Bell in the race to patent the telephone, and was the basis for his idea (never implemented) to transmit the voice by first separating out the different component frequencies, transmitting these frequencies over wires and then resynthesizing the voice by combining the frequencies at the receiving end. Conceptually, this is the idea behind the twentieth-century device, the vocoder, which, in turn, was the conceptual basis of the first successful automatic speech recognition devices in the early 1950s.

Prior to the 1950s, there were various notable attempts to improve speech recognition using machines; though these did not involve fully automatic recognition, they were 'learning experiences' for the field. After World War II, researchers at Bell Telephone Laboratories tried to teach both normally hearing and hearing-impaired subjects to recognize speech coded visually using a real-time spectrograph. Although the attempt was not very successful (in the sense that an inordinate amount of training had a disappointingly small payoff), this led to several papers and a book (Potter et al. 1947), in which the acoustic cues of different speech sounds were given in great detail.

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The subsequent history of these two approaches to automatic speech recognition, based on the detection of whole-word (or phrase) spectral patterns versus the subparts of words (phones, phonemes, syllables, or parts of syllables), is still ongoing in the 1990s.

Bibliography

Bouman H D, Kucharski P 1929 Synthèses de voyelles à moyen de deux sons simples. *Archives Néerlandaises de Phonétique Experimentale* **4**: 90–111
Davis K H, Biddulph R, Balashek S 1952 Automatic recognition of spoken digits. *Journal of the Acoustical Society of America* **24**: 637–42
Dreyfus-Graf J 1950 Sonograph and sound mechanics. *Journal of the Acoustical Society of America* **22**: 731–39
Dudley H, Balashek S 1958 Automatic recognition of phonetic patterns in speech. *Journal of the Acoustical Society of America* **30**: 721
Dudley H, Tarnoczy T H 1950 The speaking machine of Wolfgang von Kempelen. *Journal of the Acoustical Society of America* **22**: 151–66
Potter R K, Kopp G A, Green H C 1947 *Visible Speech.* Van Nostrand, New York

History of Translation

Louis G. Kelly

From Roman times to the present, Europe has been a civilization of translations, every aspect of its culture, literature, administration, trade, religion, and science having been deeply influenced by translators. Modern thought on translation derives ultimately from the Jews of Alexandria in the first century BC who translated literally, and the Romans of the Classical Age, who did just the opposite. Two short passages have had an inordinate influence on translation theory: *De optimo genere oratorum* (v. 14) by Marcus Tullius Cicero (106–43 BC), which insisted on the necessity of 'weighing' words rather than 'counting them,' and the famous condemnation of literal translation by the poet Horace (65–8 BC) in his *Ars poetica* 131–35 (ca.19 BC).

1. The Classical Period

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Bibliography

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Dreyfus-Graf J 1950 Sonograph and sound mechanics. *Journal of the Acoustical Society of America* **22**: 731–39

Dudley H, Balashek S 1958 Automatic recognition of phonetic patterns in speech. *Journal of the Acoustical Society of America* **30**: 721

Dudley H, Tarnoczy T H 1950 The speaking machine of Wolfgang von Kempelen. *Journal of the Acoustical Society of America* **22**: 151–66

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Word of God. Both Jewish theology and Neoplatonist philosophy agreed that the Divine Word illuminated the human soul and mind, and that names directly reflected natures. One could only avoid negating the creative power of the Scriptures by strict word-for-word translation. The Greek version of the Hebrew Scriptures, the *Septuagint*, was complete by about 150 BC. The persistent legend that the 70 translators were left in solitary confinement each with a Hebrew text and in 70 days each produced identical texts shows that literal translation was accorded mystical value.

1.2 Roman Translation

In ancient Rome, translation was always done from Greek texts normally as a rhetorical or creative task. Roman thought on the craft was summed up by the first-century rhetorician, Quintilian, who repeated the ideas of Cicero and Horace, seeing translation as 'rivalry' of the original author. The one dissenting voice was the philosopher, Seneca the Younger, who demanded that if truth was to be kept, translation should be strictly literal.

In about 250 BC, Livius Andronicus, a Greek slave captured at Tarentum in southern Italy in 272 BC, produced a Latin version of the *Odyssey*, which was still being used as a textbook in Roman schools a couple of centuries later. In the meantime soldiers and other administrators were coming back to Rome with a taste for Greek amusements, particularly theater. Enterprising writers supplied the need by free translation and even adaptation from Greek dramatists. The two most famous of these Roman dramatists of the generation after Livius Andronicus, Plautus (d.184 BC) and Terence (190–159 BC), were regarded as authorities on translation until the end of the western Roman Empire.

The greatest age of Roman literary translation lasted from the first century BC to the middle of the first century AD. The Roman Golden Age set the custom, which lasted until well into the twentieth century, of treating translation as a literary apprenticeship and constant exercise. Most of the extant poets have some translation in their corpus; for example, Cicero's major contribution was to create scientific terminology through his versions of Greek philosophy. Translation remained common in the centuries following, one notable translator being the philosopher Apuleius (120–155), the author of *The Golden Ass*.

The importance of literary translation has obscured the immense amount of Roman technical and scientific translation. There was a small corpus of medical translators whose adherence to the originals by Hippocrates, Galen, and some minor Greek medical writers is typical of technical work in all ages. Drawing on the talent at his disposal the Emperor Augustus set up a translation office as part of the imperial household to assist in administering the Empire. Its most prominent piece of work is the *Monumentum ancyranum*, Emperor Augustus's own statement of his achievements, translated as a blatant piece of propaganda. This translation office remained active until after the fall of Rome in the fifth century.

1.3 Christian Translation

Christian translation, from Greek into Latin (except for Ulfila's fourth-century Gothic version of the Bible) began in the second century AD with the *Shepherd of Hermas* and parts of the Bible. The Jewish Platonist ideas on the relationship between language and the divine flourished in their assiduously literal style. Translation of Greek Christian liturgies for Latin-speakers began soon after. The Christian tradition culminated in the work of St Jerome (348–420), famous for his Latin version of the Bible, the Vulgate (383–406), and for a huge number of miscellaneous translations covering Church administration, monastic rules, and theology. However, he was only one of a very skilled band of translators, which included his former friend, Rufinus (345–410), the philosopher, Marius Mercator (ca.400–450), and a large number of anonymous churchmen.

Roman translation came to an end with Boethius (480–524). He had meant to stave off the tide of barbarism attendant on the collapse of the Roman Empire by producing Latin versions of the complete corpus of Plato and Aristotle, but was executed for treason in 524 with only a small part of the work done. His versions revert to the strict type of translation thought proper by Biblical translators. His preface to Porphyry's *Isagoge*, which castigates elegance as inimical to 'truth,' may owe as much to Seneca as to the Judeo–Christian tradition.

2. The Middle Ages

2.1 Translation from Greek to Latin

Although Jerome was revered and quoted right through the Middle Ages and the Renaissance as the main model for translation, the medieval tone was set by Boethius. His methods were followed by Cassiodorus (ca.490–583). Between 550 and 560 Cassiodorus assembled a stable of translators in a monastery in Calabria called the Vivarium, dedicated to preserving Classical culture. He, like Boethius, had the ambition to translate the whole of Greek philosophy and theology into Latin. Though he did not succeed in this aim, he put translation on a sound administrative footing which kept cultural lines open with the Greek East. From the sixth until the sixteenth century there was a flourishing traffic of religious translations between East and West.

Among the most significant translation centers were the schools of the Muslim world at Baghdad, Seville, Toledo, and Cordova, where Greek philosophy and

science were translated into Arabic. From the tenth to the early twelfth centuries these centers, in particular Toledo, played host to a number of Christian philosophers who translated Arab texts into Latin and brought back to the West Greek texts that had been lost. Another important center for this work was the Kingdom of the Two Sicilies where scientific, diplomatic, and religious translators worked between Latin, Arab, and Greek. But even there can be found flashes of the ancient rhetorical theories of translation. Henricus Aristippus, Archdeacon of Catania (ca.1100–70), supported illuminist arguments for literal translation by quoting Horace's *Ars poetica* 361–62, which compares poetry to a picture that is different according to the angle from which you view it. Between the ninth and sixteenth centuries there were Latin communities in Constantinople and Greek ones in the West which kept up a steady flow of translation between Latin and Greek in an effort to heal the breach between Eastern and Western Christianity.

The thirteenth-century controversy at the University of Paris over translating Greek philosophers from Arabic versions caused a fierce discussion of translation. Roger Bacon, arguing from lexical and terminological evidence, condemned it out of hand in his *Opus tertium*, while other philosophers, notably Thomas Aquinas, speculated on the nature of translation, seeing it almost as a barter transaction in which fair value must be paid. Following attempts to condemn Aristotle as corrupt and corrupting, his works were retranslated from the Greek texts to rid them of Arab accretions. The greatest of these translators were William of Moerbeke (1215–86), a Dominican friar, and Robert Grosseteste (1168–1253), Bishop of Lincoln.

2.2 Towards the Vernaculars

St Cyril and St Methodius (early ninth century) Christianized the Slavs and translated the Greek liturgy and Bible into Slavonic. In England the first Bible translation was the verse rendering of Caedmon (seventh century). A century and a half later, Alfred the Great (848–99) ordered Pope Gregory the Great's *Pastoral Care* and other important ecclesiastical documents to be translated into Anglo–Saxon to counteract a certain laxness in the English church. In Germany, the English missionary, St Boniface (673–754), produced one of the early versions of the Scriptures. During the eighth century there was much legal translation between the vernaculars and Latin, as new codes were evolved from Roman Law.

After the Christian conquest of Spain, the kings, particularly Alfonso el Sabio, commissioned technical translations from Arab and Latin into the vernacular. By the fourteenth century there existed a full corpus of medical works in Spanish and Catalan. In France, Charles V founded a similar cultural center in his court. His translators included men of letters, administrators, and scientists. The most important was Nicole Oresme (1320–82), reputed to be the first to translate Aristotle into a vernacular language. London too was an important center of royal patronage, and gained dramatically in importance after William Caxton (1422–91), a skilled translator, set up his printing press.

Literary translation into vernacular languages, either from Latin or from other vernaculars, begins around the tenth century. The first translations of Classical rhetoric date from this period—vernacular writers saw such translation in the same light as Livius Andronicus had seen it twelve hundred years before: it was a way of bringing the language to maturity. For the general public there were versions of Ovid and Virgil, very often taken from medieval Latin reworkings. Epic poetry, like the *Chanson de Roland*, was also translated widely, so that most of this great medieval epic exists in a large number of dialects and languages. Much of the really important translation was in the hands of the troubadours, who translated very freely between the vernacular languages, often extempore and as part of a performance.

The laity benefited from translation of popular devotional books, much of it anonymous. Boethius's *Consolation of Philosophy* was very popular, and was normally taken from a French version, for example, Chaucer's translation. Many countries produced versions of the Epistles and Gospels used at Mass, and it seems that these were often read while the celebrant read the Latin.

Where a technical translation remains very close to its original, literary translation is extremely free. The first attempts to apply linguistics to translation seem to be the orthodox attacks on the fourteenth-century Lollard Bibles: the claim is that translation from Latin to the vernaculars is impossible because of lack of formal identity between language resources. The Lollard reply turns on functional arguments—if one can do the same or similar things in English (i.e., construct sentences, show the line of argument) one does not need formal identity.

3. Renaissance and Humanism

3.1 Philosophy and Science

As the Turks were increasing the pressure on the Byzantine Empire in the fourteenth century, Greek scholars began moving west. Once established they made their living by setting up schools. Major schools were set up at Florence and Venice, both powerful trading republics with ruling families interested in scholarship, by Manuel Chrysoloras (1355–1415) and Constantine Lascaris (1439–1501), who soon distinguished themselves as translators from Greek into Latin, and put translation at the center of the educated person's skills. Among their pupils were Marsilio Ficino (1433–99), who translated Plato into Latin, and

Aeneas Silvius Piccolomini (1405–64), later Pope Pius II. In these schools translation reverted to the manner and principles of the Classical rhetoricians, and thus dethroned the translation model of Boethius. An early pupil of the Florentine schools, Leonardo Bruni Aretino (1369–1444), translated Aristotle into Latin (ca.1420) and wrote a rather pugnacious preface on the necessity of translating works in a style consonant with their elegance.

Because the basic training of a scientist was Classical and philological, noted translators like Thomas Linacre (1465–1524), Professor of Medicine at Oxford, and Janus Cornarius (1500–88), first Dean of Medicine at Jena, scoured European libraries for Greek medical and scientific manuscripts, edited them, and translated them into Latin. By 1600 practically every important Greek work on science and philosophy had its humanist Latin version for use in the medical schools, and in many cases a vernacular version as well. Alongside these were translations from texts on alchemy, both works ascribed to the thirteenth-century scholastics like Roger Bacon and Albert the Great, and books by later alchemists like Basil Valentine and Nicholas of Cusa. Contemporary alchemists like Paracelsus (1493–1541) who wrote in their own languages (in the case of Paracelsus, German), were translated into Latin, and then from there into the local vernaculars. Gerhard Dorn (fl.1570–90) was the most prominent Latin translator of alchemy.

3.2 Religion

Sixteenth-century humanism was essentially religious, and translators were essential to Reformation and Counter-Reformation. They treated religious material no differently from other writings, assessing the worth of manuscripts, interpreting readings against parallel texts, etc. Translators first sought to produce Latin Bibles of humanist standard; and there were a large number of them. The most influential was the Greek–Latin New Testament (1523) of Desiderius Erasmus (1466?–1536), the *textus receptus*, which studiously tried to be doctrinally neutral. But other Latin translators like Théodore de Bèze (1519–1605) and Sebastian Castalio (1515–63) produced Bibles in fairly Classical Latin, but with strong doctrinal leanings.

Of the vernacular Bibles, Luther's (1534) is preeminent. Other German versions were produced by reformers in Switzerland. Luther influenced the Dutch version of 1537, the Swedish of 1541, and the Danish of 1550. Other important Protestant Bibles were the 1641 Italian version by the Calvinist, Giovanni Diodati (1576–1649), which he himself turned into French in 1644, and the French Bibles of Jacques Lefèvre d'Etaples (1455–1537), Pierre Olivétan (d.1538), and Théodore de Bèze's 'Geneva Bible' which came out in 1528, 1535, and 1556, respectively. In Spain the first complete version of Scripture was published in 1569

by Cassiodoro de Reina (1520–94), a follower of Jean Calvin; and in Italy the first complete Bible was by Antonio Brucioli (ca.1495–1566) in 1532. In England there was a long progression from the Tyndale Bible of 1526–30 to the Authorized Version of 1611, which is an excellent example of teamwork. The work was divided between six 'companies,' which included theologians as well as experts in Classical languages.

Catholic countries tended to lag in Biblical translation. Spain continued the medieval custom of translating the Epistles and Gospels used at Mass. France often readapted Protestant or doubtful Bibles; for example, the Catholic *Bible de Louvain* (1550) was Lefevre d'Etaples's edition brought up to date. Likewise in Germany: Hieronymus Emser's version (1523) tried to 'correct' those parts of Luther's Bible already circulating. In 1548 Nicolaus van Winghe produced a Dutch Catholic Bible which remained standard until 1926. In England the Douay–Rheims version, translated from the Vulgate, appeared in 1588 as an emergency measure to counter Protestant accusations, partially justified, that the Catholics were afraid of the Bible. Most of the Protestant Bibles were taken from the original Hebrew and Greek, the only major exception being Miles Coverdale's (1535), taken from the Vulgate. Until Ronald Knox's Bible in 1949, Catholic Bibles were almost exclusively taken from the Vulgate.

Developing vernacular liturgies was essential to the Reformation. Partial translations of the Catholic liturgy already existed in the 'Primers.' In England the *Book of Common Prayer* (1549) rose out of English versions from the 'Primers' and translations from the Sarum Missal and Breviary. The translation committee was headed by Thomas Cranmer (1489–1566), Archbishop of Canterbury. For the next two hundred years, the *Book of Common Prayer* was translated into other European languages to serve Anglicans living overseas and missionary congregations. Other Reformers who created similar works of liturgical adaptation mixed with translation were Martin Luther and Jean Calvin (1509–56). As the Reformation spread there were translations of Luther's liturgy into Scandinavian languages, which were adopted for the normal worship. Translators also entered with gusto into religious controversy. Luther's and Calvin's polemical works were translated into most European languages and rebuttals, both Catholic and Protestant, were translated and circulated just as vigorously. Luther's works were translated into English by Richard Taverner (1505–75), who was responsible for Taverner's Bible (1539); and Thomas Norton (1532–84), a noted scourge of both Catholics and Lutherans, translated Calvin's *Les Institutions de la Religion Chrestienne* which Calvin himself had translated into French from his own Latin version. There was also some translation of Jewish prayer books and synagogue liturgies into vernacular languages, but as yet no Biblical work.

3.3 Literary and Educational Translation

The rise of the vernaculars as standard languages slowly shifted the focus of translation towards literature. However, what could be termed a 'modern language' changed subtly. The standard languages of political and cultural centers—English, French, Spanish, and Italian—moved in to replace those like Catalan and Provençal which were losing ground. In the recognized languages, literary translation brought to fruition what the Romans from the preclassical dramatists to Jerome had to teach. The Italians were in the forefront, one of the most important names being Petrarch (1304–74). The humanist printing presses, like those of Aldus Manutius (1455–1515), himself a fine translator, and Frobenius in Antwerp, commissioned vernacular translations and sold them widely.

In the rest of Europe, literary translation arrived late in the sixteenth century, though there were some earlier pioneers like Gavin Douglas (1474–1522), Bishop of Dunkeld, whose Scots version of Virgil's *Aeneid* is particularly interesting. The major inspiration was Classical, within an Italian cultural dominance, although Jean Baudoin (1564–1650), Lecteur to Marguerite of Navarre, translated a number of English books, including Sir Philip Sydney's *Arcadia*, into French. Poetry predominated, but by 1600 most of the common Latin and Greek prose writers had been translated into modern languages. In France, among the important translators were the group of poets centered around Pierre de Ronsard (1524–85), known as the *Pléiade*, whose interest lay in the latest from Italy as well as Greek and Latin literature; and Jacques Amyot (1513–93), whose French version of Plutarch's *Lives* was translated into English by Sir Thomas North (1535?–1601?). In England, Henry Howard, the Earl of Surrey (1517–47) was known for his translations of Petrarch and the Classics, and, the most famous of all, George Chapman (1559–1634) for his Homer. In Spain the Franciscan poet, Fray Luis de Leon (1520?–91), was also renowned for his translations from Classical literature.

Though the center of their intellectual world was in the Classics, the humanists saw popular education as a priority. Educational works by Erasmus (particularly the *Colloquia*) and Luis Vivès were widely translated. One of the most characteristic manifestations of this interest was concern for the education of the 'Prince,' that idealized Renaissance figure who embodied all possible human virtues. The tone was set by works such as *Doctrinall of Princes* (1533), translated by Sir Thomas Elyot (1490–1546) from the Greek of Isocrates, and the versions of Castiglione's *Il cortegiano* by Thomas Hoby (1524–85; English), Juan Boscan (d.1542; Spanish), and Bartholomew Clerke (1537–90; Latin). Machiavelli's work was translated but feared, and the English version of *Il principe* by Sir Thomas Bedingfield (d.1613) was unfavorably noticed by Queen Elizabeth I and remained in manuscript until after 1960.

4. The Age of Reason

4.1 Literary Translation

During the seventeenth and eighteenth centuries literary translation was dominated by French models, the notorious *belles infidèles*, which judged a translation according to contemporary norms of taste. In France the salon, in Britain the coffee-house, and everywhere in Europe the learned society, were essential to the development of translation at this time. The influence of the Royal Society and the Académie Française were seconded by periodicals like the *Gentleman's Magazine* and *L'année littéraire*. In France the dominant figure was Nicholas Perrot d'Ablancourt (1600-43) whose ruling principle was to 'remove everything that could wound our sensibilities.' The same principle was followed by Anne Dacier (1651–1720) in her Homer, which is a classic of the style. The dominant figure in Britain was John Dryden, who took his famous typology of 'metaphrase,' 'paraphrase,' and 'imitation' from French practice. He opted for paraphrase as ideal but, in practice, his poetic translation leans more towards 'imitation.' German translators, like Bodmer (1698–1783), Breitinger (1701–76), and Gottsched (1700–76) followed the same line.

Though Classical works were still the staple of the literary translator, there was also work from modern languages, much of it for recreational reading. This work included Latin versions of contemporary poets, the version of *Paradise Lost* by William Hogg adding to John Milton's international reputation. From the end of the seventeenth century, translators begin to demand authenticity and close translation. T. R. Steiner traces this change to the influence of Pierre-Daniel Huet (1630-1721), who championed literal translation. Among English translators affected by him were Sir Edward Sherburne (1616–1702). The new manner became standard later in the eighteenth century, as in the translations ascribed to Tobias Smollett (1721–71) in England, and taught in France by Charles Batteux (1713–80), a noted translator from Latin and Greek; in Spain, in Antonio Capmany Suris y Montpalau (1742–1813), who translated from French; and in Russia, in Vasily Trediskovsky (1703–1779), who worked from Classical languages. The eighteenth century is discussed at length in Tytler's 1791 *Essay on Translation*. But the old manner persisted—Abbé Prévost, one of the few who kept away from Classical translation, and specialized in translation from English, published a version of Richardson's *Clarissa Harlowe* that followed *Les belles infidèles* to the point of wounding the author. And Jacques Delille (1783–1813) was still translating like this during the French Revolution.

4.2 Religious Translation

The Dutch Protestants produced their standard *Statenbijbel* in 1637. Luther's German Bible was kept constantly up to date, and the Douay–Rheims Bible was updated by Bishop Richard Challoner (1691–1781) in 1763. The Bishop of Florence, Martini, translated the Bible into Italian between 1769 and 1781, and the official Spanish version of 1793 was also from the Vulgate. If attempts like the Bible of Lemaistre de Saci (1613–84) taken from the Vulgate are set aside, in France translation was merely an incidental part of Biblical scholarship. This gathered pace during the eighteenth century with the work of Richard Simon (1638–1712), the author of a huge Biblical encyclopedia, and Charles Houbigant (1686–1783), whose Latin version of the Hebrew Old Testament has an important preface on translation. This work came into its own in Britain at the end of the eighteenth century among those who were trying to replace the Authorized Version. The greatest translator of the period was George Campbell (1719–96), principal of Marischal College in Aberdeen; his *Four Gospels* (1789) was meant to be an ecumenical version. At the beginning of the nineteenth century, it was frequently published with the Epistles by James MacKnight (1721–1800) and the Books of Acts and Revelation by Philip Doddridge (1739–86). Campbell's work is notable for its voluminous notes and introduction, which is a summing-up of eighteenth-century thought on translation in general.

Strangely enough French Catholicism provided Protestant Europe with much devotional literature, Fénélon, the Archbishop of Cambrai, being a popular author. As Catholicism became more sure of itself, there was a great deal of translation of traditional devotional literature, like *The Imitation of Christ* ascribed to Thomas à Kempis (ca.1379–1471), into vernaculars—even in England after the break with Rome. There was a fair amount of polemical translation as well, the most virulent occasioned by the 1643 quarrel between the Port-Royal Jansenists (see *Port-Royal Tradition of General Grammar*) and the Jesuits, and centering round Pascal's *Lettres provinciales*, though the fallout from the Reformation kept translators going for the whole century. Translators tried to temper the acrimony by translating works on religious tolerance, like the religious writings of the great Dutch jurist, Hugo Grotius.

4.3 Technical Translation

At the beginning of the seventeenth century three scientific paradigms were fighting for supremacy, and for the warring scientists translation was a professional responsibility. First there was the scientific paradigm, of which Thomas Linacre, the founder of the Royal College of Physicians, had been typical; the second was the alchemist paradigm; and the third was the new philosophy of science taught by Francis Bacon and René Descartes. There was still a little translation from Classical writers, but the humanist versions remained standard.

Not only were the latest medical sources translated, but also medievals with a reputation like Albertus Magnus, Roger Bacon, and Ramon Lull. Alchemists and surgeons often wrote in their own languages. The most famous of these authors, Paracelsus and Glauber, were still translated into Latin for international consumption. In Britain in particular both vernacular and Latin translation had its political side, as is quite clear from noted Puritan apothecaries like Nicholas Culpeper (1616–54), and Royalist translators like Elias Ashmole (1617–92). The fight continued all over Europe until about 1680.

Between 1660 and 1700 there was a staggering amount of translation of the writings of Bacon, Descartes, and, at the end of the century, Isaac Newton's works. This was a time when scientists were beginning to write in their native languages, with consequent difficulties for readers in other countries. Robert Boyle and Isaac Newton commissioned their own Latin translations, and sat on the translators' shoulders. Descartes was well served by his French translator, le Duc de Luynes, and badly by the Dutch mathematician, Frans van Schooten (1615–60). In the rare cases where scientists were incapable of writing Latin (e.g., A. van Leeuwenhoek), they found anonymous Latin translators. Scientific translation was largely in the hands of the medical profession, encouraged by publication subsidies. The demand was so high that entrepreneurs made use of unemployed university graduates as translators, usually without acknowledging their help. The peak of this activity was in the period 1700–45, and coincided with the general acceptance of the scientific ideas of Descartes and Newton. Indeed it is doubtful whether Linnaeus, the famous botanist, Albrecht von Haller, the founder of physiology, or T. O. Bergman, the noted Swedish chemist, would have had the effect they did if they had not written in Latin and been translated into the vernaculars.

By the early eighteenth century vernacular work on medicine was usually translated directly into modern languages. By the late eighteenth century the center of scientific translation in Britain was moving north to the scientific communities of the Midlands and Scotland, who were in contact with France, Germany, and Sweden. In France the center was still Paris, where Louis-Bernard Guyton de Morveau (1737–1816) was particularly active in both translation and research. Creative physicians like William Lewis (1714–81) of Edinburgh, de Rusieux of Paris, and J. H. Ziegler of Germany were both translators and translated.

The seventeenth century had produced a lot of 'gentlemanly' translation, on gardening, building, and architecture, much of it from French and Italian sources; for example, the translations by John Evelyn

(1620–1706), on gardening and art, and translations of important Italian architects like Giacomo da Vignola and Andrea Palladio. The eighteenth century too was also marked by the translation of applied science, much of it from French, Swedish, and German. A good part of it dealt with agriculture—the concentration of population in the new towns demanded intensive agriculture if they were to be fed. There was also much on the manufacture and use of weapons, the French being in the forefront. Navigation and traditional crafts like dyeing also benefited from translators. However, the most radical changes came in pharmacy, which followed the 'new chemistry' so closely that its practice was reformed.

Education was an important issue and authors translated into most European languages, including Latin, ranged from Jan Amos Comenius to John Locke. Much translation of history, education, and the like was commissioned for political purposes. In Britain, Cromwell's Parliament commissioned legal and historical translation in an effort to legitimize the regime. On his return to power (1660), Charles II used translators like Dryden to translate political, if not polemical, works in support of the Royalist cause. In the following century, Adam Smith's *The Wealth of Nations* was translated into Spanish for the financial guidance of the government (1794) and in France there were at least four translations of Smith's work between 1793 and 1815, each coinciding with a change of regime. T. R. Malthus's work on population was also translated. As usual a good deal of this translation was anonymous, and done to meet specific scientific needs.

5. The Nineteenth Century

5.1 Romanticism and Literature

It was not until the rise of Romanticism that 'translation' became popularly identified with literary translation. The precursor of the movement, Johann Gottfried Herder (1744–1803), left to it a thoroughgoing Platonism that saw man and his society as creatures of the language spoken. For Herder, translators were the 'morning star' of a literature, because they introduced a literature to the great things in other literatures. His own contribution to German was a collection of translations from European poetry, the *Volkslieder* (1778–79), which imitated the original meters as the appropriate dress for the verse. Classical meters were acclimatized in German by Friedrich Klopstock (1724–1803): English experimentations, even by the poet Tennyson, were never successful.

Herder's view of translation as a hermeneutics of text was refined by Friedrich Daniel Ernst Schleiermacher (1768–1834). Romantic translators took on two interlinked tasks: the first was penetration to 'pure speech' supposed by Friedrich Hölderlin (1770–1843) to underlie all languages; the second was to present

author and text unadorned to the reading public in the second language. Hence the famous classification by Johann Wolfgang von Goethe (1749–1832): literal, 'parody,' and interlinearversion. The first was word-for-word, and to be used if no other was possible; in 'parody' translation the translator imposed himself and his society on the original; and the interlinearversion was the penetration to the very essence of the original.

All of these theorists were practical translators as well; Hölderlin and Schleiermacher translating from Greek poetry, and Goethe and Wilhelm von Humboldt from both modern and ancient languages. In France, Goethe's ideas were taken up by Madame de Stael whose *Esprit des traductions* (1816) is one of the seminal statements of Romantic ideology. Such ideas were also illustrated by the version of *Paradise Lost* (1836) by René de Chateaubriand, who boasted that he had kept both the virtues and faults of the original. On a more pedestrian level, Amadée Pichot (1795–1877) publicized English literature with assiduous but extremely literal translations of contemporary writers. In Britain, after a much-reviled translation of *The Sorrows of Young Werther* from a French version, Goethe's most prominent publicist was Thomas Carlyle (1795–1881); in America, Bayard Taylor (1825–1878), and, in Italy, Michele Leone di Parma (1776–1858). But Goethe's ideas had special impact in Russia and other parts of Eastern Europe, where translation still had the creative status it had enjoyed in the Western Renaissance. Romantic poets, English, German, and French, were translated by Zhukovsky (1783–1852). Dickens was a favorite subject: both his French translator, Pichot, and his Russian, Vvedensky (1813–1855), wrote to him. Shakespeare was another favorite, the German Tieck-Schlegel version being almost a national monument, unmatched by any other version. Romanticism also occasioned the midcentury vogue of Eastern literature. Eastern languages were taken up in France by Emile-Louis Burnouf (1821–1907), and decades earlier in Germany by the Romantics, in particular Humboldt. The most famous English translation of Eastern poetry is probably *The Rubaiyat of Omar Khayyam* (1859) from the Persian by Edward Fitzgerald (1809–83).

The crux of the Romantic legacy was the nature of authenticity. It was given public airing in the famous quarrel between Matthew Arnold (1822–88) and F. W. Newman (1805–97) over translating Homer. Newman believed that the archaic and antique in Homer should be presented to the reader of English by conscious archaism, while Arnold insisted on presenting Homer as poetry that conformed to the contemporary experience of poetry. Probably the greatest of Newman's partisans were John Conington (1825–69), Professor of Latin at Oxford, and Sir Richard Jebb (1841–1905) of Cambridge. Robert Browning's *Agamemnon* (1877) is an excellent example of the Newman style,

and his preface recalls that of Chateaubriand to Milton's *Paradise Lost*. Arnold's approach culminated in the translations of Dante and his circle by Dante Gabriel Rossetti (1828–82). His cardinal principle was that 'a good poem should not be turned into a bad.' In other countries, particularly France, translation showed much influence of contemporary literary movements. Charles Baudelaire (1821–67) changed Poe from a very good second-rate American writer into a first-class French one, and Leconte de Lisle (1818–94), a true Parnassian, went back to the Classics. In Germany the development of literary translation followed much the same lines as in England, with conflict between the antiquarian and the authentic in the Romantic sensibility.

Romantic ideas on translation also had their political side. The subject peoples of the Austro-Hungarian Empire, particularly in what became Czechoslovakia, were strongly influenced by the nationalism inherent in Romanticism and plotted revolution. Elsewhere, for example, in Canada where English and French were in close contact, Romantic ideas on the teaching role of the translator affected the problems of preserving the identity of the minority; interpreting the two cultural groups to each other; and the French minority had to decide whether to absorb material from the dominant culture or to stand aloof. The Canadian situation is interesting for the critical role played by newspapers in fostering translation between the two languages, especially by serializing translated novels.

There was also some translation of libretti; this practice continued into the twentieth century. Gilbert and Sullivan operas were presented in German in Germany, and French and Viennese operettas (e.g., the Strauss family and Offenbach) in London in English. There was also some translation of French, Italian, and German operas into other European languages, though nowhere near the twentieth-century scale of such translation. German *lieder* and the French art song were also translated, often very badly, for the drawing-room soprano and tenor.

5.2 Religious Translation

The issue of updating the Bible did not go away. In 1836 a Catholic historian, Dr John Lingard (1771–1851), published a Bible with the New Testament translated from the Greek. Among Protestant efforts was the modernized King James Bible (1833) produced by the American lexicographer, Noah Webster. During the 1850s pressure began to mount in England for a revision of the Authorized Version, if not a completely new translation, for Biblical scholarship had advanced considerably. In 1870 the Convocation of the Anglican Province of Canterbury set up a committee to revise the Authorized Version. Other Protestant churches joined in. In 1881 the English New

Testament was published, and in 1885 the whole Bible (the Revised Version). The American Bible Union (ABU) had been established in 1864, and sent observers to keep an eye on what the English Anglicans were doing. The American Standard Version was published in 1901.

Spain was still nervous of Bible translation, however, the British and Foreign Bible Society was happily supplying Protestant versions of the Bible in European languages—for example, a revision of Valera's 1625 Spanish version was reprinted many times between 1806 and 1817, and a Catalan New Testament was produced by J. M. Prat (1832). At the end of the nineteenth century, l'Abbé Augustin Crampon (1826–94) produced what was to become the standard French Catholic Bible of the early twentieth century. For French Protestants, the most important Bible was the version of Louis Ségond (1810–85) whose Old Testament came out in 1874; the New Testament followed in 1880.

The Jews were once again facing the ancient problem: a religiously vital social group which could read but not understand the sacred books. In America, Rabbi Isaac Leeser (1806–68) published his English version of the Old Testament in the Masoretic text in 1853. The Jewish Publication Society, founded in 1892, produced an official Jewish version in English in 1901. Other Jewish communities followed suit.

The Oxford Movement in the Anglican Church sought to prove its essential Catholicism by returning as far as possible to early Christian practices. There was much interest in the Fathers of the Church, in both doctrine and hymnody. The movement's search for ancient Christian hymns began with the Roman Breviary, then passed to the Paris Breviary, and finally to pre-Reformation rites like the Sarum (from Salisbury) and the York. The leading translator was John Mason Neale (1818–66), whose hymn versions took into account the traditional melodies of medieval service books. Most of his work appeared in *Hymns Ancient and Modern* (1861), edited by Reverend Sir H. W. Baker (1821–77). Another important contributor to this famous hymnbook was Catherine Winkworth (1827–78), an early feminist, whose speciality was translation from German, and particularly the Lutheran hymns.

5.3 Technical Translation

Technical translation in the nineteenth century did not benefit at all from the Romantic revolution; indeed its practice had continued in the same manner since the early seventeenth century. The work of Michael Faraday, J. J. Berzelius, the Swedish chemist, and other scientific pioneers were widely translated. The quantity of translations increased as the century went on, though now the scientist was no longer his own translator. In the humanities, by contrast, the task of

translation was still regarded as the professional responsibility of contemporary philosophers and social scientists.

Less is known of the translation that went on in the bureaucracies of the Ottoman, Austro–Hungarian, or Russian empires, than of the work carried out in the empires outside Europe. European colonial expansion gathered pace during the nineteenth century. Training local people as interpreters was the first step: colonists then learned the native languages. Soon colonial administrators benefited from a loosely organized translation profession. In most places a system of professional certification had slowly developed. For example, in the previous century Sir William Jones (1746–94), though most famous for pointing out the striking similarity between Sanskrit and the major European languages, was an assiduous translator from Eastern languages, specializing in law. His ideas had considerable influence on later British colonial policy.

Tensions between French and English, and English and Spanish antedated British expansion in North America. The resulting warfare occasioned a fair amount of translation. Bilingual officers worked as volunteer translators between English and French or Spanish. Apart from this there is very little on record of anything beyond ad hoc translation before the British takeover of Canada in 1759, the Louisiana Purchase of 1803, and American expansion into the Spanish territories that now make up parts of Florida, Texas, and California. The press played a very important role. It was to it that the various Canadian governments (and also the government of Louisiana) later turned when they needed translators.

6. Missionary Translation

During the eighteenth century, European expansion into the New World revived ancient problems entailed in translating between sophisticated and unsophisticated languages. Little is known of how early Christian missionaries, like St Boniface (d.755), had faced the problems of creating literacy before being able to translate the Bible into languages previously unwritten. Until the sixteenth century it was trade not colonization, that usually went with the missionary. A new pattern developed in the Americas, where in the British, French, Spanish, and Portuguese dominions, missionary and colonist often arrived together, and at times cooperated. The practice of the New England and the Jesuit missionaries with Amerindian languages was typical: translation of the Bible and the introduction of Christian worship, for example, by Thomas Mayhew (1592–1657) and John Eliot (1604–1690) were preceded by and prepared for, the production of grammars and lexicons: literacy as well as conversion was an objective.

Missionary translation was first given direction by the formation of the *Congregatio pro Propaganda Fide* in Rome in 1662. There are reports of translations of the Bible into Eastern languages mainly from Catholics like St Francis Xavier (1506–52), and the Congregation has continued active translation. On the Protestant side, the Society for the Propagation of Christian Knowledge (1698), the Society for the Propagation of the Gospel in Foreign Parts (1701), and the Moravian Brotherhood (founded 1722) took a vital part in Bible translation into non-Indo-European languages. Perhaps the most important development was the foundation of the interdenominational British and Foreign Bible Society in 1804, which had as its sole aim the production and distribution of vernacular scriptures all over the world, including England and Wales. Early in the nineteenth century the Church Missionary Society of the Anglican Church entered into an agreement about cooperation. Parallel Bible societies were founded in Scotland and the United States. In many parts of the world Catholic and Protestant Bibles were in competition. There are extensive records of Protestant liturgical translation into the languages of the mission fields: the Tamil translation of the Lutheran liturgy published in Ceylon in 1781 is far from unusual. Indeed, Anglican translation of the *Book of Common Prayer* into the languages of the Indian subcontinent helped lay the foundations for the development of Eastern forms of Christianity. During the nineteenth century most of the vernacular scriptures published by these bodies were translated in the field, often with the help of native speakers.

In the United States in particular, linguists began to take a large hand in Bible translation in the mid-twentieth century. After World War II American Bible Societies merged into the United Bible Societies (UBS) with its own periodical, *The Bible Translator*. On the evangelical side the work of UBS was grouped around the Summer Institute of Linguistics, also known as the 'Wycliffe Bible Translators.' One of its leaders was Eugene Nida (b.1914), whose work on the theory of translation focused specifically on the Bible. The linguistics of the mid-twentieth century, with its strong anthropological bias, suited this work.

The Qu'rān was also translated early into European languages. There is a 'curiosity-oriented' translation into Latin dating from the twelfth century ascribed to Robertus Ketenensis and Hermannus Dalmata. This was republished in 1543 by Theodore Bibliander (1504–64). There are also a few sixteenth-century Latin versions of the Qu'rān for the information of Christian missionaries. It was a popular book among European translators during the nineteenth century, versions being made in all the important European languages. Because Muslims have the same attitude to the Word of God as Jews, translation of the Qu'rān for religious purposes is suspect. Nevertheless, a number of modern translations into European languages have been tolerated by the authorities for use by Eur-

opean Muslims. The Western interest in Eastern religions has also occasioned much translation and commentary on the Hindu scriptures.

7. The Twentieth Century

7.1 Religious Translation

7.1.1 Christian

The dominant motivation was the increasingly urgent need to replace the great European language translations of the past by up-to-date versions. This coincided with two contradictory movements—the centripetal force of ecumenism which increased pressures towards a Bible common to all Christian churches, and the centrifugal forces created by new types of Christian and Jewish fundamentalism. In English there is a huge number of Bibles, the best known early twentieth-century ones being *The New Testament: A New Translation* by James Moffat in 1913, with the Old Testament following in 1924, and *The New Testament: An American Translation* by Edgar J. Goodspeed (1923). In 1931 a version of the Old Testament by Powis Smith and others was published with Goodspeed's, the whole being known as *The Bible: An American Translation*.

Among 'official versions' in English the most notable Protestant versions are the American *Revised Standard Version* (1952) from the International Council for Religious Education, and the British *New English Bible* (1961) which was initiated by the Church of Scotland but which eventually became a joint effort by most of the mainstream Protestant denominations. Later on a printing of the *New English Bible* was authorized by the Catholic Church. The Catholic church first published the *Westminster Bible* (1913), Msgr. Ronald Knox's version was published in its entirety in 1949, but was superseded by the *Jerusalem Bible* in 1966. The Knox is the last important version from the Vulgate, and it was done with a close eye on the Greek and the Hebrew texts.

Other important modern Bibles are the Spanish versions by Nalcar-Colunga (1944), and Bover-Cantera (1957). The Catalan version, from the Benedictine Monastery at Montserrat, began publication in 1926, but the work was suspended between 1936 and 1950 by the anti-Catalan policies of the Franco government.

The Roman Catholic and various Orthodox churches produced bilingual service books. Liturgical reforms instituted by Pope Pius X (1903–14) encouraged the production of a very large number of missals of various states of completeness for the laity. There were also a few translations of the Divine Office for the laity and certain religious communities. One of the most interesting of these is *Byzantine Daily Worship* (1969) translated from the Greek *Horologion* (Breviary) and the ancient liturgy of St John Chrysostom

for the Greek Uniate community worldwide. The Anglican Church continued translating the *Book of Common Prayer* into the languages of the British Empire and Commonwealth. Following Vatican II (1962–65) national commissions were set up throughout the Catholic world to organize the translation of the entire Roman Catholic liturgy into the vernaculars. For international languages like English, French, and German, there were international commissions that came to agreement on language standards and other matters. In the name of ecumenism the various churches cooperated in versions of common texts like the Creeds and the *Gloria in excelsis Deo*.

7.1.2 Jewish

The most notable Jewish Bible translators, mainly because of their very telling and coherent arguments for literal translation were the philosopher-theologian, Martin Buber (1878–1965), and Franz Rosenzweig (1886–1929), whose German Bible, with a preface, was published 1926–38. Their principles were taken up by Henri Meschonnic (1932) in France, and applied to secular translation as well. Jewish bilingual versions of the synagogue liturgies and private prayers go back a considerable time, at least to the sixteenth century. However, as Reform Jews began to worship in the local vernaculars, unilingual service books were produced from the middle of the twentieth century onwards. Among the Jewish Bibles in English, *The Holy Scriptures* by the Jewish Publication Society was published in 1917.

Probably the best of the modern versions is the French *Bible de Jérusalem* (1948–54) from the Ecole biblique de Jérusalem. The English *Jerusalem Bible* (1966) comes from the same team, and they also produced a Spanish translation (1987).

7.2 Technical Translation

The twentieth century saw the rise of the translating profession, centered on technical work. The trigger seems to have been the founding of the League of Nations in 1918. By that time many governments had translation offices for administrative purposes. After World War II these expanded quickly, following the postwar political and trade patterns. Private firms began to follow the lead of governments and created their own translation sections to translate everything from technical reports and instruction manuals to publicity. It was only a matter of time before freelance translators began organizing themselves as commercial operations and into societies like FIT (la Fédération Internationale des Traducteurs). Specialized training is a twentieth-century phenomenon, and it gained pace in the 1960s with courses being established in universities and specialized schools. There continued to be a lot of inhouse translator training; one

of the finest translation schools in the world being run by the electronics firm, Philips, in The Netherlands.

There has been a growing body of theory of technical translation, with some attempt to relate it to the mainstream literary and religious work. One obvious result has been the creation of specialities like terminologist and documentalist. The great expansion of translation in the first half of the twentieth century occasioned experimentation in machine translation (MT), which stemmed from a memo from an American founder of the field, Warren Weaver, in 1947 on applying code-breaking techniques to languages. Results have proved limited. Its most useful spinoff has been the development of automated dictionaries.

7.3 Literary Translation

At the beginning of the twentieth century literary translation remained what it had traditionally been, a searching apprenticeship for the creative writer. Nineteenth-century manners of translation spilled over into the first half of the twentieth with the vaguely Swinburnesque manner of the translations from Greek by Gilbert Murray (1866–1957), and the versions of modern and Classical literature from Valéry Larbaud (1881–1957), Paul Valéry (1871–1945), André Gide (1869–1951), and the English version of Proust by Scott Moncrieff. In Germany figures like Ulrich von Wilamowitz-Moellendorf (1848–1931) carried the Romantic tradition to its limits. Reaction against the tradition started at the beginning of the century with Rudolf Borchardt (1877–1945), and continued in literary writers like Walter Benjamin (1892–1940). In Slavic Europe, translation has remained an activity central to the work of creative writers without excluding specialist translators of literature.

The decisive break in the tradition came with Symbolist writers and writers under Symbolist influence like Ezra Pound (1888–1972), Yves Bonnefoy (b.1923), the Russian, Balmont (1867–1943), and the German, Walter Benjamin, who developed the Romantic idea of the language shape having its own meaning. Attitudes and practice range from Benjamin's attempts to get rid of meaning altogether, to Pound and Henri Meschonnic, who successfully walk the tightrope between sound and sense, with some striking results. Bonnefoy, in particular, comes very close to some of the twentieth-century theorizing on the linguistic element in translation in his Shakespeare translations.

Under the pressure of changes in education, translation from Classical languages diversified: beside translations for the reader's recreation grew up translations to help students, for example, in English-speaking countries the Loeb editions from Harvard University Press and William Heinemann, and in French the Editions Budé. Translation began to acquire its own impressarios: one of the most important was Betty Radice (1912–85), a Classical scholar and excellent translator in her own right, who was editor of the Penguin Classics series.

It is in the translation of modern languages that there has been the most change. Theater has taken the interest of many translators, even if at times they chafe against what producers do to their texts. Translation of libretti has continued, some of it anonymous, and opera has attracted people of the caliber of W. H. Auden (1907–73). As had happened during the Middle Ages, hitherto unimportant languages and literatures have gained worldwide recognition through translation. Eastern European work has become influential, and smaller European countries important, as they appreciate that translation provides access to a greater audience for their literatures. Indeed at times, translation into the languages of non-Communist Europe was the only way in which dissident writers like Milan Kundera in Czechoslovakia, and Alexander Solzhenitsyn in the former Soviet Union could be published at all. As well, former European colonies developed their own distinctive literary voice; they attracted the notice of translators, and produced translators themselves, for example, Octavio Paz from Mexico. The number of translators from the former European colonies in Africa and Asia has been growing. Many bilingual countries have attempted to foster literary translation for the sake of national cohesion: Canada, for instance, subsidizes translation of Canadian French writers into English, and vice versa. At times translation has been used as it had been in nineteenth-century Europe, as a nationalist rallying-point in Quebec, Scotland, and Wales.

Interest has grown in hitherto unconsidered literatures. Many Classical translators, for instance, Peter Green, have taken up translation of modern Greek literature. There has also been increased interest in Eastern literatures by translators like I. A. Richards and Achilles Fang. The twentieth-century literary prizes have had an important influence on the extent of translation: Nobel prizewinners like Patrick White, the Australian, and Alexander Solzhenitsyn, himself a fine translator, have been translated worldwide.

New areas of translation have developed, including popular fiction for the mass market (e.g., the works of detective writers Georges Simenon and Agatha Christie) and film-dubbing, which reconciles the sense of what is said with the observable features of lip and face movement.

Theories of translation have followed changes in linguistic and literary theory. Symbolist theories of literature have been most prominent in the translation theories of people like Ezra Pound and Yves Bonnefoy. In Eastern Europe, translation theory has been of vital interest, for example, within the Prague School, whose linguistic theories did not prevent them from producing extremely perceptive work on poetics and translation. Linguistic theories of translation have been a feature of the twentieth century, though usually

in complete isolation from the more traditional literary stream. In the English-speaking world, American structuralism gave rise to the theories and practice of the Summer Institute of Linguistics, typified by the work of Eugene Nida; and English translation theory has risen out of the work of J. R. Firth and M. A. K. Halliday. In the French-speaking world a contrastive linguistics applied to translation was developed from the Geneva School, chiefly from the theories of Charles Bally. Its first manifestation was the stylistique comparée of Malblanc, and Vinay & Darbelnet; it was further developed by reference to the theories of Gustave Guillaume and Antoine Culioli's theories on enunciation. Like the linguistics of Prague, contrastive linguistics takes account of discourse phenomena. The end of the 1980s saw some attempt to combine both linguistic and literary theories of translation by absorbing the idea of linguistic transfer into a concept of translation as a communicative act whose source and target texts are embedded in differing cultural matrices.

Bibliography

Bassnett-McGuire S 1981 *Translation Studies*. Methuen, London

Blake N F 1969 *Caxton and his World*. André Deutsch, London

Beer J (ed.) 1988 *Medieval Translators and their Craft*. Medieval Institute, Kalamazoo, Michigan

Cambridge History of the Bible 1963–70, 3 vols. Cambridge University Press, Cambridge

Cary E 1956 *La traduction dans le monde moderne*. Georg, Geneva

Cohen J M 1962 *English Translators and Translations*. Longmans for the British Council, London

Conley C H 1927 *The First English Translators of the Classics*. Yale University Press, New Haven, Connecticut

Courcelle P 1943 *Les lettres grecques en occident de Macrobe à Cassiodore*. De Boccard, Paris

Delisle J 1987 *La traduction au Canada 1534–1984*. Les Presses de l'Université d'Ottawa, Ottawa

Dunlop D M 1960 The work of translation at Toledo. *Babel* **6**: 55–99

Ellis R (ed.) 1989 *The Medieval Translator*. Boydell & Brewer, Woodbridge

Firth C H (ed.) 1939 *Lives of the English Poets*. Clarendon Press, Oxford

Horguelin P 1975 *Histoire de la traduction: Domaine français*. Linguatech, Montreal

Jourdain A M M B 1843 *Recherches critiques sur l'âge et l'origine des traductions latines d'Aristote*. Joubert, Paris

Kelly J N D 1975 *Jerome: His Life, Writings and Controversies*. Duckworth, London

Kelly L G 1979 *The True Interpreter*. Basil Blackwell, Oxford

Knox R A 1957 *On English Translation*. Romanes Lecture, Oxford

Kushner E, Chavy P (eds.) 1981 Translation in the Renaissance/Traduction à la renaissance. *Canadian Review of Comparative Literature* **8**(2) (whole issue)

Ladborough R W 1938–39 Translation from the Ancients in seventeenth-century France. *Journal of the Warburg Institute* **2**: 85–104

Lathrop H B 1967 *Translations from the Classics into English from Caxton to Chapman 1477–1620*. Octagon Books, New York

Lefevere A 1977 *Translating Literature: The German Tradition from Luther to Rosenzweig*. Van Gorcum, Assen

Leighton L G 1984 *The Art of Translation: Kornei Chukovsky's A High Art*. University of Tennessee Press, Knoxville, Tennessee

Matthiessen F O 1931 *Translation: An Elizabethan Art*. Harvard University Press, Cambridge, Massachusetts

Mohrmann C 1957 *Liturgical Latin: Its Origin and Character*. Burns & Oates, London

Mukherjee P 1981 *Translation as Discovery and Other Essays on Indian Literature in Translation*. Allied Publishers, New Delhi

Norton G P 1984 *Ideology and Language of Translation in Renaissance France*. Droz, Geneva

Piercy L T 1984 *The Mediated Muse: English Translators of Ovid 1560–1700*. Archon Books, Hamden, Connecticut

Pound E 1954 *Literary Essays of Ezra Pound*. New Directions, Norfolk, Connecticut

Rener F M 1989 *Interpretatio: Language and Translation from Cicero to Tytler*. Rodopi, Amsterdam

Santoyo J-C 1987 *Teoria y critica de la traducción: Antologia*. Universitat Autònoma de Barcelona, Bellaterra

Scott M A 1916 *Elizabethan translators from the Italian*. Houghton Mifflin, Boston, Massachusetts

Selver P 1966 *The Art of Translating Poetry*. Baker, London

Setton K M 1956 The Byzantine background to the Italian Renaissance. *Proceedings of the American Philosophical Society* **100**: 1–76

Steiner G 1975 *After Babel*. Oxford University Press, Oxford

Steiner T R 1975 *English Translation Theory, 1650–1800*. Van Gorcum, Assen

Strand K A 1961 *Reformation Bibles in the Crossfire*. University of Michigan Press, Ann Arbor, Michigan

Thorndike L 1923–58 *A History of Magic and Experimental Science*, 8 vols. Columbia University Press, New York

Tytler A F 1813 *Essays on the Principles of Translation*, 3rd rev. edn. Edinburgh. Repr. with an intro. by Huntsman J F 1978 Benjamins, Amsterdam

Weiss R 1950 Translators from the Greek of the Angevin Court of Naples. *Rinascimento* **1**: 194–226

Zuber O 1980 *The Languages of Theatre*. Pergamon, Oxford

Zuber R 1968 *Les belles infidèles et la formation du goût classique*. Armand Colin, Paris