 96, 119
- Calvert, 72, 119, 157, 217, 266, 290, 299, 315, 316
- Cameron, 90
- Campbell, 88, 96
- Carpenter, 212
- Carpenter, G. H., 289
- Clark, 119, 201, 202, 319
- Clifford, 169, 216, 318, 333–334
- Corbett, 253
- Creer, 130, 226
- Crimp, 40, 49, 59, 119, 123, 156, 216, 239
- Crossley, 151, 302, 303, 304, 305
- Crosthwaite, 49
- Dibdin, 116, 118
- Dierner, 216
- Dixon, 146
- Ducat, 253, 278
- Dunbar, 72, 75, 119, 156, 241, 251, 290, 315
- Eaton, 290
- Eddy, 67, 156
- Ekin, 49
- Fales, 67, 156
- Fieldhouse, 113, 116
- Fisher, 195, 217
- Fortier, 216
- Fowler, 93, 96, 118, 167, 241, 251, 270, 319
- Fream, 216
- Fuller, 64, 67, 119, 130, 142, 143, 156, 176, 216, 243, 245, 250, 251, 261, 271, 287, 289, 290, 297
- Garfield, 149
- Geer, 290
- Gilbert, 162
- Graham-Smith, 28, 43
- Greaves, 162
- Gregory, 271
- Grossmann, 150, 154, 155
- Handford, 27, 28
- Harding, 63, 93, 119, 124, 251, 281, 290
- Harrison, 63, 93, 96, 119, 124, 251, 281, 290
- Hatton, 147, 339
- Haworth, 96, 323–329
- Hazen, 87, 120
- Hering, 297
- Hodgson, 214
- Houston, 292, 293, 294, 295, 299
- Hubner, 315
- Hutchinson, 337
- Imhoff, 72, 76, 100, 101, 113, 118, 129
- Jenning, 63
- Johnson, 133, 135, 138, 139
- Jones, A. S., 129, 216
- Jones, C., 144
- Julian, 83
- Kayser, 216, 315
- Kershaw, G. B., 43, 59, 120, 156, 216, 251, 290, 315
- Kershaw, J. C., 283
- Kimberley, 67, 315
- Klein, 216
- Kniebühler, 108
- Kremer, 110, 111, 113
- Kremer-Schilling, 110, 113
- Latham, 54, 63
- Lawes, 162
- Lockett, 319
- Lubbock, 290
- Massachusetts State Board of Health, 87, 119, 120, 151, 175, 201, 216, 252, 267, 290, 316
- McGowan, 32, 192, 214
- McHattie, 195, 217
- Merrin, 199
- Metropolitan Sewage Commission of New York, 175
- Miali, 290
- Mumford, 118

Cambridge University Press

978-1-107-49472-5 - Sewage Purification and Disposal

G Bertram Kershaw

Index

[More information](#)

INDEX OF AUTHORS

361

- Naylor, 299, 316
Newton, 245
- O'Shaughnessy, 93, 96, 332
Otto-Hilgenstock, 314
- Parsons, 5, 13
Pasteur, 42
Pearse, 35
Phelps, 272, 296, 297, 298, 299
Platt, 76
Poore, 8, 16, 19, 22, 27, 43
Purvis, 195, 206, 214, 217
- Radcliffe, 311, 313, 314
Rayner, 206, 217
Richards, 337
Riensch-Wurl, 63
Risler, 217
Rivers Pollution Commission, 1, 2,
160, 161, 162, 217, 316
Roberts, 24
Roechling, 216
Roscoe, 238
- Saville, 120
Schaefer-ter-meer, 152, 153
Schmeitzner, 67, 77, 120, 157
Schmidt, 75
Schwartz, 72
Scott Moncrieff, 253
Sewage Disposal Commission, 2, 5,
13, 27, 28, 29, 32, 33, 43, 55, 59,
- Sewage Disposal Commission,
60, 73, 85, 88, 96, 97, 98, 99, 100,
120, 124, 141, 142, 148, 155, 157,
175, 193, 205, 206, 209, 212, 215,
217, 218, 221, 235, 237, 243, 252,
254, 257, 260, 273, 279, 290, 291,
299, 316
Sidgwick, 297
Stearns, 272
Steiner, 130
Steuernagel, 72, 75, 157
Stoddart, 260, 270
Surveyor, The, 154, 157
- Taylor, 271
Taylor, John and Sons, 322–323
Tillmans, 217, 316
Travis, 100, 101, 105
- Venable, 120, 157, 252
Voelcker, 155
- Watson, 93, 95, 96, 239, 246, 267, 271,
274, 332, 334
Weand, 63, 271
Weekes, 338
Wery, 217
Whitney, 217
Whittaker, 253, 260
Wilson, 157, 217, 266, 290, 299, 316
Windschild, 63
Winslow, 272

Cambridge University Press

978-1-107-49472-5 - Sewage Purification and Disposal

G Bertram Kershaw

Index

[More information](#)

INDEX OF PLACES CITED

- Aachen, 67
 Aberdeen, 30
 Accrington, 91, 130, 245, 253, 260, 264, 286
 Adelaide, 30
 Aldershot Camp, 129, 158, 164, 165, 193, 204, 209, 216
 Altringham, 193, 209, 216
 Andover, 22, 30, 91, 251
 Andover (U.S.A.), 151
 Ashburton, 157
 Arran, 143
 Atlanta (U.S.A.), 266
 Baltimore, 30, 261, 266, 270, 297, 298, 337
 Barking, 161, 162, 239
 Barrhead, 91
 Barrow Deep, 143
 Basford, 28
 Batavia (U.S.A.), 266
 Beaumont Leys, 131, 168, 183, 209
 Beddington, 161, 162, 192, 193, 197, 203, 204, 209
 Belfast, 30
 Berkhamsted, 251
 Berlin, 200, 212
 Bermuda, 22
 Birmingham, 88, 93, 95, 98, 239, 246, 267, 271, 274, 289
 Bochum, 147
 Bolton, 131, 140
 Boston (U.S.A.), 30, 35, 143, 297, 298
 Bradford, 87, 149
 Brimstone Barn, 63
 Brisbane, 30
 Brockton (U.S.A.), 64, 151
 Brussels, 111, 113
 Burnley, 91, 140, 141, 232, 251
 Burton-on-Trent, 87, 307
 Bury, 140, 145, 331
 Buxton, 89, 191, 286
 Calverley, 30, 51, 89
 Cambridge, 81, 82, 83, 128, 131, 149, 156, 158, 172, 191, 192, 193, 195, 200, 206, 209, 216
 Carshalton, 63, 337
 Caterham, 13, 34, 274
 Cheltenham, 91
 Chesapeake Bay, 297
 Chester, 262
 Chicago, 30, 35, 63
 Chorley, 86, 89, 125, 140, 142, 143, 259, 270, 288, 289
 Christiana, 30
 Clifton, 72
 Clinton (U.S.A.), 151
 Colchester, 140
 Cologne, 72, 152
 Columbus, 35, 144, 261, 264, 266, 271, 289
 Coventry, 170, 171, 216
 Craigentinny, 157
 Cromer, 125
 Croydon, 54, 63, 158, 161
 Davyhulme, 319
 Dorking, 73, 74, 89, 90, 95, 97, 142, 257, 279, 280, 281
 Dortmund, 108, 109
 Dresden, 63
 Dublin, 143, 147
 Durban, 30
 Dursley, 161, 162
 Ealing, 89, 140, 144
 Edinburgh, 157
 Elberfeld, 67, 145
 Esholt, 149, 150
 Essen—N.W., 147
 Exeter, 30, 90, 91, 97, 125, 191, 251
 Exeter (St Leonards), 34, 51, 91, 96, 125
 Fletton, 264
 Frankfort, 128, 145, 152
 Friern Barnet, 89
 Frizinghall, 150
 Glasgow, 140, 143
 Gloversville (U.S.A.), 35
 Gotha, 113
 Grantham, 158, 216
 Great Harwood, 140
 Guildford, 89, 95, 116
 Haileybury, 117
 Halberstadt, 128
 Hale, 222–223
 Halstead, 117
 Halton, 72
 Hambrook, 161, 162
 Hamburg, 30
 Hampton, 48, 217, 242, 245, 249, 251

INDEX OF PLACES CITED

363

- Hanley, 91, 140
 Hanover, 130, 145, 152
 Harburg, 152, 153
 Harrow, 241
 Hartley Wintney, 51, 91, 248
 Hatfield, 131, 132, 169, 177, 192, 199,
 211, 216
 Hendon, 30, 89, 253
 Henley, 170
 Heywood, 88, 89
 High Wycombe, 117
 Hong-Kong, 30
 Horfield, 89, 260, 278
 Huddersfield, 88, 96
 Hyde, 140
 Ilford, 95, 96, 125, 257, 258, 261
 Kenilworth, 262
 Kidderminster, 158
 Kings Park (U.S.A.), 271
 Kingston-on-Thames, 86, 89, 146, 238
 Knowle, 97, 98
 Lahore, 30
 Lawrence (U.S.A.), 87, 119, 151, 201,
 253, 270
 Leeds, 63, 83, 90, 93, 95, 96, 97, 98,
 124, 239, 281
 Leicester, 131, 168, 183, 192, 193,
 209
 Leigh and Atherton, 140
 Leipzic, 128
 Leyton, 89, 140
 Lille, 96, 113
 Lincoln, 101, 200
 Little Drayton, 34, 51, 278
 Liverpool, 30
 London, 30, 143, 161
 Long Island (U.S.A.), 175
 Luton, 105, 106, 107, 108, 167, 170
 Madrid, 30
 Maidenhead, 140
 Maidstone, 191, 217
 Malvern, 315
 Manchester, 91, 93, 96, 98, 143, 151,
 220, 232, 238, 250, 251
 Mannheim, 152
 Massachusetts Bay, 144
 Michigan, 143
 Middleton, 140
 Mount Vernon (U.S.A.), 272
 Munich, 30
 Narragansett Bay, 143
 Naugatuck river, 144
 Nelson, 140, 141
 New Bedford (U.S.A.), 297
 New Brunswick (U.S.A.), 297
 Newcastle-under-Lyne, 262
 New York, 30, 175
 Nordhausen, 111, 113
 Normanton, 51, 89
 North Plainfield (U.S.A.), 266
 Nottingham, 125, 158, 166, 192, 193,
 195, 203, 204, 209, 216
 Oldbury, 315
 Oldham, 141, 150, 154, 155
 Oppeln, 75
 Oswestry, 34, 73, 129
 Paris, 30, 199
 Philadelphia, 145, 297
 Plainfield (U.S.A.), 64, 229, 243, 245,
 251
 Potsdam, 145
 Prestolee, 91, 268, 270, 286
 Providence, 130, 142, 143, 297
 Quedlinburg, 111
 Radcliffe, 89
 Reading, 48, 261, 271, 272, 297
 Recklinghausen, 100, 147
 Red Bank (U.S.A.), 297, 298
 Rhyl, 54
 Richmond (Surrey), 140
 Riverton (U.S.A.), 297
 Rochdale, 30, 76, 87, 89, 90, 97, 141
 Rothamsted, 338
 Royton, 89, 140, 337
 Rugby, 166, 170, 177, 192, 193, 209
 Rushden, 314
 Salford, 143, 253
 Salisbury Plain, 18
 Sawbridgeworth, 251
 Schuylkill river, 297
 Scioto river, 144
 Sheffield, 83, 90, 96, 323
 Sheringham, 125
 Slaithwaite, 91
 Southampton, 143
 Southend, 143
 South Norwood, 127, 158, 168, 193,
 204, 209, 283
 Spandau, 152
 Staines, 13
 Stourbridge, 158, 216
 Stockport, 140
 Stratford, 133
 Stratford (U.S.A.), 297
 Stratford-on-Avon, 63, 64
 Stuttgart, 113, 145
 Tinsley, 326
 Toronto, 30, 130
 Trieste, 30

Cambridge University Press
978-1-107-49472-5 - Sewage Purification and Disposal
G Bertram Kershaw
Index
[More information](#)

364

INDEX OF PLACES CITED

- Venice, 30
Viersen, 77
Wainfleet, 338
Walbrook (U.S.A.), 298
Wakefield, 266
Wanne-Nord, 101, 102, 103
Washington, 30
Waterbury (U.S.A.), 35, 144
Watnall, 28
Weimar, 113
Wiesbaden, 67
Willesden, 89, 140
Wimbledon, 140, 168
Winchester, 167
Withington, 113, 141, 144, 151, 319
Withnell, 89
Woking, 216
Wolverhampton, 140, 164, 169, 170
Worcester (U.S.A.), 35, 67, 130, 142, 151
Yeovil, 91
York, 89, 91, 129, 130, 141, 226, 285