

Index

[Page numbers in *italics* are figures; with ‘t’ are tables; with ‘n’ are notes.]

- abandonment (site), 510–13, 710–11, 716–17
 Awdaghost/Tagdaoust and Tadmakka/
 Essouk, 657
 Jenné-jeno, 529
 Lake Chad, 567–68, 574
 Abdallah ibn Sa’ad ibn Abi-Sarh, 128
 Abu Bakr, 706
 Abu Ballas (Western Egypt), 120t, 123–24
 Abu al-Muntasir al-Yasa, 616
 Ad Calceum Herculis (fort) (Algeria), 217
 Ad Maiores (Algeria), 212n116
 Ad Medias (Tunisia), 212–13
 ad Turres *see* Tamerza
 Adrar des Iforas (Southern Sahara),
 279–97t, 316
Aeneid (Virgil), 410
Aethiopes, 298
 Afunfun (Southern Sahara), 279–97t, 335
 Agadem (Southern Sahara), 307
 Agadez (Niger, Southern Sahara), 277, 312,
 313, 681, 707–8t
 Agarsel Nepte *see* Nafta
 Agbe-Davies, A.S., 523, 524
 Aghram Nadharif (Fazzan), 68–69t, 94–95,
 100, 337, 714
 agriculture
 Althiburos, 457–60
 Morocco, 478, 609–11, 616
 and Roman cities, 421, 424
 and sedentarisation, 332–35
 and settlements, 334–36
 Western Desert, 138
 Ahaggar Mountains, 311–12
 Aïr (Southern Sahara), 279–97t, 312,
 707–8t, 710
 Akjoujt (south-west Sahara), 279–97t,
 317, 321
 copper, 321, 526, 547, 554
 Akreijit (Mauritania), 279–97t, 502, 503, 573
 Akumbu (Mali), 505
 al-Abid (Fazzan), 90
 al-Barkat oasis, 68–69t, 91, 92
 al-Bdayir (Fazzan), 83, 83–84
 al-Fuqha (Libya), 130
 al-Guebba (Tunisia), 210
 al-Hamma *see* Aquae Tacapitanae
 al-Hayz oasis (Western Egypt), 124–25, 158
 al-Jiarabub (Libya), 125–27
 al-Jufra oases (Libya), 130–38, 131, 707–8t
 al-Quantara tomb (Morocco), 482, 483
 al-Qurayyat al-Gharbia (Tripolitania),
 189–90t, 192–93, 226, 425
 Alexander the Great, 125
 and Cyrenaica, 397
 temple at Bawiti, 124, 158
 Alexandria (Egypt), 167–68
 Algeria, and the Andalusians, 488
 Almoravid dynasty, 278
 Almoravid dynasty, 239, 250, 651–52, 706
 and Azugi, 319
 and Kumbi Saleh, 630
 Southern Sahara, 278
 and Tadmakka, 635
 and Tagdaoust, 625–26
 and Takrur, 551
 Althiburos (Tunisia), 397, 406–7, 448, 467–71
 Project on protohistory, 448–50
 environmental data, 449–50, 455–60, 456,
 457, 458, 467–68
 excavation results, 450–55, 451, 453, 454
 funerary data, 461, 462, 464, 465, 466, 467,
 468, 470
 Amazigh groups, 20, 20–21, 490
 amazonite, 302, 308, 315, 516, 573, 713
 Amblard-Pison, S., 501
 Amheida *see* Trimithis
 Ammaedara (Haidra, Tunisia), 208, 415t, 431
 Ammon *see* Siwa
 amphitheatres, 418, 423
 Carthage, 409, 410
 Amtal (Mauritania), 279–97t, 319, 322
 Andalusians (Algeria), 488
 animals
 Althiburos, 457–59, 458
 beasts of burden, 18, 174
 camels, 174, 703, 717
 and caravans, 651
 Middle Senegal Valley, 547, 554
 care for, 607
 Euesperides, 406

- Lake Chad, 566, 574–75
 Mauritania, 526
 Middle Senegal Valley, 544–45
 Apollo, sanctuary and temple of, 403
 Apollonia (Cyrenaica), 396, 404
 Appian
 description of Carthage, 399
 on Numidia, 477
 Aquae Tacapitanae (al-Hamma) (Tunisia),
 207–8, 210
 aqueducts, 416–18, 420
 Carthage, 410–11, 429
 in Late Antiquity, 429
 Arawan (Western Sahara), 317
 architecture
 Middle Senegal Valley, 544
 Southern Sahara/Niger Bend area, 498–500,
 499, 510–13, 512
 Middle Niger, 504–10, 507, 508
 and northern parallels, 514–16
 Tichitt, 500, 502, 504
 West African, 658–61
 Arlit (Southern Sahara), 279–97t, 314
 army, Roman, 424–25
 Arondo (Middle Senegal), 543, 542, 549,
 554
 Arsinoë *see* Tocra
 artesian springs/wells, 13, 14, 339–40
 Darj, 198–99
 Fazzan, 55, 84, 92
 Ghadamis, 195
 Nafta, 211
 Nefzaoua oases, 201, 206
 Telmene oasis, 202–3
 The Jarid, 209
 Tuggurt, 219
 Wargla, 221
 Western Desert, 116, 150
asnam, 195–96
 Assodé (Southern Sahara), 313–14
 Aswan *see* Syene/Aswan
 Atlantic Coast, 321–22
 Atlas, Saharan, 217–18
 Awdaghust *see* Tagdaoust
 Awjila (Libya), 120t, 127–28, 137
 Awlil salt mines, 550, 551
 axe, bronze, 482
 Ayoub, Mohammed, 53, 56
 Azawagh region (Southern Sahara), 279–97t,
 314–15, 710
 Azelik-Takadda (Niger), 279–97t, 647
 Azugi (south-western Sahara, Mauritania),
 279–97t, 319, 317, 622, 646, 707–8t
- Bâ, A., 553
 Badias (Bades) (Algeria), 213, 213, 226
 Bagnall, Roger S., 160
 Bahariya (Oasis Parva) (Western Egypt), 120t,
 124–25, 158–59
 Bahr-al-Ghazal (Southern Sahara),
 279–97t, 302
 Bailloud, G., 300–1
 Bakri, al-, 130, 136, 256, 542
 on Awdaghust, 550
 on Azugi, 319
 on Gao, 641
 on Kumbi Saleh, 630n44
 on Sijilmasa, 596–98, 599–600, 602–4,
 605–7, 611
 on Tadmakka, 634–35, 656
 on Takrur, 550–51
 Bani Walid (Libya), irrigation, 13
 Baquates people, 251n25
 Baradez, J., 217n139
 Barca (Ptolemais) (Cyrenaica), 396–97, 404,
 415t
 craft production, 422
 fortifications, 431
 Barnett, T., 76
 Barth, H., 53n1, 85
 baths (Roman), 208, 417–18
 Capsa, 208
 Carthage, 411–12
 Late Antiquity, 426–27
 Leptiminus, 429
 Battiad dynasty, 397
 Battos, King/Battiad dynasty, 397
 Bauer, A.A., 523, 524
 Bawiti (al-Qasr/Psobthis) (Western Egypt),
 124–25, 158–59
 beads, 540n69
 beasts of burden
 camels, 174, 703, 717
 and caravans, 651
 Middle Senegal Valley, 547, 554
 Becker, C., 552
 Benghazi *see* Euesperides
 Bentaher, Fuaad, 128
 Bentyia-Kukiya (Mali), 622, 646–47
 Berbers *see* Amazigh; Garamantes; Tuareg
 Berenice *see* Euesperides
 Berenice, Queen, 405
 Berenike (Egypt), 168
 Berthier, D., 631–33
 Besseriani (Nigrenses Maiores) (Algeria), 212
 Bilma sand sea area (Southern Sahara), 303–8
 Biskra (Algeria), 213, 214–15, 225

- blacksmith, founder of Sijilmasa (Midrar),
596–97, 602–4, 606
- blockhouses, 404, 430–31
- Bocoum, H., 552
- Bonnel de Mézières, A., 646
- Bonte, Pierre, 680–81
- Borku (Southern Sahara), 279–97t, 301–2
- Bourdieu, Pierre, 594–95
- brass, *clochettes*, 549–49
- brick
fired, 539, 643, 645, 660
see also mudbrick
- bronze, Middle Senegal Valley, 546
- Bu Nijim (Tripolitania), 188–92, 191, 226,
425, 426
- Buda (Algeria), 267
- Bulla Regia (Numidia), 406–7, 415t, 445
- burges*, 199
- Burgu (Punic town) (Tunisia), 401
- Burgus Speculatorum (al-Kantara) (fort)
(Algeria), 217
- burials, 23
- Algeria
Andalusians, 488
Wadi Jedi area, 215
- Carthage, 400
- central Southern Sahara
Ahaggar Mountains, 311
Tassili n'Ajjer, 309–10
- Cyrenaica, 403–4
Barca, 404
- excavation techniques, 445–46
- Fazzan, 100
al-Barkat, 68–69t, 337
Aghram Nadharif, 95
Fewet, 68–69t, 93, 94
Ghuddwa, 89
Murzuq basin, 80, 83
Sabha, 90
Tadrart Akakus, 96–97
Wadi al-Ajal, 76–77
Wadi ash-Shati, 87–88
Wadi Tanzzuft, 92
- Gao Saney (Mali), 643
- Late Antique, 428
- Libya
al-Jiarabub, 120t, 126–27
Awjila, 128
eastern Libya, 138
Hun, 136
Tagrifet, 130
Waddan, 134, 136
- Meroitic kingdom, 385
- Middle Niger, Jenné-jeno, 532, 533
- Middle Nile, Kerma, 363
- Morocco, 490–94, 491, 493
Kach Kouch, 486–87
Lixus, 481–82, 483
- Roman North Africa, 419
Sabratha, 428
- south-west Sahara
Akjoujt, 321
Atlantic coast area, 322
Kumbi Saleh, 631
Wadan, 320
- Southern Sahara
Adrar des Iforas, 316
Agadem, 307
Air, 312–14
Azugi, 319
Borku, 302
Djado, 304
Ennedi, 301
Iwelen, 312–13
Kufra, 300
Seguedine, 305
Tahoua, 312
Termit, 307
Tibesti, 302–3
- Tadmakka/Essouk (Mali), 636, 654, 655
- Tagdaoust (Mauritania), 628
- Thugga, 456n47
- Tripolitania
Chawan, 199
Darj, 198
Ghadamis, 195–98
Kebili, 205
Tripolitanian Jabal, 200
- Tunisia, Althiburos, 450, 461, 462,
464, 465, 466, 467,
468, 470
- Wadan (south-western Sahara), 320
- Western Egypt
Bahariya, 159
Bawiti, 124, 159
Dakhla, 123, 160
Trimithis, 163
Farfara, 124, 159
Kharga, 121
Siwa, 125, 158
- Western Sahara
Azugi, 319
Foum Larjam, 262–63
Sijilmasa, 256, 604–5
Taouz, 257
Tawdenni, 316
Wadi Draa, 259, 262, 270
Wadi Gir, 253
Wadi Noun, 263

- western Algeria, 268
 Tabalbala, 268
see also monuments
- Burkina Faso, 509
- Busi (al-Jufra group), 133
- Byzantine period
 Hodna, 217
 Negrine, 212
 Western Algeria, 267
- Callimachus, on the siege of Euesperides, 405
- camels, 174, 547, 554, 651, 703, 717
- Camps, Gabriel, 446, 462, 489, 490, 491, 492
- Capel, C., 631
- Capitolium*, 416
 Carthage, 410
 Thuburbo Maius, 429
 Timgad, 412, 413, 416
- Capot-Rey, R., 672n28
- Capsa (Gafsa) (Tunisia), 208–9, 224, 347
- caravans, number of camels, 651
- Carthage
 Late Antiquity, 430
 Phoenician, 396, 398–400, 399
 Roman, 398, 408–12, 409, 418, 429
- Cassius Dio, 249
- Castellum Dimmidi (fort) (Algeria), 217
- castles *see qsur*
- cattle, 301
 Althiburos, 458–59
 Mauritania, 526
- cemeteries *see* burials
- centralisation, 681–85
- cereal cultivation, 332, 456, 478, 610
- Chami (Atlantic coast), 279–97t, 317, 322
- Champault, D., 268
- chapels, funerary, 253–54, 262, 318
- Chappelle, J., 303
- chariot representations
 Southern Sahara, 308
 Iwelen, 313
 Tahabort, 311
 Timmissao, 311–12
- Taouz, 256–57
- Wadi al-Ajal, 76n49
- Wadi Noun, 263
- Chawan (Tripolitania), 191, 199
- Chebika (Speculum) (Tunisia), 211
- Chemtou (Numidia), 406–7
- chickens, 516, 540, 547, 555
- Childe, V. Gordon, 564
- Chinguetti (Western Sahara), 317, 320, 622, 646, 660
- Chirfa *see* Djado
- Christianity, 427–29
- churches, 426
 Lepcis Magna, 427–28
 Sufetula, 427, 428
- Cidamus *see* Ghadamis
- Cintas, Pierre, 479, 482–83
- circuses, 418–19, 423
 Carthage, 409, 410
- Cirta (Algeria), 217, 218, 397, 418, 445
see also El Kef
- Cissé, Mamadou, 505, 643
- cisterns, 14, 417
 Althiburos, 452, 454, 468
 Carthage, 399, 400, 409, 410–11
 Euesperides, 405
- citadels
 Aghram Nadharif (Fazzan), 94, 95
see also qsur
- city, definition, 522
- city-states, 27–28, 586–89, 670n20, 703–5
- civilisation, defined, 697
- civitas*, 347
 Nefzaoua, 205–6
 Telmine, 202, 227
 Thiges, 209–10
- Clapperton, H., 136
- Clark, Mary, 534
- climate, 8–12, 9, 334, 349–50, 716
 Lake Chad, 567–68
 Middle Niger, 11, 525–26, 527, 537
 Middle Nile, Meroitic kingdom, 370–71
 Middle Senegal Valley, 545, 546, 550
 Tafilalt (Morocco), 609–10
 Western Egypt, 115, 150–51
- clochettes*, brass, 549–49
- collapse, urban, Western Egyptian Desert, 148–49, 172, 174
- coloniae*, 347, 423
 Tacapae, 207
- colonialism, 29, 228
 British, 677, 679n70
 French, 219, 250, 348, 541, 670, 675–76, 678–79
 influence on scholarship, 446–47, 477
see also Roman Empire
- commodities, Western Desert, 171–72
- Cooper, F., 679n70
- copper
 Jenné-jeno, 529, 531t, 535, 555
 Middle Niger, Gao, 538
 Middle Senegal Valley, 545, 546, 550, 554

- copper (Cont.)
 - south-west Sahara, Akjoujt, 321, 526, 547, 554
- Southern Sahara
 - Azawagh region, 314–15
 - Marandet, 315
 - Tamdult (Morocco), 700
 - Western Sahara, 248t
- Cornelius Balbus, Lucius, 188, 195, 213–14, 224
- cotton, 374, 379, 385–86, 549
- councils, tribal, 670–71
- craft production, 347
 - Gao, 541
 - and identity, 389–90
 - Lake Chad
 - Dorota, 578
 - Zilum, 572–73
 - Zubo, 579, 580
 - Meroitic kingdom, 377, 385, 389
 - Mussawarat, 381
 - Roman period, 421–24
 - see also* copper; iron; textile production
- craft specialisation, 344, 553, 700–1
- Cressier, P., 661
- crocodiles, 257, 277, 318
 - god, 116
- Crumley, C., 439
- Cubalel (Middle Senegal Valley), 544, 546–47, 551
- Cuicul (Djemila) (Algeria), 413–14
- Cyrenaica (north-eastern Libya), 396–97, 398
- Cyrene (Cyrenaica), 396–97, 401–4, 403, 405–6, 415t
- Dakhla (Western Egypt), 122–23, 149, 149–50, 150, 707–8t
 - pre-Roman settlement, 155, 333
 - Roman period, 159–60, 348
- Dakhlet et Atrous (Middle Niger), 335, 502n19
- Daniels, Charles, 53, 56
- Darj (Tripolitania), 191, 198–99
- date palms, 6, 7–8, 332
 - and groundwater catchments, 15
 - iconography, 21, 224
 - Morocco, 240–41, 610–11
 - Tagdaoust, 550
 - Wadi Draa, 257
 - Wadi Tanzzuft, 76n47
- dating, 37–39, 337, 717
 - Central Sahara (Fazzan), 68–69t
 - Eastern Sahara, 120t
 - Northern Sahara, 189–90t
 - Southern Sahara, 279–97t
 - Western Desert, 120t
 - Western Sahara, 248t
 - see also individual sites*
- Daumas, E., 214n130
- Daza people, 298
- defences *see* fortifications
- defensive coalescence, 586–87, 588
- Demeter, temples in Cyrenaica, 403, 404
- dendritic settlement systems, 25–26
- desert, definition, 8
- Desert Migrations Project (DMP), xx, 57
- Despois, J., 56, 670, 673
- Dhar el-Moudden (Morocco) *see* Kach Kouch
- Dhar Tichitt area (Mauritania), 278, 279–97t, 318–18, 333, 565, 581
- Di Vita, A., 129–30
- Dia-Shoma (Mali), 504–5, 510, 513, 515
 - trade, 516
- Diana Veteranorum (Algeria), 425
- diggers, well, 219
- Dio *see* Cassius Dio
- Djaba (Southern Sahara), 279–97t, 303–4
- Djado (Chirfa) (Southern Sahara), 279–97t, 303–5
- Djemila *see* Cuicul
- Djenné *see* Jenné-jeno (Mali)
- Dorota (Lake Chad), 574–78, 576, 587–88, 589
- Doucen (Algeria), 215
- Douz (Tunisia), 202, 205
- dual town relationships, 652–53, 700
- Duveyrer, H., 53
- dye production, 264, 422
 - Euesperides, 406
 - Meninx, 401
 - Sabratha, 422
- Earle, T., 439, 442, 702
- Eastern Libya, 112, 114, 127–37, 131, 133, 134, 135
 - see also* Cyrenaica
- Eastern Sahara *see* eastern Libya; Western Desert (Egypt)
- Echallier, J.-C., 267
- Egypt
 - New Kingdom colonialism in Nubia, 365–68, 367
 - Oxyrhynchus, 165–66
 - see also* Western Desert (Egypt)
- El Kef (Tunisia), 397
- El Ksour necropolis (Tunisia), 450, 461, 462, 464, 465, 466, 467
- Emberling, G., 709n65
- Emi Tchouma (Southern Sahara), 306

- Ennedi (Southern Sahara), 279–97t, 300–1
 environmental data
 Althiburos, 449–50, 455–60, 456, 457, 458, 467–68
 Morocco, 478
 epigraphy
 and Numidia, 446
 and Tadmakka/Essouk, 654
 Erfoud *see* Tafilalat/Tafilalt
 Essouk *see* Tadmakka/Essouk
 euergetism, 420–21
 Euesperides (Berenice) (Cyrenaica), 397, 401, 402, 404–6, 418
 craft production, 422
 Eustache, Daniel, 611
 Euzennat, M., 200, 490
 Evans-Pritchard, E.E., 676n48
 evolutionary theory, 439, 441–42, 444
 excavation techniques of burials, 445–46
 exchange *see* trade and exchange
 exotic goods, 170
 Middle Senegal and Niger rivers, 523–24, 530–31, 531t, 540, 550, 553–55

 Fachi (Southern Sahara), 306–7
 fairs, Tafilalt, 596, 606–7
 Fakhry, A., 124, 158
 families, trading, 709
 Farfara (Farafra) (Western Egypt), 124, 159, 333, 707–8t
 Fatimids, 602
 the Fayyum (Western Egypt), 116–21
 Karanis, 168
 Fazzan (south-western region of Libya), 58, 68–69t, 97–103, 701–2, 706, 707–8t
 and the Garamantes, 53–55, 335–38
 history of the research, 55, 58
 Murzuq/Hufra Basin and ash-Sharqiyat, 68–69t, 77, 79, 80, 81, 82, 83, 85, 86–89, 98, 101
 outlying oases, 89–90
 Wadi al-Ajal and Jarma, 58–77, 70, 72, 74, 75, 98, 100–1, 102t, 103, 344–45
 Wadi ash-Shati, 84–89, 85, 86t, 98, 101, 102t, 103
 Wadi Hikma, 58, 68–69t, 97, 98, 101
 Wadi Tanzzuft/Tadart Akakus, 68–69t, 90–97, 91
 water sources, 13, 15, 55, 58–70, 80, 84, 338–40
 Fentress, E., 20, 336, 424–25
 Fenwick, C., 673, 683–84
 Février, Paul Albert, 489

 Fewet (Fazzan), 68–69t, 91, 92, 94, 100, 714
 Fez (Morocco), 602–3
 Flannery, K., 28, 696
 Fletcher, R., 25, 349
 Flight, C., 643–45
 floodwater farming, 14, 194, 199, 332–33
 foggaras, 13d, 15–16, 23
 Algeria
 Ghardaia/Mzab, 223
 Wargla, 221
 eastern Libya, 138
 Al-Fuqha, 130
 Tagrifet, 130
 Waddan, 136
 Zala, 129
 Fazzan, 55, 70, 73–75, 80, 99, 339
 al-Abid, 90
 Umm-al-Aranib, 83–84
 Tripolitania
 Capsa (Tunisia), 209
 Chawan, 199
 Darj, 198–99
 Ghadamis, 13, 196–98, 341
 the Nefzaoua oases (Tunisia), 201, 206
 Telmene, 204–5
 western Nefzaoua, 205
 Western Egypt, 138, 153–54, 170
 Bahariya, 125, 159
 Dakhla, 155
 Farafra, 159
 Kharga, 121, 154–55
 Western Sahara
 Tafilalat, 255
 Wadi Draa, 258
 Wadi Gir/Saoura, 252, 253
 Western Algeria
 Gourara/Tuwat/ Tidikelt, 265, 267, 268
 Tabalbala, 268, 269
 fora, 415–16
 Carthage, 408–10, 409
 Sabratha, 413, 419
 Timgad, 412, 413
 fortifications, 701
 Althiburos, defensive wall, 454, 454, 455
 eastern Libya
 Tagrifet, 130
 Waddan, 134–36
 Mediterranean, late antique, 430–31
 see also *qsur*
 fortified settlements, 336
 Western Egypt
 Dakhla, 123
 Kharga, 121–22
 see also Lake Chad; *qsur*

- fortlets, Roman, 193–94, 198, 199, 201, 216, 224, 226
- fortresses, Western Egypt, Bahariya, 125
- forts (Roman), 347, 705–6
- al-Qurayyat al-Gharbia, 189–90t, 192–93, 226, 425
- Bu Nijim, 188–92, 191, 226, 425, 426
- Castellum Dimmidi, 217
- Chawan, 199
- Doucen, 215
- Gemellae, 214, 215, 216, 225, 347
- Hodna, 216–18
- Madress, 198
- Mizda, 194
- Nigrenses Maiores, 212
- Northern Sahara, 223–24, 226
- Remada (Tillibari), 200
- in the Saharan Atlas, 218
- Sidi Uqba, 214
- Forty Days Road, 171
- fossatum* (linear barrier), 216–17, 220
- Foum Larjam (Wadi Draa) (Morocco), 262–63
- fountains
- Carthage, 411
- Lepcis Magna, 417
- functional interdependence, 553
- and Jenné-jeno, 534, 535
- funerary chapels, 253–54, 262, 318
- Fura Wells (Sudan), 369
- Gabes *see* Tacape/Tacapae
- Gabriel, B., 267
- Gaetuli, 20, 201, 224, 240, 269, 342
- Gafsa *see* Capsa
- Gajiganna complex (Lake Chad region), 566–74, 569, 571
- Gao (Kawkaw/Gawgaw) (Mali, Middle Niger), 515, 524–25, 537, 541, 555, 641–43, 649–50
- architecture, 658, 660
- as a dual town, 652–53
- urban structure, 657
- Gao Ancien (Mali, Middle Niger), 279–97t, 537, 538, 540–41, 623–24, 642, 644, 645, 649, 657
- architecture, 659, 660
- Gao Saney (Mali, Middle Niger), 279–97t, 507, 509, 537, 541, 642, 643–45, 649
- Gara Krime (Algeria), 222
- Garama *see* Jarma
- Garamantes (ancient people), 21, 53–55, 335–36, 441
- inequality/slavery/labour exploitation, 678–81
- oases, 22
- population, 713
- settlement, 332, 335–38, 347, 671–74
- and Southern Sahara/Sahel area, 514–16
- spiritual centres, 674–77
- as a state, 28–29, 667–68, 685–86, 703, 709, 711–15
- centralisation and territoriality, 681–85
- textile production, 225
- see also* Fazzan; Jarma
- gardens
- and market towns, 656
- oasis, 13t, 16
- see also individual sites*
- Garenne-Marot, L., 548
- Garrard, T., 516
- garrison settlements (*vici*), 225–27, 347
- al-Qurayyat al-Gharbia, 193, 425
- Bu Nijim, 188–92, 191, 226, 425, 426
- Gemellae, 215, 216
- Mizda, 194
- Ras al-Ain, 201
- Gauthier, Yves and Christine, 256–57, 308
- Gautier, E.-F., 267
- Gawgaw *see* Gao
- Gemellae (Algeria), 214, 215, 216, 226, 225, 347
- Geoffroy, Auguste, 673n35
- Gezabi (Southern Sahara), 305, 305, 707–8t
- Ghadamis (Cidamus) (Libya), 189–90t, 191, 348, 704
- irrigation regimes, 13, 341
- modern period, 18
- Roman period, 195–98, 197
- Ghaki, M., 200
- Ghana (kingdom), 542, 630–33, 649–50
- architecture, 658, 659–60
- as a dual town, 652–53
- and Silla, 550
- urban structure, 657
- see also* Kumbi Saleh
- Ghardaia (southern Algeria), 222–23
- Ghat oasis (Libya), 91, 92, 98, 348n55, 348
- Ghuddwa (Fazzan), 89
- Giddy, L.L., 147n3, 170
- Gill, J.C.R., 148n5
- glass
- working
- Gao, 541
- Sabratha, 423
- glass beads
- Dia, 516
- Jenné-jeno, 531t

- Kavar, 308
 Kumbi Saleh, 633
 Middle Niger, Gao, 538, 539, 554–55
 Niger Bend, 540n69
 Godelier, M., 438, 442
 gold, 157, 159
 Gao, 539
 Nubia, 366
 Tadmakka, 555, 700
 Tadrar, 541
 and trade, 153, 516, 623–24
 Wadi Noun, 264
 Western Desert, 171
 Goulfe (Lake Chad region), 585
 Gourara (Algeria), 241, 266, 265–68, 674
 Gourma (Mali), 498, 499, 509, 513, 515, 539
 Gozalbes-Gravioto, Enrique, 482
 Gracchus *see* Sempronius Gracchus
 graffiti, Mussawarat, 381
 ‘graffito’ pottery, 480, 481, 487
 grain-beer, 385
 grapes, Althiburos, 456–57
 Grébénart, Danilo, 492
 Greece, and Cyrenaica, 396–97, 398, 401–6,
 402, 403
 groundwater catchments, 15, 321
 Gsell, Stéphane, 446
 Guédon, S., 225
 Gutelius, David, 674

 Hadj-Sadok, Mohammed, 611
hafirs (water reservoirs), 373, 377, 381–82
 Haidra *see* Ammaedara
 Hammoudi, Abdullah, 674
 Hamy, E.-T., 215
 Hardesty, D.L., 340–41
 Harris, M., 439
 Hatté, C., 547
 Henchir Taddert (Algeria), 212–13
 Herodotus
 on the Garamantes, 54
 on Libya, 477–78
 heterarchy, 443, 523, 678
 Hibis (Western Egypt), 121, 153, 154
 and Roman period, 156
 hierarchical settlement
 Garamantes, 671–74
 Lake Chad, 565–66, 569, 572, 581–83
 hierarchy *see* social inequality
 hillforts, 335
 Gara Krma (Algeria), 222
 near Remada, 200
 Wadi al-Ajal, 72, 98

 Western Sahara
 Sijilmasa, 256
 Taouz, 257
 Wadi Draa, 259–63, 260, 269–70
 Wadi Gir/Saoura, 253
 hinterlands, dispersed, 671, 674
 Hippodamean planning, 166, 167
 Hitchner, R.B., 425
 Hodna (Algeria), 216–18
 Honeychurch, W., 709
 Hope, Colin A., 160
 Horden, P., 671
 horses
 Middle Senegal Valley, 546n88, 549
 representations
 Iwelen, 313
 Wadi Draa, 259, 260–61
 and state formation in Numidia, 446
 Houlouf (Lake Chad region), 585
 house types, Southern Sahara, 306–6
 Humera (Fazzan), 83, 83–84
 Hun (al-Jufra group) (Libya), 120t, 136–37
 Hunwick, J.O., 537

 Ibadi Muslims, 599, 634, 655–56, 660, 704,
 707–8t
 Ibn Abd al-Hakam, 307
 Ibn Battuta, 267
 on Takadda, 651
 Ibn Furtu, 305
 Ibn Hawqal
 on Awil and salt, 550
 on Tadmakka/Essouk, 634
 on Tagdaoust, 625
 Ibn Khaldun
 on Berber pastoralists, 673n35
 on *qsar*, 250
 on Wargla, 221
 identity, craft-based, 389–90
 Idrisi, al-
 on Azugi, 319
 on Gao, 642n82
 on Kavar, 305n44
 on Tadrar, 551
 on Waddan, 134
 ‘Ikrima, 601, 616
 Ile à Morphil *see* Middle Senegal
 Iligh (Morocco), 674–75, 676
 Imazighen *see* Tuareg
 In Teduq (Southern Sahara), 279–97t, 312, 315
 industry *see* craft production
 Insoll, T., 642–43
 Inufan (Southern Sahara), 279–97t, 312

- Iol Caesarea (Algeria), 415t, 418, 423
- iron
- Jenné-jeno, 529–31, 531t
 - mines
 - Bahariya, 159
 - Wadi ash-Shati, 84–85
 - sickles, Morocco, 478
 - and state formation, 446, 447
 - working
 - Althiburos, 450, 460–61, 470
 - Jenné-jeno, 535
 - Lake Chad region, 575, 578, 579, 580
 - Meroitic kingdom, 388
 - Hamadab, 378, 379, 388
 - Meroe, 375
 - Middle Senegal Valley, 552–53
 - Morocco, 484, 490
 - Southern Sahara, 302, 307
 - irrigation, 16, 17
 - al-Hamma (Tunisia), 210
 - Ghardaia/Mزاب (southern Algeria), 223
 - Ghat, 92
 - and slavery, 332
 - Trimithis, 123
 - Western Sahara
 - Tafilalat, 255
 - Wadi Draa, 13a,b, 258
 - see also* foggaras
 - ʿIsa ibn Mazid, 598, 600–2
 - Islamic period
 - Ibadi Muslims, 599, 634, 655–56, 660, 704
 - kharijism, 598–99, 600–2, 609
 - and trade, 350–51
 - zawaya* (religious settlements), 674–77
 - Ismant al-Kharab *see* Kellis
 - Iwelen (Southern Sahara), 279–97t, 312–13
 - Jaa-Ogo, 552
 - Jabal Afilal (Morocco) *see* Taouz
 - Jabal Bani (Middle Draa), 258–59
 - Jabal Oulad Zorha (Morocco), 613–15
 - Jacques-Meunié, D., 610
 - the Jarid (Kastiliya) (Tunisia), 209–11, 213, 707–8t
 - Jarma (Fazzan), 26, 58–77, 70, 72, 74, 75, 100–1, 344–45, 714–15
 - and trade, 350, 713
 - urbanisation, 668–71, 698
 - Javolenus Priscus, 209
 - Jenné-jeno (Mali), 508–9, 510, 514, 521–22, 525
 - trade, 516, 527–28, 530, 531t, 532, 533, 555
 - Jennings, J., 702
 - Jews
 - Tabalbala, 268
 - and Tuwat, 20n52, 267
 - Jodin, André, 483
 - Johnson, A.W., 439, 442
 - Johnson, Douglas, 677
 - Jorf Torba (Wadi Gir, Algeria), 248t, 252, 254
 - Julius Caesar, 408
 - Junhan (Tadmakka), 636, 651
 - Junker, L.L., 25–26
 - Justin, 469
 - Kach Kouch (Dhar el-Moudden) (Morocco), 484–87, 485, 486, 487
 - Kanim-Borno (Lake Chad region), 584–86, 660
 - Kanuri people, 303
 - Kapteijns, L., 372
 - Karanis (the Fayyum), 168
 - Kastiliya *see* Jarid
 - Kawa (Middle Nile), 366n23, 368
 - Kawar (Southern Sahara, Niger), 299, 303–8, 304, 305, 322, 623–24, 647, 650, 707–8t
 - urban structure, 657–58
 - Kawkaw *see* Gao
 - Kebili (Tunisia), 202, 205
 - Keding, B., 300–1
 - Kellis (Ismant al-Kharab) (Western Egypt), 120t, 122, 123, 160, 346
 - Kerkouane (Punic town) (Tunisia), 400–1, 401
 - Kerma (Middle Nile), 360–61, 363, 364, 365
 - Kharga City (Kharga), 174
 - Kharga (Western Egypt), 121–22, 149, 149–50, 150, 346, 707–8t
 - pre-Roman settlement, 154–56, 333
 - Roman period, 156–57
 - temple of Amun at Hibis, 153, 154
 - and trade, 171
 - kharijism, 598–99, 600–2, 609
 - Khartoum (Sudan), 362
 - kingdoms, 28
 - Massyle, 469
 - Mauritanian, 469, 492–94
 - Tadmak, 634
 - see also* Ghana; Meroitic kingdom
 - kingship, Kerma, 363–65
 - Kolima-Sud-Est (Mali), 504–5, 509, 513
 - Korandjé (language), 268
 - Koro-Toro (Southern Sahara), 279–97t, 302
 - Kotoko (Lake Chad region), 584–89
 - Kotula, Tadeusz, 446–47, 469
 - Kriz (Tunisia), 210
 - Ksar al Barka (south-west Sahara), 317, 320

- Kufra (Southern Sahara), 300
 Kuhlmann, K.P., 153, 171, 174
 Kumbi Saleh (Ghana kingdom) (Mauritania),
 31, 279–97t, 318, 317, 623–24, 632,
 633, 649, 657
 architecture, 658, 660
 Kushites, 364, 365, 368–69, 387, 388
 Kusimba, C., 524
 Kysis (Dush) (Western Egypt), 120t, 121, 154,
 156–57
- Lake Chad
 fortified settlements, 564–66, 575, 576, 579
 Gajiganna complex, 566–74, 569, 571
 Iron Age sites, 574, 575
 Zubo and Dorota, 575–81, 576, 579
 and the origins of urbanisation, 581–83
 and state formation, 583–88
- Lambaesis (legionary base) (Algeria), 425
 lamps, oil, Gao, 540
 land survey, Roman, 201, 205–6
 languages
 Korandjé, 268
 Songhay, 268–69
 Lassère, J.-M., 342n34
 Late Antiquity, 166, 426–32
 latrines, Roman, 417–18
 Lebeuf, J.P., 302
 Lepcis Magna (Tripolitania), 413, 414,
 415t, 416
 church, 427–28
 circus, 418
 craft production, 422
 macellum, 416
 olive presses, 429
 war with Oea, 423
 Leptiminus (Tunisia), 415t, 422, 423, 429, 430
 Leschi, L., 56, 95
 Letheilleux, J., 56
 Lévêque, Pierre, 447
 Lewicki, T., 634, 648
 Lhote, H., 310, 311
- Libya
 eastern, 112, 114, 127–37, 131, 133, 134, 135
 see also Cyrenaica; Fazzan; Syrtica;
 Tripolitania
 Libyan peoples, 115
 Limagues (Tunisia), 209
limes Tripolitanus, 200
 Liverani, Mario, 28, 57, 516, 667
 Lixus (Morocco), 480–82, 481, 482, 483
 Logone-Birni (Lake Chad region), 585
 Lonsdale, J., 681–82
- Lull, V., 439
 Lyon, G.F., 137
- macella* (markets), 416
 Macina region *see* Dia-Shoma
 McIntosh, Susan, 670
 Mackensen, Michael, 193
 Maghrawa clans, 602–3
 Mahariat (Western Sahara), 279–97t, 317, 322
 Marada (eastern Libya), 128–29
 Marandet (Southern Sahara, Niger), 279–97t,
 315–16, 647, 707–8t
 marauders, Western Desert, 171, 174
 Marcus, J., 28, 696
 Margat, Jean, 605, 610
 Marius, Caius, 208, 224
 market towns/trading centres, 318–21, 621–24,
 622, 701
 architecture, 658–61
 Awdaghust/Tagdaoust, 624–29, 627, 628
 Azelik-Takadda, 279–97t, 647
 Azugi, 279–97t, 317, 319, 622, 646
 Bentyia-Kukiya, 622, 646–47
 Chinguetti (Western Sahara, Mauretania),
 317, 320, 622, 646
 early Islamic era, 650–53
 Gao, 641–43, 644, 645
 Kawar, 299, 303–8, 304, 305, 322, 623–24,
 647, 650
 Kumbi Saleh (Ghana kingdom), 279–97t,
 318, 317, 623–24, 630–33, 632, 633,
 649, 657
 Marandet, 279–97t, 315–16, 647, 707–8t
 pre-Islamic occupation, 647–50
 Tadmakka/Essouk, 279–97t, 633–41, 637,
 638, 639, 640, 654–57
 Tagdaoust, 279–97t, 318, 317, 550, 623–29,
 627, 628, 648, 650–52, 654–57
 Tireqqa, 646–47
 Tombouze, 279–97t, 318, 506, 514–15, 646,
 649–50
 urban structure/features, 633, 640, 653–58
- Martin, A.G.P., 266
 Masaesyli Numidians, 440
 Massyli Numidians, 440, 448
 kingdom of, 469
 Mauny, R., 305
 Mauretania, 398
 Caesariensis, 250–51, 252
 Tingitana, 250–51
 see also Akreijit; Azugi; Tichitt; Tipasa
 Mauritania *see* Akreijit; Azugi; Kumbi Saleh;
 Tichitt

- Maysara, 599, 601
 megalithic necropoleis, 446, 490
 Althiburos, 450, 461, 462, 464, 465, 466, 467, 468, 470
 Lixus, 481–82
 Méma region (Mali), 505–6, 509, 510, 511–13, 512, 515
 Meninx (Punic town) (Tunisia), 401, 418, 422
 Mentés (Southern Sahara), 279–97t, 312
 Meroe (Middle Nile), 372–75, 374, 376, 699
 Meroitic kingdom, 369–72, 684
 Meroe, 372–75, 374, 376
 metropolis, Ptolemy on, 698n21
 Middle Kingdom
 and Western Desert settlement, 116, 124, 153
 Middle Niger, 279–97t, 522
 climate, 11
 see also Gourma; Méma; Tagant; Timbuktu; Walata
 Middle Nile, 359–63
 Kerma, 360–61, 363, 364, 365
 New Kingdom period, 365–68, 367
 Napatan period, 360, 368–69
 Meroitic kingdom, 369–72
 Hamadab, 378, 378, 385, 388–89
 Meroe, 372–75, 374, 376
 other urban centres, 375
 roles of towns, 383–87, 384
 and social identity, 387–90
 Western Butana, 379–83, 383
 Middle Senegal, 522, 525
 Takrur, 525, 541–53, 543, 545, 549
 Midrar, as founder of Sijilmasa, 596–97, 602–4, 606
 Midrarids, 597, 617
 migration, 267, 336, 338, 340, 652, 703
 Jewish, 20n52
 khariji, 599
 Miknasa tribe, 596–97, 598–99
 Milgis *see* Mlili
 Mills, A.J., 173n158
 mines/mining
 metal
 Akjoujt, 547n94
 Azawagh, 314
 Bahariya, 159
 Jaa-Ogo, 553
 Tabalbala, 268
 Wadi ash-Shati, 84–85
 salt
 Azawagh, 315
 Kawar, 706
 Mali, 8, 706
 ‘mirror states’, 28–29
 Mizda (Tripolitania), 191, 194
 Mlili (Milgis) (Algeria), 215
 Mogador (Morocco), 482, 484
 Monod, T., 318
 Monroe, J.C., 695
 monumental architecture, 419–21, 431–32, 522
 Althiburos, 406
 Carthage, 409, 410
 Garamantes, 72–73, 697
 Jarma, 669
 Lake Chad region, 584
 Western Desert, 346
 see also Western Butana
 monuments (funerary), Western Sahara, 253–54
 monuments (ritual), 303
 Moraes Farias, Paulo, 636, 643
 Mornou (Southern Sahara), 279–97t, 301
 Morocco, 476–80, 477, 489–91
 archaeology programme, 612–13
 Kach Kouch, 484–87, 485, 486, 487
 Lixus, 480–82, 481, 482, 483
 Mogador, 482, 484
 Sidi Driss, 487–88
 storehouses, 673
 mosaics, Roman, 212
 Mosque of Mansa (Kankou) Moussa, 643
 mosques, 661
 Agadez, 313
 Awjila, 128
 Chinguetti, 319
 Ennedi, 301
 Hun, 136
 Kawar oasis area, 305, 306
 Kumbi Saleh, 661
 and market towns, 655–56
 Mosque of Mansa (Kankou) Moussa, 643
 Tadmakka, 638, 661
 Taghaza/Tawdenni, 316
 Tozeur, 210–11
 Wadan, 320
 Wadi Draa, 248t
 see also temples
 Mothis (Mut el Khareb) (Western Egypt), 122, 153, 155, 174
 pre-Roman settlement, 155
 Roman period, 160
 Mouyssam II (Mali), 506
 mud, building material, 658–60
 mud plaster, 659–60
 mud-sealings, Meroe, 377

- mudbrick, 23, 336, 658–59
 Althiburos, 452
 Cyrenaica, 404–5
 and dating, 37–38
 Eastern Sahara, 120t, 122, 130
 Garamantes, 72–73, 78, 79, 93, 102t, 335
 Middle Niger, 504, 505–10, 507, 508, 515
 Gao, 538, 540
 Jenné-jeno, 529
 Middle Nile, 363, 365, 370
 Northern Sahara, 193, 199, 206, 211, 212
 Southern Sahara, 306
 Western Desert, 161
 Western Sahara, 248t, 262
 Muhallabi, al-, 536
 on Gao, 641
 on Tagdaoust, 625
 mummies, Western Egypt, 120t, 124, 125,
 126–27, 138, 159
municipia, 227, 347
 Capsa, 208–9
 Gemellae, 214, 215, 216, 225, 347
 Negrine, 212
 Nigrenses Maiores, 347
 Telmine, 202–3
 Munson, P.J., 501
 Murzuq/Hufra Basin and ash-Sharqiyat,
 68–69t, 77, 79, 80, 81, 82, 83, 85,
 86–89, 98, 101, 336, 341, 348, 707–8t
 foggaras, 341
musalla (open prayer grounds), 627–28, 638,
 651, 654–55
 Mussawarat (*Aborepe*) (Meroitic kingdom),
 379–81, 380
 Mut el Khareb *see* Mothis
 Muweis (Middle Nile), 376, 377
 Mزاب (southern Algeria), 222–23
 Mzora (Morocco), 491, 492

 Nachtigal, G., 132, 137, 302, 361
 Nafta (Nepte/Agarsel Nepte) (Tunisia),
 210, 211
 Napatan period, Middle Nile, 360, 368–69
 Naqa (*Tolkte*) (Meroitic kingdom), 381, 382
 Nasamones people, 128
 Nefzaoua oases (Tunisia), 201–6, 202
 Negrine (Algeria), 212, 213, 226
 Nema (Mauritania), 318
 Nepte *see* Nafta
 New Kingdom and Western Desert settlement,
 153, 159, 171
 Niche Construction Theory (NCT), 12
 Niger Bend area, 317

 Niger (river), 12
 see also Middle Niger; Niger Bend area
 Nigrenses Maiores *see* Ad Maiores; Besseriani
 Nigrenses people, 212n116
 Nile (river), 12, 115–16
 see also Middle Nile
 Nilotic peoples, 115, 138
 ‘Noba’ (Nubians), 371–72
 ‘nomad menace’, 3
 nomads, 28–29, 228, 476, 708–10
 and camels, 174
 and disruption of trade, 172
 and market towns, 651, 654
 and Tafilalt, 604, 606–7
 North-Western Sahara *see* Western Sahara
 Northern Sahara, 187–88, 189–90t,
 223–28, 226
 eastern Algeria, 211–18, 213, 216
 southern Algeria, 218–23, 222
 Tripolitania pre-desert/Hamada al-Hamra,
 188–206, 191, 197, 202, 203, 204
 Tripolitanian coastal oases, 191, 206–7
 Nubia, 366–68
 ‘Noba’, 371–72
 Numidia, 406–8
 political entities, 440
 Roman, 398
 see also Althiburos
 Nybgenii people, 201–2

 oases, 6, 7, 338–43
 and climate, 11–12
 networks, 17–19
 past, 19–24
 and refugia, 11–12
 and sedentarisation, 333–34
 and settlement hierarchies, 671
 term, 5–7
 vegetation, 7–8
 water-sources, 12–17
 Oasis Magna (Great Oasis) *see* Kharga
 Oasis Parva *see* Bahariya
 ochre, red, 629, 640, 659
 odeons, Carthage, 409, 410
 Oea (Tripoli), 206
 war with Lepcis Magna, 423
 Ogo (Middle Senegal), 542, 543, 548, 549
 Oka, R., 524
 Old Jarma (ancient Garama) (Fazzan), 68–69t,
 72–73, 79b
 Old Kingdom
 and Western Desert settlement, 115, 173
 Abu Ballas, 123

- Old Kingdom (Cont.)
 Dakhla, 122, 152–53
 the Fayyum, 116
 Kharga, 121
 olives/olive oil
 Lepcis Magna, 429
 Roman cities, 421, 426
 Carthage, 408
 Siwa, 158
 Sufetula, 427, 428
 Thuburbo Maius, 429
 oratories, 625, 655, 661
 Oxyrhynchus (Egypt), 165–66
- Pacho, J.R., 128
 palaces
 Lake Chad, 585
 Middle Nile
 Meroitic kingdom, 375–77, 376,
 383–86, 384
 Western Butana, 381, 382
 Napatan period, 368
 palms *see* date palms
 Paris, F., 200
 pastoralism, 3, 269, 330–31
 and sedentarisation, 331–33, 334–35,
 341, 717
 and Sijilmasa/Tafilalt, 605–7
 Pauphillet, D., 56
 Peopling the Desert Project, xx
 Perret, R., 310
 Persians, 153–55, 173
 Pharusii, Strabo on, 218
 Phazania, 195
 Phoenicians, 396, 398, 399, 401, 478–80
 pilgrimage centres, 387
 Mussawarat (*Aborepe*) (Meroitic kingdom),
 379–81, 380
 pisé (rammed earth technique), 419, 658–59
 plague, 427
 planning (town)
 Hamadab (Meroitic kingdom), 378, 378
 Western Desert, 164, 166–69
 plaster
 decorative, 660
 mud, 659–60
 red ochre, 629, 640, 659
 Pliez, O., 683
 Pliny the Elder
 on Cornelius Balbus, 195, 213–14
 on Mili (Milgis), 215
 on Tacape/Tacapae oasis, 17, 207
 on Wadi ash-Shati, 88, 98
- Ponsich, Michel, 480–81
 Pope, J.W., 368, 373
 population
 and state formation, 443
 Western Desert collapse, 172
 see also individual sites
 ports, Roman period, 423–24
 pottery
 Gao, 538–39, 539
 Jenné-jeno, 531, 532, 555
 Lake Chad, 574
 Meroitic kingdom, 389
 Middle Senegal Valley, 547, 547n97, 549, 554
 Morocco
 Kach Kouch, 487
 Lixus, 480, 481
 Mogador, 482–83, 484
 Sidi Driss, 487–88
 Roman period, 423–24
 prestige goods, Althiburos, 470–70
 Processual Archaeology, 564–65
 Protohistoric period, defined, 4
 Prussin, L., 500, 509
 Pseudo-Scylax, 478, 489
 Psobthis *see* Bawiti
 Ptolemais *see* Barca
 Ptolemy
 on ‘Aethiopians’, 298n11
 on the campaign of early AD 40s, 249
 on Garamantian kings, 684, 712
 Geography, urban terminology, 345
 on the Gir, 252–53
 on Sabha, 90
 on sites as ‘metropolis’, 698n21
 and Tuwat, 266
 Ptolemy II, 397
 Purcell, N., 671
 Purdue, L., 11
- Qala Abu Ahmed (Sudan), 368–69
 qanats *see* foggaras
qasaba
 Southern Sahara
 Djado, 303–4
 Kawar, 307
 Seguedine, 305
 Qasr ash-Sharraba (Fazzan) 79b, 78–79,
 100
 Qasr Mqdul (Ghadamis), 196
qsur (fortified villages/settlements/castles), 20,
 22, 102t, 670, 672–73
 Djaba, 303–4
 Fazzan

- Murzuq/Hufra Basin and ash-Sharqiyat,
 78, 79, 80, 81, 82, 83, 101, 102t
 Wadi al-Ajal/Jarma, 75, 76, 98
 Wadi ash-Shati, 85–87, 86t, 101
 Wadi Hikma, 68–69t, 97, 98, 101
 Wadi Tanzuft, 92, 102t
 near Sabha, 90, 98
 Old Jarma, 73
 Qasr ash-Sharraba, 79
 Sidi Uqba, 214
 Southern Sahara
 Abalessa, 311
 Ahaggar Mountains, 311
 Fachi, 306–7
 Kawar, 306
 Kufra, 300
 Tadrart Akakus, 91, 94, 96–97
 and trade, 672–73
 Ubari sand sea lake villages, 89
 Waddan (al-Jufra group), 132–33
 Wadi Rhir, 219
 Western Sahara, 250
 Wadi Draa, 262
 Wadi Gir/Saoura, 252
 Western Algeria, Gourara/Tuwat/
 Tidikelt, 265, 266, 267
 Zuwila, 68–69t, 82–83
- Rachgoun (Algeria), 488–89
 Rachid (south-west Sahara), 317, 320
 radiocarbon dating *see* dating
 rammed earth technique (pisé) of architecture,
 419, 658–59
 Ras al-Ain (Tunisia), 191, 201, 226
 Rebuffat, R., 129, 132–33, 192, 198, 199
 refugia, 11–12
 religious communities (*zawaya*), 674–77, 709
 Remada (Tunisia), 191, 200–1
 Renfrew, Colin, 440–41, 523–24
 resilience *see* abandonment
 Retaillé, D., 683
 Richardson, J., 199
 Rilly, C., 379
 rings, copper, 540n69, 550
 Risch, R., 439
 ritual
 and burials, Morocco/Algeria, 488–89
 and burials at Althiburos, 466
 monuments, 303
 rivers, as water-sources, 12, 13
 roads
 Roman, 423
 Tripolitania, ‘head of the rock road’, 188
 Western Desert, 151–52, 170–71
 Robert, Serge and Denise, 631
 Robert-Chaleix, D., 552
 rock art, 23–24
 Adrar des Iforas, 546n88
 Fazzan, 55, 76, 103
 Tadrart Akakus, 96, 97
 Wadi ash-Shati, 88
 Morocco, 478
 Southern Sahara
 Iwelen, 312–13
 Tahabort, 311
 Tibesti, 302
 Timmissao, 311–12
 Tadmakka (Mali), 636, 648
 Western Sahara, 240
 Taouz, 256–57
 Wadi Draa, 259–61
 Wadi Noun, 263
 western Algeria, 268
 Rockman, M., 340n32
 Roffo, P., 215
 Rohlf, G., 129, 250, 255, 265, 268
 Roman empire, 21–23, 398, 431
 architecture/buildings, 415–21,
 417, 419, 500
 Carthage, 398, 408–12, 409, 418, 429
 cities’ economies, 421–23
 city planning, 408–12, 413, 414, 415t
 Eastern Sahara, 121–23, 124–25, 129–30,
 132–36
 see also below Western Desert
 and the Meroitic kingdom, 387
 systems and networks, 423–25
 and urbanisation, 342–43, 345–46, 698–99
 Western Desert, 113–15, 156–69, 173–74
 collapse of urbanism, 148–49, 172, 174
 economic links, 169–72, 173–74
 and the Western Sahara, 241–49, 253
 see also Northern Sahara
 Rønneseth, O., 303
 Rouvillois-Brigol, M., 221nn162, 163
 ‘Royal City’ *see* Meroe
 ‘Royal tumulus’ of In-Aghelachem, 96
 run-off farming, 332
- Saadi kingdom, 239
 Sabha (Fazzan), 90–90, 98
 Sabratha (Libya), 166, 206, 413, 414, 415t,
 419, 428
 craft production, 421–22
 sacrifice, human, 400, 492
 Sáez Martín, Bernardo, 481

- Sahara *see* Northern Sahara; Southern Sahara; Western Egyptian Desert; Western Sahara
- Saharan towns, defined, 344
- saints, Islamic, 674, 675
- Salama, P., 310
- Sallust
- on Capsa, 208
 - on Numidian towns, 407–8
- salt, 171, 672
- Awlil, 550, 551
 - and Sijilmasa, 604–9, 606, 608, 700
- Southern Sahara
- Azawagh region, 315
 - Borku, 301
 - Kawar, 303
 - Seguedine, 304
 - Taghaza/Tawdenni, 316–17
 - Ubari, 89
- Samgu (Abu al-Qasim Samgu ibn Wasul), 597, 598–602
- Samnu (Fazzan), 90
- Sanam (Middle Nile), 368
- Sanhadja, 707–8t
- Saniat Jibril (Wadi al-Ajal), 71, 73, 75c, 101
- Sanusiyya, 674–76, 683
- saqia* (waterwheels), 367–68
- Sarnah *see* Gao Saney
- Scarin, E., 84, 129
- Scipio Aemilianus, 400
- secondary states, 443–44, 705
- sedentarisation, 5–7, 331–33
- Garamantian, 336–38
 - and oasis formation, 333–34
 - and pastoralism, 331–33, 334–35, 341, 717
 - and settlements, 334–36
- Sedrata (southern Algeria), 221–22, 222, 660, 707–8t
- Seftimi (Tunisia), 209
- Seguedine (Southern Sahara), 304
- Sempronius Gracchus, G., 408
- Senegal (river), 12
- see also* Middle Senegal
- Sesibi (temple-town), 366, 367
- settlements, religious, 674–77
- Seyyid Ouinquil (Tichitt), 279–97t, 502–3
- Shanks, M., 441n9
- sheep, 406, 459
- shell
- marine, 548
 - see also* dye production
- Sicca (Numidia), 407
- sickles, iron, 478
- Sidi Driss (Morocco), 487–88
- Sidi Slimane (Morocco), 492, 493
- Sidi Uqba (Algeria), 213, 214
- Sijilmasa (Morocco), 31, 35, 241, 242t, 615–17, 707–8t
- earlier Tafilalt settlements, 609–15, 610, 613, 614
 - founding of, 256, 595–98
 - and *kharijism*, 598–99, 609
 - and Midrar, 596–97, 602–4, 606
 - mining, 700
 - and salt, 604–9, 606, 608, 700
 - and Samgu, 597, 598–602
- Silla, 542, 550–51
- Sinawin (Tripolitania), 191, 199
- Sincu Bara (Middle Senegal Valley), 548–49, 549, 550, 554
- Siwa (Ammon) (Western Egypt), 125, 137, 157–58, 174n163
- Siwré (Middle Senegal Valley), 544, 547–48
- Skalnik, P., 681–82
- slavery and slave-trading, 26, 171–72, 278
- and Bu Nijim, 191
 - and Garamantian society, 678–81
 - and irrigation, 332
 - and Kawar, 299, 322
 - and Lake Chad region, 586
 - Meroitic kingdom, 371–72, 388
 - and Samgu, 600
 - and *zara'ib*, 676–77
- slaving states, 703–5
- Smadja, Elisabeth, 446
- Smith, A.T., 359
- social change, and evolutionary theory, 439, 441–42
- social inequality, 28, 442–43, 444, 470, 583, 668, 696, 702
- Garamantian society, 678–81
 - Lake Chad, 584
 - and Moroccan monumental tombs, 491, 493, 494
- socio-cultural change, 442, 448–50
- Sognane, M., 552
- Songhay, 268–69
- and Gao, 541, 642
- sorghum, Middle Senegal Valley, 544, 544–45, 553
- Souag, L., 268–69
- Southern Sahara, 277, 279–97t, 322–23
- Akjoujt, 321
 - Atlantic coast, 321–22
 - Dhar Tichitt/Nema/Walata/Tagant, 279–97t, 318–18

- eastern, 298–308, 299, 304, 305
 Middle Niger oases, 317
 Taghaza and Tawdenni, 316–17
 trading centres in the south-west,
 318–21, 317
 Tuareg in the Central and Southern Sahara,
 308–16, 309
 see also architecture
 Souville, Georges, 482
 Spaulding, J., 372
 Speculum *see* Chebika
 Spencer, Herbert, 446
 springs, 13e, 14, 339–40
 Algeria
 Biskra, 214–15
 Saharan Atlas, 218
 Tuggurt/Wadi Rhir, 219
 Wargla, 221
 Fazzan, 55
 Wadi ash-Shati, 84
 Wadi Tanzzuft, 92
 Northern Sahara, Al-Qurayyat al-Gharbia, 192
 Southern Sahara, 277
 Tripolitania
 coastal oases, 206
 Darj, 198–99
 Ghadamis, 196, 341
 Tripolitanian Jabal, 199
 Tunisia
 Aqua Tacapitanae, 208
 the Jarid, 209
 Kriz, 210
 Nafta/Tozeur, 211
 Nefzaoua oases, 201, 206
 Telmene, 202–3, 203
 Western Egypt, 116, 150
 ‘stasis settlements’, 25
 state formation, 27, 440, 695–97
 Althiburos, 469–71
 definition, 27–28, 438–39, 499–500, 594–95
 examples of states, 28–30
 history of research, 444–47
 Lake Chad, 583–88
 and social hierarchy, 680–81
 theory, 441–44
 types of, 702, 707–8t
 see also Garamantes; Morocco
 stelae
 Carthage, 400
 Gao, 643
 Meroitic kingdom
 Jebel Qeili, 382, 383
 Queen Amanirenas, 379
 Western Sahara, 254
 Stone, A.C., 534
 stone (building material), 22–23, 658–60
 Garamantes, 72–73, 86–86, 87, 93, 94–95, 96
 oases of al-Jufra, 132
 Sukna, 137
 see also Roman period
 Tagrifet, 130
 Zala, 128–29
 see also Roman period, architecture/
 buildings
 storehouses, Morocco, 673
 Strabo
 on Numidia, 476–77
 on the Pharusii, 218
 Sudani identity, 361–62
 The Suf (Algeria), 15, 220
 Sufetula (Sbeitla) (Tunisia), 415t, 427, 428, 431
 sufrism, 598–99
 Sukna (al-Jufra group) (Libya), 132, 137
 Sullethum (Tunisia), 422, 430
 fortifications, 430
 sultans, 681
 sword, bronze, 481–82, 482
 Syene/Aswan (Egypt), 168–69
 symbols of state, 594
 Syrtica (Libya), 127, 137–38, 206

 Tabalbala (Algeria), 268–69
 Tacape/Tacapae oasis (Tunisia), 17, 22, 191,
 207, 224, 347, 707–8t
 Tacfarinan revolt, 201, 712
 Tacitus, on the Garamantes, 684, 713
 Tadeliza (Southern Sahara), 279–97t, 314
 Tadmakka/Essouk (Mali), 279–97t, 316, 322,
 633–41, 637, 638, 639, 640, 648–49,
 650–52, 707–8t
 architecture, 658, 659, 661
 gold, 555
 trade, 349
 Tadrart Akakus (Fazzan), 68–69t, 96–97
 Tafilalat/Tafilalt (Erfoud) (Morocco), 248t,
 254–56, 606
 irrigation, 13c
 see also Sijilmasa
 Tagant (Mauritania), 318–18, 501, 515
 site T150, 503, 504
 Tagdaoust (Awdaghust) (Mauritania),
 279–97t, 318, 317, 550, 623–29, 627,
 628, 648, 650–52, 707–8t
 architecture, 658–61
 pottery, 548, 549, 554
 Taghaza (Western Sahara, Mali), 316–17
 Tagrifet (Libya), 129–30

- Tahabort (Southern Sahara), 279–97t, 311
 Takadda (Niger), 651, 707–8t
 Takene Bawat (Southern Sahara), 279–97t, 312
 Takezawa, S., 505
 Takrur (Middle Senegal), 525, 541–53, 543, 545, 549
 Tamdult (Morocco), 264
 mining, 700
 Tamerza (ad Turres) (Tunisian-Algerian border), 211
 Tamgrout (Morocco), 674
 Tanit (goddess), 400
 Tanzzuft *see* Wadi Tanzzuft
 Taouz (Jabal Afilal) (Morocco), 256–57, 613, 614, 615
 Taqallit (Fazzan), 73, 74–75, 335n21
 Tarfaya (Morocco), 322
 Tarradell, Miguel, 480, 482, 492
 Tassili n'Ajjer (central Southern Sahara), 279–97t, 308–10
 Taucheira *see* Tocra
 Tawdenni (Western Sahara), 316–17
 taxation, and the state, 594
 technology, 334, 340, 341, 460–61
 waterwheels (*saqia*), 367–68
 Teda (Tubu) people, 278, 298–300, 303, 307–8, 322–23
 tells, 147–48, 510–13
 Telve (Turrus Tamalleni) (Tunisia), 202, 203, 204–5, 227
 temple-towns, Egyptian, 365–68, 367
 temples
 and Christianity, 428
 Cyrenaica
 Apollo, 403
 Demeter, 403
 Zeus 562.180, 403
 Garmantian, 73
 Middle Nile, 376–77
 of Amun at Meroe, 373
 of Isis at Meroe, 373
 'Sun temple' at Meroe, 373
 Western Butana, 380, 380–82
 Roman, 416
 Carthage, 410
 Timgad, 413
 Zama, 445
 Western Desert, 154–56, 346
 Alexander the Great at Bawiti, 124, 158
 Ammon at Siwa, 125
 Amun at Hibis, 153, 154, 156
 Seth temple at Mothis, 155, 160
 Trimithis, 155, 164
 Tutu at Kellis, 160
 see also mosques
 Termit (Southern Sahara), 279–97t, 307
 territorial states, 27–28, 681–85, 704–5
 see also Garamantes
 textile production, 700
 Meroe, 374, 385–86
 Middle Senegal Valley, 549
 Sabratha, 422
 southern Algeria, 217n143, 220, 225
 Timgad, 425
 see also dye production
 textiles, Middle Senegal Valley, 549
 Thabudeos (Algeria), 214
 Thala (Tunisia), 407
 theatres, Roman, 418, 419
 Thelepte (Tunisia), 415t, 425
 Thiges (Tunisia), 209–10
 thrones, daises, 384, 385
 Thuburbo Maius (Tunisia), 415t, 427n77, 429–29
 Thugga (Tunisia), 415t, 418, 445, 456n47
 Thusuros *see* Tozeur
 Thysdrus (Tunisia), 418
 Tibesti (Southern Sahara), 279–97t, 298, 302–3
 Tichitt (Mauritania), 279–97t, 320, 499, 510, 514
 architecture, 500, 502, 504
 Dhar Tichitt, 278, 279–97t, 318–18, 333, 565, 581
 Tichitt (people), 320, 333
 Tiddis (Numidia), 418
 Tidikelt (Algeria), 266, 265–68, 672
 Tifinagh, inscriptions, 24, 97, 636
 Tijika (south-west Sahara), 317, 320
 Tilley, C., 441n9
 Timbuktu (Mali), 31, 309, 319, 510, 646, 651, 707–8t
 trade, 349, 538
 Timgad (Thamugadi) (Algeria), 412, 413, 414, 415t, 430
 craft production, 421–22, 425
 and the legionary base at Lambaesis, 425
 macellum, 416
 theatre, 418
 Timmissao (Southern Sahara), 311–12
 Tin Hinan, tomb of (Abalessa, Ahaggar, Algeria), 279–97t, 311, 322
 Tin Mahham culture, 322
 Tintan (Atlantic coast), 279–97t, 317, 322
 Tipasa (Algeria), 415t, 430
 Tireqqa (Mali), 646–47

- Tisavar (Tunisia), 201
 Tmissa (Fazzan), 83, 83–84
 Tocra (Taucheira) (Arsinoë) (Cyrenaica), 397, 404, 415t
 Togola, Téréba, 505, 511–13, 643
 Tombouze (Mali), 279–97t, 318, 506, 514–15, 646, 649–50
 Tongo Maaré Diabel (Mali), 506, 507, 508, 516
 Tophet (Carthage), 400
 Toussaint, P.-M., 210
 town planning *see* planning, town
 Tozeur (Thusuros) (Tunisia), 210–11
 trade and exchange, 26, 336, 338, 347–48, 523–24, 717
 Cyrenaica, 406
 Middle Niger/Middle Senegal river valleys, 521, 522, 526, 527, 553–55
 Gao, 537, 541
 Jenné-jeno, 516, 527–28, 530, 531t, 532, 533
 Takrur, 525, 541–53, 543, 545, 549
 Morocco/Western Mediterranean, 490
 Roman period in the Western Desert, 169–72
 Southern Sahara, 516
 and urban sustainability, 350
 see also market towns/trading centres
 Trans-SAHARA Project, xx, xxi–xxii, 4
 treasure houses, 634, 655–56
 Treinen-Claustre, F., 301
 tribal structures, 446–47, 469
 councils, 670–71
 states, 681
 and *zawaya*, 675
 Trigger, B., 522
 Trimithis (Amheida) (Western Egypt), 122, 123, 160–69, 162, 699
 temple, 155, 346
 Tripoli *see* Oea
 Tripolitana (ancient province), 188
 Tripolitania (north-west Libya), 188–206, 189–90t, 191, 197, 202, 203, 204
 Tripolitanian Jabal, 199–200
 Trouset, P., 200
 Tuareg people, 3, 278, 322–23, 708, 709–10
 central Sahara, 308–12, 309
 and Gourara/Tuwat/Tidikelt area, 267
 Middle Senegal Valley, 547
 in Morocco, 478
 and oasis settlement, 332
 in the southern Sahara, 312–16
 and state formation, 29–30
 and Wargla, 221
 see also Amazigh groups
 Tubnae (Algeria), 214
 Tubu people *see* Teda
 Tuggurt (Algeria), 218–20
 Tuluk (Southern Sahara), 279–97t, 312
 Turris Tamalleni *see* Telmine
 Tuwat (Algeria), 266, 248t, 265–68, 672, 674
 French colonialism, 348
 Ubari sand sea lake villages (Fazzan), 89
 Umari, al-, 636
 Umayyad, 432, 599, 602–3, 617, 673, 683–84
 Umm al-Aranib (Fazzan), 83, 83–84
 United Nations Environment Programme, 8
 Uqba bin Nafi, 214, 219, 299, 307–8, 647
 urbanism/urbanisation, 24–26, 342, 343–50, 361, 498–99
 sustainability of, 350–51
 types of towns, 697–702
 see also individual sites
 Utica, 396, 413, 415t, 422
 Vaga (Tunisia), 407–8
 Van der Veen, M., 99
 Vandals, 426, 430, 431–32
 vegetation, oases, 7–8
 Vernet, R., 322
 Vescera (Algeria), 214
 vicus/vici *see* garrison settlements (*vici*)
 Villard, François, 490
 Volubilis (Morocco), 251, 413, 415t, 418
 Vuillemot, G., 488
 Wad ben Naqa (Middle Nile), 375–77, 376
 Wadan (south-western Sahara), 320
 Waddan (al-Jufra oasis) (Libya), 132, 133, 134, 135, 707–8t
 Wadi al-Ajal and Jarma (Fazzan), 54, 58–77, 68–69t, 70, 72, 74, 75, 98, 100–1, 103, 334
 water sources, 339
 Wadi ash-Shati (Fazzan), 84–89, 85, 86t, 98, 101, 102t, 103
 Wadi Draa (Morocco), 240–41, 257–63, 260, 261, 269–70, 332n7, 707–8t
 irrigation methods, 12, 13a–b
 Wadi Gheris *see* Wadi Rheris
 Wadi Gir/Saoura (Algeria), 13, 240, 248t, 252–54
 Wadi Hikma (Fazzan), 58, 68–69t, 97, 98, 101

- Wadi Jedi (Algeria), 213, 215–16
- Wadi Noun (Morocco), 240, 248t, 263–64
- Wadi Rheris (Gheris) (Morocco), 12, 13d, 254, 255, 605, 609–10
- Wadi Rhir (Algeria), 218–20
- Wadi Saoura *see* Wadi Gir
- Wadi Tanzzuft (Fazzan), 10, 68–69t, 76n47, 91, 92, 714
- Wadi Tifarti (Western Sahara), 317, 322
- Wadi Ziz (Sis) (Morocco), 12–13, 240–41, 254, 255, 605, 608, 609, 610
- wadis, seasonal, 12–14
- Wagadu *see* Ghana (kingdom)
- Walaldé (Middle Senegal Valley), 544, 545, 554
- Walata (south-west Sahara/Mauritania), 318–18, 317, 320, 333, 514–16, 646, 651
- Ward, P., 129
- Warfajjuma people, 599
- Wargla (southern Algeria), 220–21, 706
- Warjabi b. Rabis, 550
- Warraq, al-, 596, 602–3, 604
- water sources (oasis), 10, 12–16, 13, 334
 - see also* aqueducts; baths; foggaras; fountains; *individual sites*; irrigation; rivers; springs; wells
- waterwheels (*saqia*), 367–68, 387
- wells, 13f, 14–15, 341
 - Algeria
 - Tuggurt, 219
 - Wargla, 221
 - Cyrenaica, Euesperides, 405
 - Fazzan, 55, 80, 81, 339
 - Wadi ash-Shati, 84
 - Southern Sahara, Djaba, 304
 - Tripolitania, Bu Nijim, 192
 - Western Sahara, Wadi Draa, 258
- Western Butana (Meroitic kingdom), 379–83, 383
- Western Desert (Egypt), 112, 113, 115, 120t, 137–38, 346, 705
 - geography, 149, 150, 151
 - and the Nile Valley, 148
 - pre-Roman settlement, 151–56
 - Roman period, 147–49, 156–69, 698–99
 - collapse of urbanism, 148–49, 172, 174
 - economic links, 169–72, 173–74
- Western Sahara, 239–40, 241, 248t, 269
 - north-west Algeria/southern Morocco, 240–64, 260, 261
 - western Algeria, 265–69, 266
- Wilson, A.I., 166, 267, 310, 336
- Wright, E.O., 441
- writing systems, 138
 - Demotic, 154
- Yaqubi, al-
 - on Gao, 536
 - on Kwar, 299
 - on Tagdaoust, 624–25
 - on Tamdult, 264
- Yaqut al-Hamawi, 306, 634, 641
- Yoffee, N., 348, 702
- Zala (Libya), 129
- Zama (Tunisia), 407, 445
- Zarai tariff, 225
- zara'ib* (temporary camps), 676–77
- zawaya* (religious settlements), 674–77, 709
- zenithal access dolmens, 462
- Zeus (god), at Cyrene, 403
- the Ziban (Algeria), 213, 216
- Ziegert, Helmut, 56–57
- Zilum (Lake Chad), 515, 568, 569, 571, 574, 587–88, 589
- Zinkekra (Wadi al-Ajal), 71–72, 100, 334, 335
- Ziz (city) (Morocco), 611–12
 - see also* Wadi Ziz
- Zubo (Lake Chad), 574–75, 578–81, 579, 587–88, 589
- Zuwila (Fazzan), 68–69t, 82, 82–83, 100–1, 348, 700, 704, 707–8t