

INDEX

- Aaboe, Asger 26
 abacus 613
 prototypes 559
 Abusir papyrus 105
 Abydos, Egypt
 Osireion temple 137, 139
 tomb Uj 103
 accounting
 and development of writing 59
 new book-keeping system (Ur) 60
 Achaemenid Empire 488
 Acron of Acragas, Empiricist 332
 addiction, Aristotle on 313
 Adrastus of Aphrodisias 442, 443–4
 Advaita Vedānta 533
 Aelius Aristides 317
 Aeschylus 450
 “Aetna” poem 269
 afterlife, celestial, Egyptian 131
 Agatharchides 410
 Agathinus, Claudius 336
 Agathodiamon 472
 Agniveśa 543
 Agrippa, astronomer 395
 agronomists, Roman 238
 Ahmose, pharaoh of Egypt 113
 air, Anaximenes’s concept of 167
aither (fiery material), role in Stoicism 259, 260
 Akhetotep, scribe 106
 Akkadian language 60
 alchemy, Chinese 592–3
 alchemy, Greco-Egyptian 468–82
 apparatus for 475, 476
 black Corinthian bronze 472, 475, 481
 chemical recipes 471–2
 and divine water 477
 esoterism 479–80
 external testimonies 471
 future research 480–2
 historiography 469–70
 ingredients 474
 initiation into 479
 occultism of 479–80
 origin of word 469
 origins 468
 papyrus compilations 470
 and philosophy 469
 processes 474
 and production of gold 474, 476
 as revealed religion 480
 sources for 470–1
 texts and authors 471–4
 theorization of 473
 theory of transmutation 476–8
 and unity of matter 471, 473, 476, 477, 478
 Alcinous, *Didaskalikos* 262
 alembic, alchemical distillation apparatus
 475, 477
 Alexander of Aphrodisias 188, 340
 and Aristotle’s celestial spheres 283
 commentaries of 279, 280, 282
 Alexander the Great 241, 316, 455, 503
 death (323 BCE) 248, 322
 rout of Darius III 17
 Alexandria 321
 anatomy in 325–31
 Hippocratic Corpus at 304, 323
 Library 249, 323
 medicine in 322–5
 Museum (Mouseion) 249, 323
 teaching of pagan philosophy 279
 algebra
 cubic problems 69

618

algebra (cont.)
 Greek arithmetics and algebraic thinking
 359–63
 second-degree geometrical 61, 63, 66–8
 symbolic abbreviations 362
 third-degree problems 68
 and unknown number 362
 algorithms
 Chinese 557, 559, 571
 Egypt 110
 Greek 370, 397
 Indian 511, 518, 521, 528, 529
 Almanacs
 Mesopotamian astronomical 12, 92–3
 Normal Star 92
 Amazons 408
 Amenemhet, Egyptian official 138
 Amenemope/Mapu, Egyptian scribe 115
 Ammianus Marcellinus 411, 467
 Ammişaduqa, King of Babylon 19
 Ammonius 208, 278, 279, 281, 395
 Amphiarus, healer 299
 amulets 12, 55*n*
 analogy, Epicurean use of 257, 258
 anatomy
 Alexandrian tradition 325–31
 and Aristotle's knowledge of 230, 308, 324
 Buddhist 539
 and dissection 230, 235, 308–9, 323–5
 Egyptian medical knowledge 124–5
 limitations of Babylonian knowledge 41, 49
 and surgery 337
 Vedic 537
 Anaxagoras of Clazomenae 171–3, 215
 and meteor (467 BC) 173
 Anaximander of Miletus, geographer 164–6, 215,
 386, 402
 map of world 404
 Anaximenes of Miletus 167, 215, 404
 Andreas of Carystus, doctor-historian 323, 333
 Andromachus 321
 Anepigraph, commentator 473
 animals
 Aristotle's classification 222–4
 Aristotle's theory of reproduction 227–9
 constitutional hierarchy (Aristotle) 225
 heart and lung 230, 231, 234
 likeness and difference of parts 221–2
 male and female contributions 228
 necks 232
 non-uniform parts 222, 226
 physiognomic similarities to humans 53*n*, 53
 uniform parts 221, 226
 Ankhtifi, Egyptian nomarch 107, 109

Index

Anonymous of Zuretti Byzantine alchemical
 treatise 474
 Anonymus Londiniensis 302*n*, 310
 Antikythera Mechanism 376, 377, 382, 385
 eclipse predictions 396
 Antioch 322
 Antiochus of Ascalon 261
 Antiochus I, king of Commagene, horoscope
 frieze 378
 Antiphon the Sophist 176
 Apollonius of Citium 326
 Apollonius Mys, *On the haeresis of Herophilus* 332
 Apollonius of Perga, mathematician 351,
 356–9, 388
 Conics 357–8
 Cutting off a Ratio 358
 and Euclid 358
 field of analysis 357, 358
 Apollonius of Tyana 262
 Apseudes, Archon of Athens 382
 Apuleius, *Apologia* 414
 aqueducts 321
 Arab mathematics 72
 Arab world, alchemy in 468, 473
 Aratus of Soli, *Phainomena* 269, 375, 383
 Arcesilaus, head of Academy 261
 Archagathus, doctor 317, 334
 Archelaus, *On the Divine Art* (alchemy) 473
 Archelaus, natural philosopher 176
 Archidamus, king of Sparta 455
 Archigenes of Apamea 337
 Archimedes 274, 352, 353–6, 372
 astronomic observations 394
 Cattle Problem 270, 274
 celebrity status 249, 263
 On Conoids and Spheroids 355
 On the Equilibria of Planar Figures 355, 457
 and Euclid 354
 On Floating Bodies 457
 on heliocentric hypothesis 391
 and legacy 276
 Measurement of the Circle 356
 mechanical devices 456–8
 mechanics 355
 mensuration 355
 Method 355
 and numbers 274, 354
 On Spiral Lines 355
 on optics 414
 and principle of balance 355, 457
 and principle of displacement 457
 and principle of lever 457
 Quadrature of the Parabola 355, 457
 The Sand-Reckoner 275, 354, 368, 375, 379

- On the Sphere and the Cylinder* 263, 354, 355
 the *Stomachion* 354
 volume of sphere 458
- Archimedes Palimpsest 354
- architecture
 laws to encourage training in 466
 and mechanics 462, 465–6
- Archytas of Tarentum 348, 349, 364, 447
 and diatonic tetrachord system 436–7
 mathematical harmonics 428
 mathematical mechanics 451
- Ārdharātrikapaksa school 497
- Areteus of Cappadocia 336
- Aristaeus 351
- Aristarchus of Samos 270, 275, 352
 heliocentric hypothesis 379, 391
 observations 394
On the Sizes and Distances of the Sun and Moon
 275, 368, 375, 391
- Aristides Quintilianus 429, 432
De musica 441, 442
- Aristobulus 241
- Aristotle 181–95, 261
 and alchemy 477
 alteration and substantial change 198–9
 retention-replacement model 198
 astronomical geometry 387
 and calculations of size of heavenly bodies 270
 celestial physics 189, 190–1, 283
 commentaries on 279, 280, 282
 and concepts of form and matter 186
 death (322 BCE) 248
 denial of existence of void 203, 206–8
 forms of theoretical knowledge 184
 general and special physics 186–9
 and harmonics 439
 and infinity 211, 212–13
 and Ionian theories of matter 168
 library of texts 249
 and mathematics 352, 364
 on mechanics 451
 nature of light 287
 on perception 287
 physical theory 196–214
 physics 184–6, 194
 on plants 245
 and predecessors 196
problemata texts 255
 reputation
 in antiquity 182–4, 188, 194
 influence in Middle Ages 195
 late ancient study of 279
 on respiration (case study) 229–36
 scientific method 217, 218–19, 224, 253, 281–2
 scope of study 182
 and size of *oikoumenē* 408
 sublunary physics 189, 190–1, 192, 283
 systematic study of life 192–4
 and medicine 305
 teleology 225, 226
 and Thales 164
 theory of matter 186, 197–201
 theory of motion 204–6, 283
 theory of place 208–10
 theory of time 210–14
 theory of vision 415
 theory of weight 202–4
 use of collected information 253, 254
 writings:
Categories 208–9
De sensu 415
Generation of Animals 227–9
On Generation and Corruption 199, 201,
 214, 280
On the Heaven 191
History of Animals 181, 220–5, 229–31
On the Length and Shortness of Life 185
Meteorology 189, 192
 rainbow 413
Nicomachean Ethics 313
Parts of Animals 183, 185, 192, 218, 225–7,
 231–3
 and anatomy 308
On Philosophy 201
Physics 186, 194, 208–9
 optics in 413
Posterior Analytics 187, 194, 217, 218
 commentaries on 281, 282
Prior Analytics 217, 282
On the Progression of the Animals 185
On Respiration 233–6
On the Soul (De Anima) 193, 415, 416
On Youth and Old Age 233
 zoological writings 219–20
 and legacy of zoological work 216–17, 236–7
 philosophy of zoology 217–19
- Aristotle, Pseudo-
Mechanical Problems 305, 415, 452–3
On Plants 238
 and physiognomy 53
- Aristotle's Lyceum (Peripatos) 181, 248, 252,
 253–6
 study of medicine 305, 322 *see also* Peripatetics
- Aristoxenus 332
Elementa harmonica 432
 and empirical harmonics 429, 432–4, 439, 441
- arithmetic 72, 262, 278
 Egyptian applied 151–2
 Greek arithmetics 359–63
 practical Greek 360

- armillary
 Chinese 605, 610
 observational 396
 Arrian, *Anabasis* and *Indica* 241
 arrow, Zeno's paradox of 213
Ars Eudoxi 376
 arsenic, as immortality elixir 593
 art
 astronomical and astrological images 378
 in tombs 113
 Artemidorus 410
Arthaśāstra text 503
 Āryabhaṭa 72, 491, 496, 523–6
 astronomical computations 516
gaṇita chapter 523
 and sine tables 515, 516
 and *varga* system of numeration 515
 Āryapākṣa school 496
 Asclepiades of Bithynia 333
 Asclepius, cult of 38*n*, 299, 314–15, 339
 shrine on Tiber island, Rome 317
āśipūtu (the art of healing through incantations/
 rituals) 33, 34
 Diagnostic Handbook 37*n*, 37
 for 'stroke' 37*n*
 Aśoka, Maurya ruler 503
 Assur
 astronomical texts 75
 exorcists 31*n*
 state library 8
 Assurbanipal, Assyrian king 10, 16, 75, 84
 Assyria, astral science tablets from 74
Aṣṭādhyāyī text 503, 508
Aṣṭāṅgahrdayasamhitā, Compendium being the
 Heart of the Eightfold Science
 541, 542
Aṣṭāṅgasamhitā, Summary of the Eightfold
 Science 541
 astrolabes 79, 280
 Islamic 499
 astrology 12
 celestial divination 97
 and extispicy 13
 horoscopic 97, 141, 399
 Late Babylonian 21, 28, 399
 astrology, Egyptian
 hemerology 140–1
 menology 140
 planetary and lunar tables 142
 zodiacs 141–2, 399
 astrology, Greco-Roman 397–401
 astrologers 399
 and auspicious days 400
ephemeris 400
 evidence for 377–8
 general 397–8
 horoscopes 399
 personal 399–401
 astrology, Indian
 and Greek texts 490
tājika (Perso-Arabic) 500
 texts 498
 astronomers, Chinese
 experts 605–6
 state officials 595, 604–5
 astronomers, Egyptian 131
 astronomers, Indian (*nakṣatradarāsī*) 487
 Astronomical Diaries 17, 86–8, 92
 astronomical prediction 13, 20, 368, 379
 Babylonian planetary 90–2
 and calculation 18–21, 397
 Greek 396–7
 India 489
 mathematical models for 18, 21
 'Astronomical Tables', Seleucid texts 26
 astronomical texts, Indian 485
 astrological (*muhūrta*, *praśna*) 498
 astronomical handbooks (*karana*) 497
 calendars (*pañcāṅga*) 498
Gargasamhitā (omen) collection 490
 genethliology (*horā*, *jātaka*) 498
Grabalāghava 497
Jyotiṣavedāṅga 489
 omens (*samhitā*) 498
 prose Brāhmanas 486
siddhānta treatises
 development 491–2
 structure 492–5
Sūryasiddhānta 497
 tables (*koṣṭhaka* or *sāraṇī*) 497
 Vedic 486
 verse Purāṇas 486, 496
 astronomical texts, Mesopotamian
 "Astrolabes (The Three Stars Each)" 79, 80–1
 compilation 88
 Ephemerides 93, 94
 influence on Greek astronomy 376
 late Babylonian 13, 85–98, 379
 Neo-Assyrian 83–5, 379
 Procedure Texts 93
 second and early first millennium BCE 79–83
 astronomy 74
 and geography 409
 inscriptions 376
 naked-eye observations 15, 607 *see also*
 cosmology; moon; planets; sun
 astronomy, Babylonian
 calculations of phenomena 93
 influence in Egypt 131
 influence in India 489

- and invention of zodiac 97
 mathematical 93–6 *see also* astronomical texts,
 Mesopotamian; astronomy,
 Mesopotamian
- astronomy, Chinese 379, 595–616
 changing systems 614–15
 concept of ‘twenty-eight lodges’
 (constellations) 608–9
 cosmography 610–12
 documentation 616
 instruments 607–12
 and *li* calendrical system 603–4, 612–14
li yuan (system origin) calculation 612–13
 and omens 602–3
 pre-imperial 596, 598–601
 sources for 597–8 *see also* *Hanshu*; *Hou Han shu*; *Shi ji*
 star-clerks 596
- astronomy, Egyptian and calendars 131–43
 astronomical representations 140
 Babylonian influence 131
 civil calendar 133–5
 clocks 137–8
 cosmography 131, 133
 lunar calendars 135–7
 northern and southern fixed stars 133
 orientation 132
- astronomy, Greco-Roman 64, 374–97
 astronomical prediction 396–7
 calendrics and chronology 381–3
 cosmic dimensions 391–3
 evidence for 374–8
 geometrical and physical modelling 386–91
 and Greek trigonometry 368–9
 mathematics and 366–7
 observations and measurements 393–6
 reconstruction from fragmentary writings
 378–81
 scope of 374
 stars and constellations 383–6
 teaching of 379
testimonia 379
- astronomy, Indian 485–500
 Babylonian links 489
 Greek influence 490
kalpa (aeon) 488, 491
 Kerala school and *vākya* system 499
 late medieval Islamic influence 499
 mathematical post-Vedic 488–91
 and mathematics 506
 model of cosmos 487–8
nakṣatras (constellations) 486
 and prediction 489
 rival schools 496–7
 trigonometric calculations 490, 499
- Vedic period 486–8 *see also* astronomical texts,
 Indian
- astronomy, Mesopotamian 10–11, 13
 and celestial latitudes 28
 celestial observation 14–18, 26, 393
 explanation 22–5
 and explanation 23
 measurement of degrees 20
 periodic phenomena 10
 prediction and calculation 18–21
 terminology 27 *see also* astronomy, Babylonian
- asū* (physician), Babylonia 10, 30, 38
asūtu (the art of healing through recipes) 33, 34
 diagnostic theory 40–4
- ataraxia* (freedom from anxiety)
 Epicureanism 256
 in Stoicism 259
- Atharvaveda* 537, 543
- Athenaeus of Attaleia 337
- Athens 322
 calendars 381
 Marcus Aurelius and 279
 philosophical schools 251, 252
 under Macedonian rule 181 *see also* Aristotle’s
 Lyceum; Plato’s Academy
- atomism 174–5, 197
 Aristotle’s rejection of 197, 205, 214
 Epicureans and 256, 257
 as mechanical system 175
 and vision 415
- atoms, in Indian mathematics 521, 530
- Attalus II, at Pergamum 322
- Autolycus 352, 366
 astronomy 375
- Averroes 188
- Avicenna 477
- Ayurveda medical system 535
 areas of medical knowledge 542
 classical 540–8
 direct observation 543
 and early Buddhist medicine 538, 540
 and Indus Valley civilization 536
materia medica 547
 medieval and early modern 548–9
 modern and global 549
 non-ritual treatments 544
 pharmacological theory 546–7
 practitioners 541, 542
 rationality 544
 relationship of tastes and humors 545–6
 ritual treatments 544
 text sources 540–2
 theory of food and waste 544
 and Vedic medicine 538
 and Vedic origin myths 543

622

Index

- Babylon 62, 79
 Babylonia
 astral science tablets from 74
 divination 8–10, 84 *see also* astronomy;
 medicine
 Bacchius 441
 Ban Gu, *Han shu* (Writings on the Han) 587, 597
 Bao Huanzhi 556, 558, 559, 560
 baths and bathing 336
 Bel-ušēzib, scholar 84
 Bellermann, *Anonymi* 441
 Berthelot, Marcellin 478
 Collection des anciens alchimistes grecs 469
Bhagabatī sūtra text 522
 Bhāradvāja, seer 543
Bhāvaprakāśa Ayurvedic text 548, 549
Bheda- or *Bhedasambhitā*, Compendium of
 Bheda- or Bhela 541
 Bian Que, physician 589
 biology
 Aristotle's physical science 184, 280
 developmental 227 *see also* anatomy; animals;
 body
 birds, Aristotle's correlations 224
 al-Bīrūnī, on Indian mathematics 501, 505
Bit Reš temple 75
 blood
 circulation of 125
 as uniform part 226
 blood letting 330
 blood vessels 324, 326, 329, 330
 body
 Chinese view of relationship with nature 578
 Greek engagement with 295, 304
 heart valves 328
 as living organism 329
 as microcosm (China) 588–9
 nerves 324, 327
 pulse 327, 337
 systematic observation of 307–9 *see also*
 respiration
 Boethius 436
 and texts on harmonics 429
 Bolus of Mendes 319, 471
 Borchardt, Ludwig 136, 143
 botany 238–47
 Antinoopolis illustrated herbal 244
 Greek knowledge of 239, 241
 life of plants 244–6
 medicinal herbs 319 *see also* plants
 Bower manuscript, Buddhist medical text 540
 Brahmagupta 72
 Brāhmasphuṭasiddhānta 492, 496, 526–7
 Brāhmapakṣa school 496
 Brugsch, Heinrich 143
 Buddha, sermons 489, 538
 Buddhism 503
 in China 574, 593–4
 monasteries and infirmaries 594
 Pali-canon text 538, 539
 Suvarṇaprabhāsa-sūtra 540
 Byzantium, alchemy in 468, 474
 Caelius Aurelianus 334, 335
 Cai Yong, astronomer 611, 615
 Calendar of Dionysius 383
 calendars 78–9
 19-year cycles
 Babylonian 21, 79, 92, 382
 Greek 381, 383
 Babylonian civil 78–9
 Babylonian intercalations 382
 calculations of year 19
 Chinese *li* calendrical system 603–4, 612–14
 Chinese luni-solar 558, 596, 598
 Chinese sixty-day cycles 598
 Egyptian civil 133–5, 136
 Egyptian lunar 135–7
 Egyptian solar 131, 134, 383
 Greek 381–3
 hours of day and night, Egypt 137–8
 Indian Vedic 485, 488
 intercalary months 78, 381–2
 lunar months 78
 Papyrus Cairo 139
 schematic 79 *see also* year
 Callippic Periods 383
 Callippus of Cyzicus 383
 astronomical modelling 388
 Callistus, freedman 319
 Cambyses, Achaemenid ruler 18
 Candragupta, Gupta kingdom 503
 Candragupta Maurya, Indian monarch 503
 Canopus, Decree of 135
 Cantor, Georg 286
Carakasambhitā, Compendium of Caraka
 541, 542
Catalogus Codicum Astrologorum Graecorum 377
 Cato, M. Porcius (the Elder) 238, 317
Cattle Problem 270, 274
 Celsus, Cornelius 325, 331
 on Methodists 335
Chaldean Oracles 280
Chandaḥsūtra text 518
 Chang Hong, diviner 600
 China
 accounting books 560
 administrative regulations 560, 561, 562–5
 astronomy 379
 Buddhist monasteries and infirmaries 594

- Buddhist texts in 540
 canonical literature 554, 577, 587, 590
 centralization and standardization 576, 595
 Chinese empire 553, 576
 Daoism 591
 decision-making 614–15
Discourse on Salt and Iron 589
 education system 554, 606
 Han dynasty 574, 596
 historical narrative 574–5
 imperial bibliographies 587
 importance of calendrical astronomy 603
 Northern Wei dynasty 556
 Northern Zhou dynasty 557
 official written texts 554–7
 printing culture 591
 rise of religious cults 591–2
 School of Mathematics 555, 556, 559
 significance of number eleven 583
 spirit presences 576
 spread of Buddhism 574, 593–4
 Spring and Autumn annals 600, 607
zheng shi histories 597 *see also* astronomy; Han dynasty; mathematics; medicine; Qin dynasty; Tang Dynasty
chōrographia, Strabo 410
 Christian authorities
 and late ancient philosophy schools 279
 and origin of universe 285
 Christian Philosopher, the, commentator 473
 Chrysippus of Soli, Stoic 259, 328, 364
 Chunyu Yi, *Historical Records* 583
 Cicero, Marcus Tullius 261, 263, 269
 on Academy 261
 and Greek medicine 318
 knowledge of Greek 267
 Claudius Marcellus, Marcus 353
 Claudius Menecrates, Tiberius 336
 Cleanthes of Assos, Stoic 259
 Cleombrotus 322
 Cleomedes 274
 Cleonides, *Introduction to Harmonics* 441
 Cleopatra of Egypt 322, 472
 Cleostratus of Tenedos 384
 clocks
 Egyptian 137–8
 Ramesside star 138
 shadow clocks 139
 star clocks 137 *see also* sundials; water clocks
 Cnidos, medical school 303
Codex of Justinian 465
Codex of Theodosius 465
 cognitive powers, human 291
 Columella, L. Iunius Moderatus 238, 245
 combinatorics 363–4
 comets, Chinese observations 601
 commentaries
 on Greek mathematics 350, 370–3
 on Indian mathematics 510–11
 on Plato and Aristotle
 “harmony thesis” 280
 late ancient 278, 280
 modifications of Aristotelian conception of science 281–2 *see also* Porphyry; Proclus; Simplicius
 compositional hierarchy, Aristotle 199, 202
 compositional reductionism 198
 Confucian canons 554, 569
 Confucius, on calendar error 599
 conquest, and botanical knowledge 241
 Cosmas, Byzantine alchemist 474
 Cosmas Indicopleustes 406
 cosmic balance 166
 cosmic cycle, Empedocles 173
 cosmogony, Anaximander’s 166
 cosmography
 Chinese 610–12
 gai tian (heaven as chariot-umbrella) 610–11
 hun tian (heavens as rotating disk) 611
 Egyptian 131
 cosmology, early Greek 163–80
 Eudoxus’s mathematical model of heavens 179
 Parmenides 169–70
 post-Parmenidean 171–6
 cosmology, Indian
 siddhānta 491–2
 Vedic 487–8
 cosmos
 estimates of dimensions 391–3
 as finite, Aristotle 207
 geometric relationships of earth, moon and sun 392
 Hesiod’s 403
 homocentric spheres 387
 role of mathematics 262
 two-sphere model 350, 386–8
 Crateus the Root-Cutter 238
 creation
 and eternity, late ancient tradition 285–6
 temporal 285
 creationist accounts, Plato 178
 Croesus, king of Lydia 164
 Ctesibius 458
 cuneiform writing 8, 58
 Cuvier, Georges 237
 Cyllene, Mt 273
 Cyriades, senator 465
 Damocrates, Servilius 321
 Dante Alighieri, and Aristotle 195

624

Daoism 591
 Celestial Masters 591
 Shangqing school 592
 Darius III 17
 Darwin, Charles, on Aristotle 217, 237
 David, head of Alexandria philosophy school 279
 days
 24-hour, Egypt 139
 calculation of duration of daylight 20, 80
 sexagesimal hours and minutes,
 Babylonian 139
De rebus bellicis 466
 Deir el Medina, Egypt 105
 Delphi, as centre of world 403
 Demetrius of Ephesus Poliorketes, king 455,
 460, 467
 Demetrius of Phalerum, archon of Athens
 454, 455
 demiurge, cosmic
 postulated by Plato 178, 285
 Proclus and 290
 Democedes of Croton 299
 Democritus 215, 408
 atomism 174
 cosmology 175
 optics 415
 Democritus, Pseudo-, *Phusika kai mustika* 471
 demons, as cause of disease 44, 49
 Dendera temple, Egypt 141
 dental practice, Egypt 128
 Diagnostic Handbook (Babylonian) 37*n*,
 37, 46–9
 causality in 49–51
 description of symptoms 48
 and divine influence 47, 51
 theoretical nature of 48
 diagnostic theory
 and decision on treatment 311
 early Greek 309
 in Egyptian medicine 126
 and prognosis, Galen and 343
 within *asūtu* 40–4
 Diaries
 astronomical (Mesopotamian) 12, 16, 17, 26
 goal-year predictions 20
 Dicaearchus of Messina, geographer 408
 on measurement of mountains 272
 Didymus 440
 Dieuches 312
Digest of Tang law 555, 557
Digesta 465
 digestion
 in ayurvedic medicine 545, 547
 in Egypt 123, 125
 Diocles of Carystus 306, 309

Index

dissection 324
 Matters of Health 312
 Diocles, mathematician, *Burning Mirrors* 359, 414
 Diocletian, emperor, destruction of books on
 alchemy 471, 479
 Diodorus 369, 455
 Diogenes of Apollonia 175
 Diogenes of Babylon 440
 Diogenes Laertius 452
 on the Academy 261
 on Archytas 451
 on Epicureanism 256, 257, 269
 Lives and Opinions of Eminent Philosophers 182,
 254, 260
 on Posidonius 276
 on Theophrastus 253, 254
 Diogenes of Oinoanda, Epicurean 252, 256, 264
 Diognetus of Rhodes 460
 Dionysius of Alexandria (Periegetes) 410
 Dionysius, tyrant of Syracuse 454
 Dionsodorus of Melos 271
 Diophantus 360–3
 Arithmetica 72, 360, 361–3
 Porisms 360
 dioptra (sighting instrument) 273
 dioptrics (refraction) 423–7
 analysis of 424
 Ptolemy and 423–7
 Dioscorides, Pedanius, of Anazarbus 240
 classification of plants 242
 De Materia Medica 238, 242, 318, 319
 disease
 and anatomical nomenclature 41
 causes of 31, 40, 43, 49–51, 296, 306, 331
 description of symptoms 40, 48
 divine aetiology of 11, 47, 51
 and dreams 314
 early Greek theories of 310
 Egyptian concepts of anatomy and physiology
 124–5
 Egyptian medicine 122–3
 epidemic 300
 four humours theory 43, 310, 329
 Greek definitions of 300
 Greek representation of 294
 modern identifications 42
 non-anatomical 41
 physiognomic omens 46
 prevention and prophylaxis 311–12
 treatment of 31, 54
 and treatment of terminal cases 47
 diseases
 asthma 336
 cancer, Egypt 122
 epilepsy 37, 42, 55, 306

- infectious 42
- leprosy 42
- migraine, Egypt 123
- parasitic, Egypt 122
- skeletal deformities, Egypt 123
- spinal tuberculosis 122
- 'stroke' 37*n*, 42
- tetanus 126
- tropical, Egypt 122
- dissection 230, 235, 308–9, 339
 - of animals 308, 322, 326
 - human 308, 324, 325
- distances, to heavenly objects 270
- divination
 - by analogy 15
 - Babylonian 8–10, 84
 - celestial 97
 - and Chinese medicine 576
 - in India 489
 - integration of celestial and terrestrial 12, 21
 - and role of observation 14, 26
- divination expert (*bārū*) 10
- Divine Farmer (Red Emperor, Yandi) 577
 - Shennong bencao jing* 578, 592
- divine judgments, Mesopotamia 9
- division
 - Chinese procedure 568, 570
 - Egyptian technique 147
- Djoser, king of Egypt 133
- doctors
 - Greco-Roman 338
 - travelling (archaic Greece) 299
 - women 338 *see also* physicians
- Dorotheus of Sidon 377
- doxographies (collections of opinions) 165, 254–5
 - of Stoics 260
- Dṛḍhabala, and Caraka's compendium 542
- dreams, and disease 314
- drugs
 - compound 318
 - in Egyptian medicine 129
 - herbs 318, 319, 327
 - new Greek 318
 - numbers in recipes 321
 - opiates 319
 - secret names for plants or minerals 55
 - treatment by opposites 54 *see also*
 - pharmacology
- Duhem, Pierre 284
- Dunhuang cave-temple 560, 567
- dynamics, Aristotle and 206
- earth
 - as disk 403
 - Anaximenes 167, 404
 - Egypt 131
 - Greece 163, 165, 175
 - India 487
 - as drum 404
 - estimates of circumference 270, 408
 - fictional journey to centre 271
 - as moving body 176
 - rotation of 491
 - as spherical 274, 405, 406
 - India 491
 - Parmenides 170, 405
 - Plato 178
- earthquakes 175
- Egypt
 - administration 104, 109, 110, 134
 - archaeological finds 105
 - chronology 145*n*
 - elites 103
 - First Intermediate Period 107–9
 - Greco-Roman Periods 116–19, 141
 - Greek astronomical observations 394
 - Late Period 116
 - literacy and numeracy 102
 - Middle Kingdom 109–12
 - New Kingdom 113–16
 - Old Kingdom 104–7
 - predynastic 103
 - scribes and the king 107, 111
 - Second Intermediate Period 112
 - temples and astrology 399
 - Third Intermediate Period 116 *see also*
 - alchemy, Greco-Egyptian; Alexandria;
 - astronomy; mathematics; medicine
- Egyptian texts 101
 - Abusir papyrus 105, 156
 - Akhmīm papyrus 158
 - Book of the Dead 132
 - 'Book of Nut' 137
 - Cairo Demotic mathematical papyrus 117
 - Carlsberg Papyrus 136
 - Ebers Papyrus 121, 136
 - grammatical forms 110
 - handbooks 105
 - Illahun archive 136
 - medical texts 110
 - Middle Kingdom 109
 - Middle Kingdom Coffin Texts 132
 - Moscow mathematical papyrus 144
 - Old Kingdom Pyramid Texts 132
 - Papyrus Anastasi I 115, 145
 - Papyrus Cairo 139, 141
 - Papyrus Lansing 114
 - Rhind mathematical papyrus 112,
 - 118, 144
 - Stobart planetary and lunar tables 142

- Eleatic school 171
 geography 405
- elements, earth, water, air and fire 173, 191, 197
 and Aristotle's account of mixture 201
 Aristotle's theory of change 199
 and contraries, Aristotle 200
 natural positions 201
- Eliade, Mircea 470
- Elias, head of Alexandria philosophy school 279
- embryology 227
- Empedocles of Acragas, Sicily 173–4, 197, 215, 299, 386
 astronomy 174
 and elements 173
On Nature and Purifications 173
 optics 415
- empirical investigations
 Aristotle's 187
 Epicurean 257
 Presocratic advances 180
- Empiricists, medical sect 332–3
 and case histories 332
 primacy of experience 332
- Enūma Anu Enlil* 10, 12, 15, 75
 celestial omen series 80, 81–2, 85
 Tablet 14 (lunar visibility) 17, 19, 80, 81
 Tablet 63 (Venus) 18, 27
- Enūma Eliš* creation epic 79
- Ephorus, world map 406, 407
- Epictetus, *Handbook* 280
- Epicureanism 252, 256–8
 and *ataraxia* (freedom from anxiety) 256
 compared with Stoicism 259
 and epistemology 256
 influence of 259, 269
- Epicurus
 Diogenes Laertius's account of 269
 and Garden school 252, 256
Key Doctrines 257
Letter to Herodotus 257
Letter to Pythocles 257
 and multiple explanations 258
 optics 415
 on speed of light 292
 use of analogy 257, 258
- Epimachus of Athens 460
- Epimenides of Crete 299
- episteme* (scientific knowledge) 217, 252
- epistemology, Epicurean 256
- equinoctial rings 266
- Erasistratus of Ceos 324, 325, 327–31
 and body as living organism 329, 331
 influence 330
 and optics 416
 and vacuum process 330
- Eratosthenes of Cyrene 409
 Archimedes and 355
 estimate of size of earth 271, 409
 and large numbers 274
Letter to King Ptolemy 264, 270
 map 409
Platonicus 440
 size of *oikoumenē* 408
 use of term geography 402–3
- Erotian, scholar 35*n*
- Esagil-kīn-apli, Babylonian scholar 34
 corpus of medical texts 35, 36*n*, 53
- Esarhaddon, Assyrian king 10, 16, 75, 84
- Ešnunna, mathematical texts from 62
- eternity, and creation 285–6
- Euclid 281, 351–3
Catoptrics 414, 420
 codification of mathematical knowledge 351
Conics 353
Data 353
Division of Figures 353
Elements 281, 351–3
Elements II 71, 72
 and equal-angles law of reflection 420
 field of analysis 353
Optics 414, 417
Porisms 353
 and ray analysis 427
 and refraction 423
Solid Loci 353
 spherical astronomy 366
- Euclid, Pseudo-, *Sectio canonis* treatise on
 harmonics 438–9
- Euctemon 382, 384, 385
- Eudemus, anatomist 324
- Eudemus of Rhodes 348, 351
History of Geometry 347, 348
- Eudoxus of Cnidos 265, 349, 408
 homocentric spheres 387, 390
Phainomena 269, 383
 Plato's Academy 179
 spherics 366
- Euenor of Athens 322
- Eutocius of Ascalon, head of Alexandrian school
 279, 372
- Exorcism catalogue, Mesopotamia 37*n*, 38*n*
- exorcist (*āšipu*) 10, 11
 healing incantations 44–5
 LÚ.KA.PIRIG 38
 medical role of 31
- explanation
 astronomical texts 23
 of computational methods 24
 in cuneiform scholarship 22–5
 and elucidation 22

- of omens: protasis and apodosis 9, 22
- and scientific method 25
- text series 25
- extispicy 10
 - and astrology 13
- Fabianus 274
- famines, Egypt 108, 122
- Fan Ye, *Hou Han shu* (Writings on the later Han) 598
- Farnese Atlas 383
- fire, rings of (Anaximander) 165
- Firmicus Maternus 377
- Flavius Josephus 463
- fountains, in cities 321
- fractions, Egyptian 146, 147, 149–51
 - aliquot parts 156
 - multiplication 148
 - tables of 148
- fumigation 12
- funerary texts, Egyptian, astronomy in 132
- Gaius Curio, revolving theatres 455
- Galen 35*n*, 48*n*, 263, 339–44
 - in Alexandria 120
 - on Alexandrian anatomy 325
 - astronomy 378
 - career 339–41
 - and classification of plants 242
 - dissections 342
 - drug recipes 318
 - and Empiricists 333
 - on Erasistratus 328, 329
 - Examining the Physician* 338
 - on Herophilus 327
 - and Hippocrates 336, 342
 - and Hippocratic Oath 320
 - library 340
 - and logic 341
 - Method of Healing* 341
 - and Methodists 335
 - and non-medics 337
 - and optics 416
 - and Plato 342
 - public anatomy displays 340
 - reputation and legacy 340, 343–4
 - Simples* 242
 - and surgery 338, 339
 - theory of humours 340, 342
 - theory of medicine 342–3
 - writings 341
- Galileo Galilei 206, 284
- Gan Gong (Gan De) 601
- Gandhi, Mahatma 533
- Ganēśapaka school 497
- Gaozou, Emperor 554
- Garden of Epicurus 252, 256–8
- Gaudentius 441
- Gaza, Theodore, *Libri de animalibus* edition of Aristotle 216
- Gellius, Aulus 337
- Gelon, king of Syracuse 275
- Geminus
 - astronomical phenomena 390
 - Introduction to the Phenomena* 272, 375, 379, 382
 - pure and applied mathematics 365
 - “Geminus *parapēgma*” 384, 385
- geography, Greek and Greco-Roman 402–12
 - ethnographic model 407
 - and mountains 273
 - oikoumenē* (inhabited world) 406, 408, 410
 - origin of term 402
 - Parmenides’ zones 405
- geometrical analysis, Euclid and 351
- geometry
 - in Chinese mathematics 571
 - circle calculations 117
 - in Indian mathematics 519
 - and mechanics 456
 - and natural philosophy 290
 - pole-against-a-wall problems 117, 158
 - solid 352
 - synthesis and analysis forms of proofs 281
 - and theorems 281
- geometry, Egyptian
 - area computations 153
 - circles 153
 - computation 153–4
 - influence on Greek geometry 159, 164
 - techniques 154
 - trapezium 153
 - triangles 153, 155
- geometry, Greek
 - Egyptian influence on 159, 164
 - and geography 404, 411
 - in Hellenistic period 350–9
 - spherics 366–8
 - and trigonometry 368–9
- geometry, Mesopotamian 65–6
 - angles 65
 - area computations 60, 65
 - circles 66
 - trapezium 60, 65, 66, 118
 - volumes 66
- Germanicus, Iulius Caesar 269
- gēs periodos* (description of the known world) 402
- globe, first 404
- Glycon, healing god 317

628

gnomon 404
 China 599, 607
 India 489
 goal-year periods 11, 20, 24, 27, 85
 mathematical calculations 96
 planetary 91
 gods
 Egyptian 132
 Epicureans and 256
 Greek 163, 314
 and Indian mathematics 507–8, 518–20
 role in disease and healing 313, 317
 in Stoicism 259
 Gorgias of Leontini, Sicily 176
Grand Classic of the Yongle period 556
Greek Anthology (Anthologia Graeca) 270
 Greek science
 continuing influence of 180
 Latin translations 267
 writings 267–70
 Gregorius 395
 Gula, healing goddess 39
 gynaecology and obstetrics
 Egyptian medicine 128
 Greek 327

 Hahnemann, C. F. Samuel 533
hairesis (choice, sect) 248
 and sectarian medicine 331
 Hammurabi, king of Babylonia 61
 Law Code 30
 Han dynasty 574, 577, 596
 history writers 577
 mathematical manuscripts 560
 ‘hand of a god/ghost’, as cause of disease 50, 51
Hanshu (Writings on the Han, Han History) 587,
 597, 602, 605, 608
 Harappan culture 502
 Harkhuf, scribe 106
 harmonics 428–48
 and acoustics 439
 diatonic system 436–7
 empirical 428
 classical period 431–4
 Roman period 441–2
 Hellenic period 440–1
 mathematical 428
 classical period 434–9
 Roman period 443–8
 and number theory 443
 reason and perception 443, 445–6
 status as science 428, 443
 theorists (*harmonikoi*) 431–2, 441
 theory of sound 435 *see also* music
 harmony, of limiter and unlimited 176

Index

Hattusas, Hittite capital 79
 healing cults
 Greece 299
 in Italy 317
 health
 and diet 312
 early Greek theories of 310
 Greek interest in good 295, 297
 human control over 296, 315
 and prevention and prophylaxis 311–12
 heat
 in animal generation 228
 and cooling function of respiration on
 heart 234
 Hecataeus, geographer 402, 406, 407
 Heliodorus 395
 On the Divine Art 473
 Hellenistic science 248–61
 Hephaestion of Thebes 377, 398
 Heqanakhte, Egyptian priest 108
 Heracleopolis, Upper Egypt 107
 Heraclides of Pontus 261
 Heraclides of Tarentum 332, 333
 Heraclitus of Ephesus
 and Ionian predecessors’ theories 168
 and river riddle 168
 Heraclitus of Rhodiapolis 320
 herbs 318, 319, 327
 Hermes 472
 Herodotus 241, 402
 on Babylonian medicine 29, 56
 on mechanical devices 450
 on Thales 396
 Heron (Hero) of Alexandria 345, 372, 460–2
 Automata 461
 Belopoeitics 460
 Catoptrics 414, 420, 423, 460
 Dioptra 273, 460
 and equal-angles law of reflection 420
 five mechanical powers 462
 laws of force and motion 461
 Measurements 356
 Mechanics 460, 461
 mechanics 365, 460–2, 464
 Pneumatics 460
 Herophilus of Chalcedon, Greek anatomist,
 Alexandria 120, 324, 326–7
 dissection of criminals 325
 naming of parts 326
 and optics 416
 Hesiod
 and geography 403
 Theogony 163, 166
 Work and Days 163, 384, 397
 Hesy-ra, Egyptian doctor or dentist 123

- Hierakonpolis, Egypt 104
 hieratic script 118, 145
 Hieron II, king of Syracuse 353, 456, 457
 Hierotheus, *On the Divine Art* 473
 Hinduism, and modern yoga 533
 Hipparchus of Nicaea 266, 269, 274, 363, 409
 “Against the Geography of Eratosthenes” 409
 calculation of year length 383
 calculations of distances 270
 chord tables 369
 epicyclic and eccentric models 389
Exposition of the Phenomena of Aratus and Eudoxus 375
 observations 394
 and predictive astronomy 368
 Hippias of Elis 176
Collection 164
 Hippocrates 293, 302
 Hippocrates of Chios, mathematician 348
 Hippocratic Corpus 35*n*, 302–4,
Airs Waters Places 303, 339
Ancient Medicine 303, 306
 disease taxonomy 42
Diseases 304, 336
 drugs 318
 embryology in 227
Epidemics 303, 307, 309, 384
Fractures 303
Joints 303, 326
Nature of Man 303, 306, 336
On the Heart 328
On Prognosis of Acute Diseases 47*n*
On Regimen 312, 314
On the Sacred Disease 37*n*, 49*n*, 51, 216,
 303, 306
 and role of gods 313
 and origins of zoology 215–16
Prognosticon 303, 309
 Hippocratic Oath 320
 Hippocratic physician, as craftsman 33*n*
 Hippodemos of Miletus 190
 Hippolytus, on cosmic distance 393
historia, inquiry into facts (Aristotle) 221
 homeomers and anhomeomers, Aristotle 199
 homeopathy 533
 Homer
 and geography 402–3
 mechanical devices 450
mētis (resourcefulness) in 449
 references to healers 298
 Honigberger, Johann Martin 533
 Hori, Egyptian scribe 115
 horoscopes, personal 377, 400
 horoscopic astrology 97, 141, 399
Hou Han shu (Writings on the later Han) 598,
 602, 604, 606
Huai nan zi, astronomical book 598, 607, 608
 Huan Tan, astronomer 611
 humours, bodily
 Galen and 340, 342
 Greek theory 43, 310, 329, 336
 Huzirina, astronomical texts 75
 Hyksos rulers, of Egypt 112
 Hypatia 372
Commentary to the Arithmetics 361
 hypothesis
 method of 177
 theorems from 281, 290
 Hypsicles, mathematician 359
On Polygonal Numbers 360
 Iamblichus 279, 472
 Ibn al-Haytham 427
 Ibn Sahl 427
 imitation, alchemy as 471, 476
 immortality elixirs, China 593
 impetus theory 204, 206, 283–4
 Inanna, goddess 14
 incantations 12
 in Babylonian medicine 43, 44–5
 indexes, to drug recipe books 319
 India
 centrality of grammar 506
 earliest settlement 502
 foreign incursions 503
 geographical region 502
 Gupta kingdom 503
 intellectual legacy 501–2
 Mauryan kingdom 503, 522
 medieval continuity 503, 527
 Ministry of AYUSH (medicine) 532–3, 549
 Śramaṇa religions 538
 trading contacts 502, 503
 Vedas (sacred texts) 517
 Vedic culture 502 *see also* astronomy;
 mathematics; medicine
 Indus Valley civilization 486, 535
 infinity 286
 in Jainist mathematics 521
 inscriptions
 astrological 378
 astronomical 376
 scientific 264–5
 instruments
 for astronomical observations and
 measurements 396
 for Chinese astronomy 607–12
 for Indian astronomy 495

630

Index

- instruments (cont.)
 surveying 460 *see also* musical instruments;
 scientific instruments
- Ionian Presocratics, view of world 403
- Isis 472
- itineraries 409
- Jainism 503
 and Indian mathematics 511, 520–2
- Jerusalem, siege of 463
- Jia Kui, state official 605, 616
- Julian calendar 134
- Jung, Carl Gustav 470, 472
- Justinian, emperor, and late ancient philosophy
 schools 279
- jyotiḥśāstra* (exact sciences), India 505, 507
- Kalḥu, astronomical texts 75
- Kallaneos the Indian 265
- Kamose, pharaoh of Egypt 113
- Kassite tribe, conquest of Old Babylonia 62
- Kāśyapaśamhitā*, Compendium of Kāśyapa 541
- Kepler, Johannes 255
- Kerala school, South Indian astronomy 499
- kerotakis*, alchemical apparatus 475, 476
- Khalid ibn Yazid 473
- al-Khwārizmī 72
- al-Kindi 427
- Kleon, and waterlifting machines 456
- knowledge and opinion, Plato 178
- Kuhne, Louis 533
- Lahun, Egypt 105, 112, 118
- 'lamentation priest' (*kalū*) 10, 76
- land, measurements of area 146
- Lang Yi, astronomer 606
- languages
 Akkadian 60
 Greek-Latin bilingualism 267
 Sanskrit 485, 502, 508–9, 515
 Sumerian 60
 Vedic 508
- Laozi, Daoist deity 591
- Largus, Scribonius 316, 320
 index to drug recipes 319
- latitudes, lunar and planetary 28, 396
- Letter from Isis to Horus* (alchemy) 479
- Leucippus, atomism 174
- Li Chunfeng, official Tang historian 554, 555,
 556, 559
 and measurement units 563
Ten Canons of Mathematics 555
- libraries
 Galen's 340
 Hellenistic period 249, 323
 and temples to healing gods 317
- life, origins of (Anaximander) 166
- life expectancy, Egypt 122
- light
 as movement 287, 289
 nature of 286–9
 speed of 292
- literacy
 Egypt 102, 104
 Hellenistic period 249
 and non-specialist science 250
- Littré, Émile, edition of Hippocrates 303
- Liu An, Han prince 598
- Liu Hui 558, 571
- Liu Xiaosun 558
- logic, in Stoicism 259, 260
- logos* (reason) 260
- longitude, astronomical 399
- Loyalist Teaching*, Egyptian text 111
- Lucian of Samosata 271
A True Story (journey to the Moon) 251
- Lucretius
 Epicureanism 252, 258
On the Nature of Things 258, 259, 269
 optics 415
- lunar calendars
 Egyptian 135–7
 stellar-based 136
- lunar eclipses 10, 81, 86
 compilation texts 88
 Egypt 142, 143
 India 490
 method of predicting 89
 nature of 172
 Saros eclipse period 88–90
siddhānta treatises 493
- lunar light, from sun 164, 170, 172, 386
- Lunar Six time intervals
 observations 18, 86
 prediction 90
- Lyceum *see* Aristotle's Lyceum (Peripatos)
- Lycus of Macedon 339
- Maadi culture, Lower Egypt 103
- machinator*, meanings 450
- Mādhavanidāna* Ayurvedic text 548
- magic
 in Egyptian medicine 125
 in Mesopotamian medicine 32, 34, 43
- Mahābhārata* epic 503
- Mahāvīra, mathematician 506, 520, 530–1
Gaṇita-Sāra-Sangraha 72, 530
 and zero 530
- Maishu* medical manuscript, China 579, 581
- māmitu*-disease (caused by violation of oath) 43

- Manilius, Marcus, *Astronomica* 269, 377
 ‘mantic’ texts 35, 37
 and acute diseases 47
 Diagnostic Handbook 46–9
 physiognomic omens 46, 52–4
 maps 412
 by Anaximander 404
 by Ephoros 407
 by Eratosthenes 409
 by Hecataeus 407
 and itineraries 409
 Ptolemy’s cartographic innovations 411
 Marcellus of Side 323
 Marcianus Graecus manuscript, alchemy
 470, 474
 Marcus Aurelius, emperor 279, 340
 Maria the Jewess 472
 Marinus 326, 339
 Martialis (Martianus) 339
 Martianus Capella 429
mašmašū (exorcist)
 Late Babylonian 31–2, 35, 38
 role as priest 38*n*, 76
materia medica
 Ayurvedic 547
 Babylonian 39
 Chinese immortality elixirs 593
 Shennong bencao jing (Divine Farmer’s) 578,
 592 *see also* plants
 mathematical astronomy *see* astronomy,
 Babylonian; astronomy, Greco-
 Roman
 mathematical problems
 chords (of circles) 366, 367, 369, 525
 determination of unknowns 526
 doubling the cube 348, 349, 350, 459, 465
 in Greek poems 270
 incommensurability 349, 352
 metrical units 519
 multiplication tables 118
 negative quantities 528
 notation and layout 528–9
 number theory 352
 ratio theory 350, 352
 sine function 369, 425
 Indian 369, 490, 515, 524, 525
 square roots 519, 528, 569
 squaring the circle 348, 350, 519
 step functions 21, 23, 77, 94
 theory of congruency 353
 theory of congruency of spherical triangles
 367–8
 theory of conic sections 356–8
 theory of parallelism 352, 353
 trisection of angle 350 *see also* algebra;
 geometry; zigzag functions
 mathematical texts, Babylonian, training 61, 68
 mathematical texts, Chinese
 *Mathematical Canon continuing the
 Ancients* 558
 *Mathematical Canon of Five Administrative
 Departments* 557
 *Mathematical Canon of the Gnomon of the
 Zhou* 558, 569, 570
 Mathematical Canon of Master Sun 557,
 563, 566
 Mathematical Canon of the Sea Island 558
 Mathematical Canon by Xiabou Yang 558, 566
 Mathematical Canon by Zhang Qiuqian 558
 Mathematical Procedures for the Five Canons
 558, 570
 Mathematics (Shu), Chinese manuscript 561
 *Records on the Procedures of Numbering Left
 Behind for Posterity* (China) 556, 559 *see
 also* mathematics, China
 mathematical texts, late antique Greek 370–3
 mathematicians, celebrity status 249, 263
 mathematics
 and mechanics 465
 pure and applied 365
 role in cosmos 262 *see also* algebra; geometry;
 trigonometry
 mathematics, China 553–73
 abstraction 572
 canonical corpus 557–9
 counting rods 557, 568, 613
 management of grains 562–5
 manuscripts from archaeological excavations
 560–2
 measurement units 557
 multiplication tables 560
 numerical tables 565, 567–8
 official written texts 554–7
 place-value decimal notation 569
 procedures 557, 568, 572
 theoretical work 569, 571 *see also* mathematical
 texts
 mathematics, Egyptian 144–59
 applied arithmetic 151–2
 compared with Old Babylonian 156
 cultural context 101
 Demotic developments 158–9
 geometrical computation 153–4
 influence of Babylonian mathematics on 157–8
 influence from Western Asia 158
 numbers and metrology 146–59
 numerical patterns and techniques 147–51
 origins and development 155–7

632

mathematics, Egyptian (cont.)
 problems 112, 115, 117
 distribution problems 151
pesu (*ḫšw*) (baking ratio) problems 152
 sources 144–6

mathematics, Greek 345–73
 arithmetics and algebraic thinking 359–63
 collections and commentaries of
 knowledge 350
 combinatorics 363–4
 defined 346
 exact sciences 364–70
 geometry in Hellenistic period 350–9
 late antique commentaries and expositions
 370–3
 literary theoretical texts 345–6
 numerical tables 369–70
 origins of 347–50
 and philosophy 346, 373
 for professions 345, 360
 quadratic equations 569
 spherics 366–8
 theoretical geometry 72, 159
 trigonometry 368–9
 use of Egyptian fractions 159 *see also* algebra;
 geometry

mathematics, Indian (*ganīta*) 72, 501–31
Āryabhata 523–6
 and astronomy 506
Bakhshālī manuscript 528–30
 Brahmagupta 526–7
 in classical age 522–7
 context and role of 505–8
 flexible terminology 510
 format of texts 509–11
 Greek influence 522
 Jainism and 520–2
 notion of divisibility 518
 numerals and numeration systems 511–17
 overview 504–5
 place-value system 64, 511, 521
 post-classical 527–31
Siddhānta texts 523
 textual sources 508–9
 in Vedic India 517–18
 verses for oral learning 509–10
 written commentaries 510–11

mathematics, Mesopotamian 58–72
 algebra 61, 63, 66–9
 in astronomical cuneiform texts 26, 76–7
 computations 69–70
 geometry 65–6
 influence on Egyptian mathematics 116, 157–8
 influences of 71–2

Index

numbers 63–5
 problems 117–18

matter
 Aristotle's theory of 186, 197–201
 coming-to-be of the world 165, 169, 281
 Ionian theories of 168
 prime, Aristotle's 200
 Stoic view of continuous nature of 259, 260
 unity of (in alchemy) 471, 473, 476, 477, 478
 'universal mixture' axiom 171 *see also* atomism
 Mawangdui, China, tombs, medical manuscripts
 579–81

measurement
 Chinese units for weight and volume of grains
 563–4
 Egyptian techniques 146, 154
 Greek calculations 270–4
 Greek theories of mensuration 365
 Hellenistic work on 250
 Mesopotamian units of 76
 of weight 203

mēchanē, positive and negative connotations
 449–50

mechanical devices
 attack tower (helepolis) 455, 467
 automata 460
 balances 452
ballista 466, 467
 catapults 454, 456, 459, 460
 cog-wheels 456, 461
 for displays of power 454
 odometer 459
 hot air devices 460
 hydraulic organ 459
 levers 450, 453
 pumps 456
 revolving theatres 455
 self-moving devices 451
 sickle chariots 466
 siege engines 450, 455, 463, 466
 siphons 461
 surveying instruments 460
 use of steam (Heron) 461
 war machines (belopoietics) 458, 460, 466
 waterlifting machines 455, 459

mechanics 449–67
 and architecture 462, 465–6
 and concentric circles 452
 definitions 452, 464
 in Hellenistic kingdoms 454–6
 Heron of Alexandria 365
 late Roman Empire 465–7
 laws to encourage training in 466
 and mathematics 465

- properties of circle 453
 Pseudo-Aristotle's *Mechanical Questions* 452–3
 Roman war technology 463
 study of 451
 and utility 454, 461, 462, 467
- medical education
 Alexandria 322
 Egypt 124
- medicine
 modern complementary and alternative 532–5
 see also Greek medicine
- medicine, Babylonian 29–57
 changes in thinking 51
 competing disciplines 32, 33
 pharmacology 54–6
 recipes 38–9
 and zodiac 97
- medicine, Chinese 35*n*, 574–94
 acupuncture 580, 581, 586, 588
 aphrodisiacs 585
Canon of Difficult Issues 590
 development of orthodoxy 586–7
 and gender differences 583
 literacy of medical practitioners 577, 579
mai channels 580, 581–3, 589
 medical manuscripts 579, 590
 “Medicine of Systematic Correspondence” 589
 moxibustion (heat treatments) 580, 581
qi flows 578, 580, 583, 585–6, 588, 589
 and sensory world 585
 sexual cultivation 583–6
 spirit healing 580
 traditions of healthcare 578
wuxing (“Five Agents”) 578
 Yin and Yang 578, 580, 583
- medicine, Egyptian 120–30
 concepts of anatomy and physiology 124–5
 dental practice 128
 doctors and practitioners 123–4
 Ebers Papyrus 121
 Edwin Smith Surgical Papyrus 121
 foreign influences 120
 gynaecology and obstetrics 128
 ophthalmology 129
 pattern of disease 122–3
 practice of 126–9
 Sallier IV papyrus 141
 schools of medicine 124
 surgery 127
 texts 110, 120–2
- medicine, Greek 293–315, 316–44
 anatomical observations 307–9
 archaic and early classical period 298–300
 development of *technē* 296–8
 developments 293–6
 diagnosis and prognosis 309
 and general culture 337
 Hippocratic Corpus 35*n*, 302–4
 pharmacology 318–21
 and philosophy 304–5, 306
 prevention and prophylaxis 311–12
 professionalization 298
 role of non-experts 297
 and scientific theory 305–7
 sectarian medicine 331–7
 surgery 337–9
 theories of health and disease 310
 therapeutics 310–11
 and Unanani Tibb (South Asia) 534
 and urbanisation 321–2
- medicine, Indian 532–49
 early Buddhist 538–40
 feelings (bile, phlegm and wind) 539
 humors (*doṣa*) 540
 and karma 539, 540
 in prehistoric South Asia 535–6
 Vedic medicine 536–8 *see also* Ayurveda
- Mehrgarh, Pakistan, prehistoric settlement 535
- Melissus, Eleatic school 171
 on void 205
- Menaechmus 349
- Menelaus 369
 astronomy 375, 395
Spherics 367–8
- mental health, Greek interest in 295, 312–13
- Mentuhotep Nebhepetre (Mentuhotep II), king
 of Egypt 109
- Meru, Mount, as centre of earth 487
- Mesopotamia
 bureaucratic state 59
 literacy and numeracy 102
 modern nomenclature of astrological and
 astronomical texts 25–8
 scholarship and wisdom 7 *see also* astronomy;
 mathematics; medicine, Babylonian
- Mesopotamian cuneiform, writing system 58
- metaphysics
 Aristotle's first philosophy 184, 196
 and Indian super-mundane 507, 520
 Neoplatonic 289
- meteor, near Aegospotami (467 BC) 173
- meteorology
 Aristotle 189
 and celestial physics 190
 explanation of phenomena 166
- Methodists, medical sect 333–5
 ‘common conditions’ 334
- mētis* (resourcefulness) 449
- Meton of Athens 379, 382, 394
- Metrodorus 328

634

Michael Psellus, Byzantine alchemist 474
 Miletus 403
 calendar 383
 parapégma 384
 scientific inscriptions 265
 mirrors 422, 460
 Mithradates VI, King of Pontus 238, 322
 Mnesitheus of Athens 306, 309, 312
 monism 175
 Ionian 168, 169
 monuments, stone, scientific inscriptions 264–5
 moon
 estimates of dimensions 391
 estimates of distance to 270
 mathematical calculations 93
 periods of visibility 17, 18, 19, 81
 India 490
 as spherical 172, 386
 systems of calculation 96 *see also* lunar
 calendars; lunar eclipses
 moral behaviour, as cause of disease 50
 Morienus (Marianus) 473
 mosaics, Plato's Academy (Pompeii) 250
 motion
 Aristotle's theory of 204–6
 projectile 204, 283
 through void 205
 time as measure of 211
 and velocity 206
 mountains, estimates of height 270, 272–3
 MUL.APIN “Plow Star” compendium (Middle
 Assyrian) 15, 17, 75, 80, 82–3
 multiplication
 Chinese tables 560
 commutativity of 149
 Egyptian technique 147
 of fractions 148
 Mesopotamian 64
 tables 118
 mummification, Egypt 120, 124, 325
 music
 concorde 429
 division of tone 436, 439, 444
 keys 430, 447
 melody 433
 musical identity of notes 433–4
 octave and intervals 429, 431
 pitch 430, 433, 434, 435
 and role of ears (hearing) 431, 432
 scales 430, 433
 singing voice 433
 tetrachords 430
 theory of 278 *see also* harmonics
 musical instruments 431, 433
 and ratios and intervals 434–5, 445, 446

Index

musical scores, notation 429
 musicians, Greek 428, 434
 methods of instruction 431
 teaching manuals 441
 tuning systems 446
 myrrh 241
 mythography, Greek 163

 Nagada, Upper Egypt 103
nakṣatras (constellations) 486
 use as unit of arc 489, 490
 Narmer, king of Egypt 104
 natural philosophy
 late ancient questions of 279
 Proclus and 290
 natural science, in Aristotle 184
 nature
 concept of (*phusis*) 306
 study of 252, 289–91
 naturopathy and Nature Cure 533
 Nearchus 241
 Nebamun, Egyptian scribe 113
 Nechepsos, King of Egypt 401
 Needham, Joseph 476, 575
 Nemrud Dag, horoscope frieze 378
 Neo-Babylonian period 62
 neo-Pythagoreanism 261–3, 281
 Neoplatonism, in late antiquity 278
 Neugebauer, Otto 25, 71, 143
 Newton, Isaac 283
 newts (*kordulos*), gills 231, 235
 Nicander of Colophon 319
 Nicephorus, Byzantine alchemist 474
 Nicolaus of Damascus 244, 245
 On Plants 238
 Nicomachus of Gerasa
 and harmonics 429, 436, 444–5
 Introduction to Arithmetic 262, 278
 and Pythagoras 262, 445
 Nimrud, state library 8
Nine Chapters on mathematical procedures 558,
 569, 570
 and regulations on grains 563–4
 Nineveh
 astronomical texts 75, 84
 state library 8, 10
 Nippur 18, 79
 nomarchs, Egypt 107
 Normal Star Almanacs 92, 93
 Normal Stars (ecliptical stars) 17, 87
 number theory 352, 443
 numbers
 Greek numerical tables 369–70
 Hellenistic work on large 250, 274–5
 numbers, Egyptian 104, 146–59

- capacity unit 146
 decadic notation 146
 fractional 146, 147
 length 146
 patterns and techniques 147–51
 numbers, Indian
 base-ten place-value system 511, 517
 Bhūtasamkhyā (object-numerals) 512–13
 glyphs and zero 528
 kaṭapayādi (*vakya* phrase system) 513–15
 nāgarī numerals 511, 512
 numerals and numeration systems 511–17
 varga system 515–17
 verse for long-strings 512
 numbers, Mesopotamian 63–5
 accounting measures 59
 calculating board 64
 place-value system 63, 76
 sacred numbers of the gods 63
 sexagesimal notation 19, 59, 63, 76
 units of measurement 76
 Numisianus, doctor 339
 Ogle, William, translation of Aristotle 217
oikoumenē (inhabited world) 406
 size of 408
 Strabo's 410
 Old Babylonian period 61
 Olympiodorus 264, 479
 in Alexandria 279
 commentary on Zosimus 473
 Olympus, Mt 272
 as centre of world 403
 omens
 abnormal birth 10
 application to human fortune 12, 21
 astral 10, 80, 81–2, 85
 Chinese astronomy and 602–3
 explanation 9, 22, 398
 India 490, 498
 lists of 9
 planetary 11
 prognostic 47*n*
 symptoms as 46, 52–4 *see also* astronomical
 prediction
 ophthalmology, Egypt 129
 optics, Greek 413–27
 binocular vision 419
 catoptrics 420–2
 and color 416, 418
 complementarity 416
 dioptrics (refraction) 423–7
 extramission 415
 fate of 427
 and Governing Faculty 418, 419
 historical overview 413–14
 intromission 415
 and perception 416
 ray theory 413, 427
 spatial perception 417
 and visibility 418
 visual clarity 417
 visual flux 415, 418, 423
 and visual illusions 418
 visual perception 415–17
 visual-ray theory 417–19 *see also* reflection;
 refraction
Orphic Poems 280
 Ostanes, Persian magus 319, 472
Ouroboros 478
 Ouyang Xiu, and *New History of the Tang*
 Dynasty 555, 557
 Owen, Richard, anatomist 216, 237
 Pammene 472
 Pamphilus of Alexandria 319
 Panaetius, Stoic 260
 Pāṇini, Sanskrit grammarian 503, 508
 Pappus of Alexandria 371–2, 410, 411
 Collection 371, 464–5
 Collection II on Apollonius 356, 371
 on Euclid 351
 on field of analysis 372
 Little Astronomy 372
parapēgma (inscription) 265
 astronomical texts 384–6
 for predictions 396
 Parker, Richard A. 136, 143
 Parmenides of Elea 169–71, 336
 Aristotle and 198
 earth as spherical 170, 405–6
 and Heraclitus 169
 and lunar light 170, 386
 Truth and Opinion 169
 and Venus 170
 Pelagius 472
 perception
 and experience 289
 and knowledge 289
 theory of 286
 Pergamon (Pergamum) 322
 library 249
 period relations, mathematical tool 20, 26, 77
 Peripatetics (Aristotle's Lyceum) 252, 253–6
 medical treatises 305
 problemata texts 256, 305
periploi (charts of sea routes) 409
 Persian empire, expansion to India 503
 Peseshet, Egyptian female physician 123
phainomena, Aristotle's use of term 187

636

phantasia (impression), and truth 260
 pharmacology
 Babylonian medicine 54–6
 Egypt 129
 Hellenistic and Greco-Roman 318–21 *see also*
 drugs
 Philinus of Cos, Empiricist 332
 Philip II of Macedon 181
 Philo of Byzantium
 Belopoeitics (war machines) 458, 459
 Mechanical Syntaxis 458–9
 Philolaus of Croton 176, 348
 and harmonics 435–6
 Philoponus, John 208
 on Aristotle's *Posterior Analytics* 281
 and classical dynamics 278, 283–4
 on eternity of cosmos 285–6
 and impetus theory 204, 206, 283–4
 on nature of light 287, 288
 On the Astrolabe 280
 on Plato's *Timaeus* 285
 philosophers, celebrity status 249, 263
 philosophical schools, Hellenistic 248
 allegiances 252–3
 commentaries on Plato and Aristotle 278, 280
 curriculum 279–80
 in late antiquity 278–92
 Latin authors 252
 loyalty to 252
 publicity for 256
 philosophy
 and alchemy 469
 and Greek medicine 304–5, 306
 and mathematics 346, 373
 and study of heavens 183
 teaching of 279
 physicians
 asû (Babylonia) 10, 30, 38, 56
 Ayurvedic 541, 542
 Chinese 579, 590–1
 Greco-Roman 338
 śramana (India) 539
 technitēs (Greece) 297
 Vedic 538 *see also* doctors
 physics
 Aristotle's celestial and sublunary 189–92
 Aristotle's general and special 186–9
 Aristotle's natural philosophy 184–6
 Epicurus on utility of 257
 and mechanics 452
 and medicine 305
 Stoics and 259, 261
 physiognomic omens 46, 52–4
physis, Aristotle's concept of 185
 π (pi)

Index

Egypt 155
 in Indian mathematics 513, 519
 Pibechius 472
 Pindar 403
 Piṅgala 518
 place, Aristotle's theory of 208–10
 planetary observations
 Diaries 87
 predictions in compilation texts 90–2
 planets
 complex motions 179
 eccenter and epicycle models 388–90, 492
 Jupiter periodic visibility 94, 397
 longitudes of 493, 499
 Mercury periodic visibility 94
 periods of visibility 15, 81, 494
 planetary omens 11
 as solid and massy 172
 synodic cycles 11, 17, 87, 93
 systems of calculation 94–5
 Venus periodic visibility 19, 91
 Wu xing zhan treatise on motion 600
 and zodiac 12
 plants
 Aristotle and 192
 artemisia vulgaris (mugwort) 580, 581
 botanical description 243
 Chinese medical 578, 580
 classification and description 242–4, 578
 diseases of 246
 first-hand knowledge of 240
 folk system of classification 243
 generation of 245
 hellebore 327
 illustrations of 244
 life of 244–6
 in *materia medica* 39, 54
 for medical preparations 240, 244
 nomenclature 243
 oral accounts of 240
 and pollination 246
 propagation of 245
 rituals of gathering 241
 sensations of 245
 specialist users 240
 utility of 239, 244, 246–7
 Vedic medicinal 537
 written sources 241 *see also* botany
 Plato 177–9
 and Anaxagoras' theory 177
 and Anaximenes' theory 169
 and harmonics 437–8, 439
 late ancient study of 279
 and mathematical harmonics 428
 on mechanics 456

- and mental health 313
 “Myth of Er” (*Republic*) 386
 nature of light 287
On Nature 178
 optics 416
Phaedo 177
 on plants 245
 and quadrivium of mathematics 364
Timaeus 178, 262, 281, 285, 386
 and diatonic scale 438
- Plato, Pseudo-, *Epinomis* 375
- Platonism, and neo-Pythagoreanism 262
- Plato’s Academy 181, 252
 mathematicians 349
 mosaic of 250
 and neo-Pythagoreanism 261–3
- Pliny the Elder 13, 272
 and circumference of earth 271
 classification of plants 242
 and Greek medicine 317
 index to drug recipes 319
 on lack of scientific inquiry 275–6
 on large numbers 275
Natural History 238, 267, 267, 390
 on planets 390
 on plants 239, 244, 246, 319
 on revolving theatres 455
- Plutarch
 and the Academy 262
 on Archimedes 456
 on Archimedes’ tomb 263
 on catapult 455
 and combinatorics 363
Life of Aemilius Paulus 272, 274
 on mechanics 451
On the Face of the Moon 250, 255
Placita philosophorum (attrib.) 255
 on *Timaeus* 443
- Plutarch, Pseudo-, *Philosophers’ Opinions on Nature* 260
- pneuma* (breath)
 in arteries 327, 329, 330
 in optics 416
 role in Stoicism 259, 260
- Pneumatists 336
- poetry
 medical 320
 scientific 250, 263, 267, 269
- Polybius 410
- Pomponius Mela 410
- Pontus, medicine at 322
- Porphyry
 commentary on Ptolemy’s *Harmonics* 447–8
 and theory of music 278, 440
- Posidonius of Apamea, Stoic 260, 272, 410
 celebrity status 249
 contemporary fame 263
 and distances to sun and moon 270
 potentiality, existence in, in Aristotle 197,
 201, 202
- Prajāpati, creator god 518
- Praxagoras of Cos 309, 324
- prediction *see* astronomical prediction; omens
- prescriptions, 2nd person singular verbal form
 39, 45
- Presocratics
 natural philosophy 215
 view of world 403–4
- Problemata* (question-and-answer texts)
 255, 305
- Proclus
 commentaries 281, 372, 375
Commentary on Elements Book I 347
Elements of Theology 280
 and Euclid 281, 354
 and natural philosophy 290
 nature of light 288
- Procopius 465, 467
- proportionality
 canonical system 154, 155
 in Egyptian mathematics 149
- Ptolemais of Cyrene 440
- Ptolemy, Claudius 134, 143, 276
Almagest (Mathematical Syntaxis) 264, 266,
 369–70, 379, 390
 astronomical observations 393
 map of constellations 384
- Analemma* 369
- astrology 377, 401
- astronomical texts 375, 378, 397
 and binocular vision 419
- Canobic Inscription* 264, 392, 393
- and celestial spheres 283
- and equal-angles law of reflection 421
- Geographikē Hyphēgēsis* 402, 410–12
 on geography 410
- Handy Tables* 395
- Harmonics* 278, 365, 442, 445–7
 on Hipparchus 394
- mathematical astronomy 391
- models for planets 390
- Optics* 414, 418–19, 427
 visual cone 418
- Phaseis* 385
- Planetary Hypotheses* 391, 393
- Planisphere* 369
- and refraction 423–7
- Tetrabiblos* 377, 398
- on theoretical sciences 365
- trigonometry 369–70

638

Ptolemy I, ruler of Egypt 322, 325
 and Library of Alexandria 249, 323
 Ptolemy II Philadelphus 452, 454
 and Library of Alexandria 249
 pyramids 450
 geometry of 155
 orientation 132
 Pythagoras 262, 262, 299, 347
 Pythagorean theorem 65, 353
 in Chinese mathematics 570
 in Indian mathematics 509, 519
 Pythagoreans
 geography 405
 and mathematical harmonics 435–7

 Qin dynasty 553, 576, 595
Qin Statutes in eighteen domains 562
 Qinshi Huangdi, Emperor 576
 Qizil fragment, Buddhist medical text 540
 Quintus, doctor 339

 rainbow 413
Rāmāyana epic 503
 Ramesses IV, king of Egypt, tomb 137
 Rationalists (Dogmatists), medical sect 336–7
 reflection 420–2
 concave mirrors 422
 convex mirrors 422
 equal-angles law of 414
 image location 421, 422
 refraction 423–7
 atmospheric 425, 426
 image distortion 426, 427
 Ptolemy and 423–7
 religion
 in Egyptian medicine 125
 and Greek medicine 313–15
 Reports, Assyrian texts 16
 reproduction, Egyptian knowledge of 125
 respiration
 Aristotle on (case study) 229–36
 Aristotle's explanation of activity of 233–6
 Aristotle's explanation of parts 231–3
 epiglottis 230, 232
 and gills 231, 233, 234
 and heart 230, 231
 larynx 232
 lung 230, 232
 analogous with gills 235–6
 oesophagus 230, 232
 organs of 229–31
 windpipe 230, 232
 Rhind mathematical papyrus 112, 118
ri shu (day books) 604
 Roman army, and treatment of wounds 337

Index

Roman empire
 astronomy as Greek science 374
 and Greek medicine 316
 horoscopes 399
 Rome 321
 Greek philosophy in 259
 healing cults and temples 317
 lack of scientific inquiry 276
 medicine in 318
 and Methodist medical sect 333
 public sundials 266
 rope stretchers, mensuration 154
 Ruelle, Charles-Émile 469
 Rufus of Ephesus
 and anatomy 339
 Buying Slaves 338
 The Layman 338
 Medical Questions 338
 Russell, E. S., *The Interpretation of Development of Heredity* 228

 Sachs, Abraham 26
 Sardinian Sea, estimates of depth 273
Śārīgaharasambhitā, Ayurvedic text 548
 Saros eclipse period 88–90
Śatapathabrāhmaṇa, text 518
 Saurapakṣa school 497
 scholarly professions, Mesopotamia 10
 scholarship and wisdom, Mesopotamia 7, 8–14
 scientific inscriptions, stone 264–5
 scientific instruments, for measurement of
 mountains 272
 scientific objects, public displays 249, 263–6
 scientific theory, development of Greek 179
 scientific writings, Hellenistic and Roman
 267–70
 histories of science 267
 non-specialist interest in 267
 Scipio Africanus 463
 scribal profession, Egypt 104
 careers 106
 First Intermediate Period 107–9
 mathematical training 156–7
 Middle Kingdom 109–12
 New Kingdom 113–16
 and numbers 104
 Old Kingdom 104–7
 relations with kings 107, 111
 Second Intermediate Period 112
 self-depiction 106, 110, 111, 116, 118
 superiority of 113–14
 teaching texts 111
 scribal profession, Mesopotamia 60
 astronomy 74–6
 ‘humanism’ 61, 70, 156

- sea, estimates of depth 270, 273
 ‘secret of the great gods’, cuneiform knowledge as 7
 sectarian medicine, Hellenistic and Greco-Roman 331–7
 Empiricists 332–3
 Methodists 333–5
 Rationalists 336–7
 Seleucid period, mathematical texts 63
 Seneca, Lucius Annaeus 268–9
 Natural Questions 260, 267, 268
 Senenmut, Egyptian official 140
 sensory experience
 Epicurean 257
 and perception 289
 Serapion of Alexandria 319
 Against the haeresis 331
 Seti I, king of Egypt 137
 Sextius Niger 238, 319
 Sextus Empiricus 332
 Shang period, China 574, 576, 596
Shi ji (Records of the Historian) 597, 605
 Shi Shen 601
Shu jing (Book of Documents) 603
 Shuangbo shan, China, figurine 581–3
 Shuihudi, China, medical manuscripts 579
 Siddha medicine 534
siddhānta treatises 492–5
 calculations of moon’s crescent 494
 conjunctions of planets and stars 494
 instruments 495
 lunar eclipse 493
 lunar shadow 494
 mean motions 493
 planetary visibility 494
 solar eclipse 494
 “Three Questions” 493
 true motions 493
 sight
 theories of 415 *see also* optics
 silphium 241, 245
 Sima Qian 601, 608
 Shi ji (Records of the Historian) 597
 Simplicius 208
 astronomical geometry 387
 astronomical modelling 388, 390
 commentaries 280, 375
 Commentary on Aristotle’s Physics 348
 sine function 369, 425, 490, 515, 523–6
 Āryabhaṭa’s verse table 524, 525
 Sanskrit terminology 524
 Sirius (Sothis), heliacal rising in Egyptian astronomy 134, 136
 Sivaka, Buddha’s discourse with 539
 Skymnus, Pseudo- 410
 Skythians 408
 Socrates of Athens 176–7
 in Plato’s *Phaedo* 177
 solar eclipses 396
 Babylonian method of predicting 89, 164
 China 600
 India 490
 nature of 172
 Saros period 89
 siddhānta treatises 494
 Thales’s prediction of 164, 396
 solstices
 dating of 381–2, 394
 measuring 599
 sophists, Greek 176, 177
 Soranus of Ephesus 334, 335
 Gynaecology 334
 Sosicrates, doctor 318
 Sowa-Rigpa (gSo ba rig pa), Tibetan medicine 534
 Speusippus, head of Plato’s Academy 181
 spherics, and Greek astronomy 366–8
 square roots 519, 528, 569
 Śrīpati, mathematician 506
 star clocks 137
 diagonal 137
 transit 137
 stars
 Chinese observations 599
 and constellations 383–6, 486, 608–9
 fixed 133, 274, 392
 and gods, Egypt 140
 helicical risings 20, 80
 and markers of natural year 384
 as solid and massy 172
 ziqpu (“culminating”) 84
 Statilius Attalus 341
 Statilius Criton 341
 step functions 21, 23, 77, 94
 Stephanus of Alexandria 480
 Lectures 473
Śtānāṅgasūtra, Jainist text 521, 522
 Stoa (Porch), Athens 252, 259–61
 Stobaeus, *Excerpts* 260
 Stoics 252, 259–61
 influence of 259
 Strabo 273, 410
 chōrographia 410
 on Ephorus 406
 on Posidonius 260, 273
 Strassmaier Cambyses 400 tablet 11, 18
 Strato of Lampsacus 330
 and *Mechanical Questions* 452
 sublunary physics
 Aristotle’s conception of 189, 190–1, 192, 283

640

sublunary physics (cont.)
 and celestial motion 284
Suda, tenth-century Byzantine lexicon 182
Śulbasūtras mathematical text 518–20
 Šulgi, king of Ur 60
 Sulla, siege of Athens 463
 Sumerian language 14, 60, 61
 sun
 continued existence at night 172
 Empedocles' view of 174
 estimate of size of 271, 391
 estimates of distance to 270 *see also* solar eclipses
 Sun Simiao, physician 592
 sundials
 Egypt 139
 Greco-Roman 266, 376
 portable 377
 surgery
 Ayurvedic 541
 Egypt 127
 surveyors
 area computations 60, 65, 66
 line-of-sight techniques 415
 riddles 68, 71
 Susa, mathematical texts from 62
Sūśrutasaṃhitā, Compendium of *Sūśruta* 541
sūtra, concept of ("string" or rule) 517
 sutures, Egypt 127
 syllogistic proof, Aristotle's 217, 236, 281–2
 Synesius, *Commentary on the Books of Democritus* 472
 Syracuse 454
 Athenian campaign (413 BCE) 398
 sack of (212 BCE) 353
 Syrianus 281, 288
 tablets, Mesopotamian 8
 archaeological contexts 74–5
 catalogue (medical) 35, 36
 classification systems 26
 classified as secret 13
 explanatory texts 25
 late Babylonian 85–98
 MUL.APIN series 15
 planetary observations 17
 second and early first millennium BCE 79–85
 study of 73 *see also* *Enūma Anu Enlil*
 Taizong, Emperor 554
Tale of the Eloquent Peasant (Egypt) 110
 Tamil Nadu, Siddha medicine 534
 Tang dynasty 553, 574
 canonical literature 554
Mathematical Canon by Xiabou Yang 556

Index

mathematical textbooks 556
Records on the Procedures of Numbering Left Behind for Posterity 556, 559
The True Meaning of the Five Canons 554
Zhui shu mathematical canon 556, 558
 Tao Hongjing 592
The Teaching of Amenemope 115
Teaching of Ptahhotep 106, 111
 teaching texts, Egypt 111
 temples, Egypt 103, 118
Testament of Hippocrates 336
 texts
 astrological papyri (Egypt) 377
 Byzantine manuscript tradition 377
 collection of, Hellenistic period 249
 doxographies 165, 254–5
 on harmonics 429
 question-and-answer (*problemata*) 255, 305 *see also* astronomical texts
 texts, Greco-Roman astronomical 374–6
 astronomical tables 397
 papyrus from Egypt 376
 texts, Greek literary, disease and medicine in 300
 texts, Greek medical 301–4
 rhetorical character 301
 for teaching 301
 vocabulary 301 *see also* Hippocratic Corpus
 texts, Indian
Ṛgveda, Vedic hymns 518, 537
 Vedas (sacred texts) 517
 Thales of Miletus 163, 164, 183, 215, 396
 mathematical proofs 347
 Theaetetus 349
 Thebes, tomb of Senenmut 140
 Themison of Laodicea, Methodist 333
 Theodorus, mathematician 349
 Theodosius 372
Spherics 366
Theologoumena arithmeticae 72
 theology 290
 Theon of Alexandria 372, 395
 Theon of Smyrna 375, 378, 443
Mathematics useful for Reading Plato 262, 442
 and physical astronomy 391
 Theon "the mathematician" 395
 Theophrastus, alchemist, *On the Divine Art* 473
 Theophrastus of Eresus 165, 241, 245, 322, 328
 Aristotle's Lyceum 210, 249
Causes of Plants 245
 classification of plants 242
 and doxographies (collected opinions) 253–5
Enquiry into Plants 238, 240, 253
 and harmonics 440
 writings on natural science 253

- theorems, from hypotheses 281, 290
 therapeutics
 early Greek 310–11
 Greco-Roman 334
 Thessalus of Tralles 335
 Thucydides 396, 398, 450
Tian wen zhi (Record of celestial patterns) 602
 Tiberius, emperor 323
 Tibet
 Ayurvedic medicine 542
 Sowa-Rigpa (gSo ba rig pa) medicine 534
Tiloyapaniatt, Jainist text 521
 time
 Aristotle's theory of 210–14
 and infinity 211, 212–13
 and intervals 213
 as measure of motion 211
 and now 211, 214
 Timocharis, astronomer 394
 tombs
 artwork of 113
 depictions of metrological systems 105
 Egyptian nomarchs 107
 elite burials, Egypt 103
 grave goods 108
 triangles
 Aristotle's general treatment of 187
 Chinese mathematical procedures 559, 570
 Egyptian geometry 153, 155
 in Plato's cosmology 179
 trigonometry 368–9
 in astronomical prediction 397
 chord tables 369
 Indian astronomy 490, 499
 Indian mathematics 527
 tabular 368
Trilokaprajñapti, Jain text 521
 truth, and impressions (*phantasia*), in
 Stoicism 260
 Unanani Tibb medicine 534
 Unity of Heaven and Humanity, theory of 592
 Ur, Third Dynasty 60
 urbanisation, and medicine 321–2
 Uruk 14
 astronomical texts 75, 94
 vacuum process, Erasistratus and 330
 Vāgbhaṭa, Ayurvedic compendia 541
 Varro, M. Terentius 238, 240
 Vedic culture 502
 astronomy 486–8
 Atharvaveda 537
 calendars 485, 488
 cosmology 487–8
 hymns 518, 537
 medicine 536–8
 religion 536
 sacrificial rituals 536, 537
 texts 517, 537
 Vegetius 466
 velocity
 and motion 206
 relative 203
 Venus
 as morning and evening star 170
 periodic visibility 19, 91
 Vettius Valens 377, 378
 Vienna Dioscorides 242, 244
 Virasena, *Dhavaklā* 520
 Vitruvius 459–60
 On Architecture 266, 267, 459
 and sundials 266
 void
 Aristotle's denial of existence of 203, 206–8
 Epicureans and 256
 Heron and 461
 motion through 205
 Philo on 458
 volcanoes, Plato 178
 vortex 175
 motion of primordial condition 172
 and streams of atoms 174
 Wang Xiaotong 558
 water clocks (clepsydra) 376
 in Chinese astronomy 609
 in Indian astronomical measurement 489
 outflow 138
 water cycle, Xenophanes's view of 167
 water supply, aqueducts 321
 weight
 Aristotle's theory of 202–4
 measurement of 203
 and relative velocity 203
 Weni, scribe 107
 wisdom *see* scholarship and wisdom
 witchcraft, Babylonian, as human agency 45
 women
 as doctors 338
 and Epicurean school 256
 writing, evolution of Egyptian 104
 writing system
 Mesopotamian cuneiform 58
 protoliterate 59
Writings on Mathematical Procedures 561, 562–3,
 566–7
wu (diviners, shamans) 576

642

Wu xing zhan treatise on planetary motion 600
 Wuwei, China, medical manuscripts 579
 Wuzong, Emperor 594

Xenagoras 272
 Xenophanes of Colophon 167–8
 Xenophon, Stertinius 316
 Xiahou Yang 556
 Xu Yue 556

Yang Xiong, astronomer 611
 Yao, Emperor 603
 Yatıvıřabha 521
 year
 Egyptian civil calendar 133
 Greek calculations 382–3
 Indian ideal 486, 488
 intercalary months 78, 381–2, 486
 leap day (Egypt) 135
 Mesopotamian calculations 19
 natural 384
 numbering 383
 Yellow Emperor (Huangdi) 577, 578
 Inner Canon of the Yellow Emperor 587
 Basic Questions 587, 588, 589
 Grand Basis 588
 Numinous Pivot 588
 yoga, modern 533
 Yongle, Emperor 556

Zabarella 189
 Zeno
 Eleatic school 171
 paradox of the arrow 213
 paradoxes of divisibility 174
 paradoxes of motion 212, 213
 and Stoa school 252, 259
 Zenodorus 372
 zero, in Indian mathematics 528, 530

Index

Zhang Jue (Jiao), Yellow Turbans sect 592
 Zhang Zhongjing, *Treatise on Cold Damage* 590
 Zhangjiashan, China
 Maishu medical manuscript 579, 581
 Yinshu writings 586
 Zhao Shuang 558
 Zhen Luan 557, 558, 570
Zhou bi, astronomical book 598, 610
 Zhou dynasty 576, 577, 596
Zhui shu mathematical canon 556, 558
 zigzag functions
 in astronomical predictions 19, 20, 21, 27,
 77, 81
 in Indian astronomy 489
 for synodic arc calculations 94
 “Three Stars Each” 80
ziqpu (“culminating”) stars 84
 zodiac
 and astral medicine 97
 and astrology 97
 and celestial positions 88
 Egyptian 141–2
 and Greco-Roman astrology 398
 and Greek constellations 384
 and mathematical astronomy 97
 and planets 12
 zodiac boards 378, 400
 zoology
 Aristotle’s legacy 216–17, 236–7
 Aristotle’s norms of zoological inquiry
 218–19
 Aristotle’s philosophy of 217–19
 ‘Presocratic’ natural philosophers 215 *see also*
 animals; birds; fish
 Zosimus of Panopolis 472, 475, 479
 Final Quittance 472, 479
 Visions 470, 472
 Zu Chongzhi 556
Zuo Zhuan chronicle 600