Methodological notes

0 (ZERO)

Zero in this atlas usually means '0' in an absolute sense. However, it can also refer to very few or none yet identified. This is often the case in religious demography and we have added a white box to several maps to show this. Thus, if we report that there are '0' Hindus in a particular country in 2010, it should be understood as 'none known to us'. In fact, there are normally one, two, or a small number of religionists of all kinds in virtually every country.

CITIES

Throughout Part IV in the atlas we use the shorthand 'cities' to refer to the technical United Nations concept of 'urban areas' or 'urban agglomerations'. In the glossary, these are defined as agglomerations of 2,500 or more inhabitants, generally having population densities of 1,000 persons per square mile (391 persons per square kilometre).

COUNTRIES

Countries with multiple, geographically isolated parts (for example, USA with Alaska and Hawaii; Equatorial Guinea; Svalbard & Jan Mayen) are labelled on maps only on or beside the major part. To avoid reporting anomalous results, selected tables display data only for countries with >100,000 population. In most cases, figures for omitted countries may be found in or derived from the 'Country-by-country statistics' table in the Appendices.

CONGREGATIONS AND DENOMINATIONS

Data on average congregation and denomination sizes are presented for each major tradition on each continent. The same data are presented in both Part II (where data for each tradition are presented by continent) and Part III (where data for each continent are presented by tradition). The average congregation sizes were calculated by simply dividing the total number of adherents of a major tradition on a continent by the total number of congregations in that tradition on the continent.

Average denomination sizes were calculated similarly (total adherents/total number of denominations), with following provisos. First, for each major tradition, a denomination present in more than one country was counted as one denomination per each country. Thus, for example, the Russian Orthodox Church is Russia was considered a separate denomination from the Russian Orthodox Church in Kazakhstan. Second, the Anglican tradition was considered to consist of one denomination in each country in which it is present (169 in all).

Third, the Roman Catholic Church was considered to consist of 239 denominations; however, about half of all Christians globally are Roman Catholics. Therefore, the average denomination sizes for Catholics were calculated and reported using the number of dioceses in a continent (which, as first-level subdivisions of the Roman Catholic Church, function similarly to denominations in other traditions) rather than the number of countries. The number of dioceses for each continent were as follows: Africa, 491; Asia, 505; Europe, 752; Latin America, 775; Northern America, 265; and Oceania, 62.

EVANGELISATION

We estimate the percentage of a language or people that is evangelised by assessing Christian presence and evangelistic ministries at work among that language or people. Our basic instrument is a formula with 20 elements, each measuring a different aspect of evangelism. Each element has a code whose value represents the availability of a particular resource. The value is applied to the formula as a percentage of the population that is evangelised. The elements are as follows:

Positive factors (add to the total)
Intercessors (0–5)
Jesus film (0–4)
Audio scriptures (0–5)
New Reader scriptures (0–1)
Braille scriptures (0–1)
Signed/deaf scriptures (0–1)
Discipling/personal work (0–10)
Cross-cultural mission (0–16)
Mass evangelism (0–5)
Portions of scripture (0–1)
New Testaments (0–3)

Bibles (0–6)
Second-language scriptures (0–3)
Denominations (0–5)
Outside Christians (0–10)
Christian broadcasting (0–8)
Urban media (0–4)

Hindrances (subtract from the total)
Religious liberty (0–10)
Human development (0–2.5)
Literacy (0–2.5)

The initial assumption in constructing the estimate is that all Christians are already evangelised. Thus these 17 positive factors are added to the percentage Christian of a language or people. The final three elements are subtracted from the total at the end. For a more complete explanation of the method please see Barrett and Johnson, *World Christian Trends*, Part 24, 'Microevangelistics', pages 737–57. The 20 elements and code values are listed on pages 756–7.

GROWTH RATES

In all parts of the atlas, the average annual growth rate (in per cent per year) for a population of interest is calculated as

$$100 \times \left(\left[\frac{P_2}{P_1} \right]^{1/(y_2 - y_1)} - 1 \right)$$

where P1 is the population size in year y1 and P2 is the population size in year y2.

Two situations involving calculation of average annual growth rates are of special note. First, in Part III, rates of growth for the six major Christian traditions sometimes are not consistent with the over-all Christian growth rate. This is because the total Christian population is the sum of the six major traditions, plus unaffiliated Christians, minus doubly affiliated, minus disaffiliated. Therefore, the growth rate of the total Christian population is influenced by three factors that do not enter into calculations for the six major traditions. In the case of the doubly affiliated, multiple major traditions (or multiple minor traditions within a major tradition) can claim the same person as an adherent, with each growth rate reflecting that person's presence. Because such a person can be counted only once in the total Christian population, however, it is possible for the over-all growth rate for Christians in an area to be lower than the growth rate for any of the traditions individually.

The other special situation involves calculating growth rates when the starting population is zero. In such cases, to avoid dividing by zero in the rate equation (thus giving an infinite growth rate), an approximation of the growth rate was made by substituting 10 as the starting population (or 1 as the initial value if the final population value is less than 50). Note that the resulting growth rate estimate is subject to a much wider margin of error than where the true starting value is greater than zero.

This is especially true when the number of adherents of a particular religion is reported as 0 for an entire continent, as is the case for several in Part II. For example, Latin America had no known Baha'i in 1910. When calculating the 100-year average annual growth rates, the initial populations both for each region and for the continent as a whole were set to 10. As a result, the reported average annual growth rate for Baha'i in Latin America as a whole over the century (12.13%) was overestimated, because it exceeds the growth rate for the fastest-growing region, South America (11.74%). If the actual populations in each region in 1910 truly had been 10, the continent population would have been 30 (instead of 10 as used in the calculation), giving an average annual growth rate of only 10.91% for Latin America.

MAJOR TRADITIONS

A particularly attentive reader might notice that the total number of Christians reported in the 'Christians, 1910 and 2010' tables for each continent and region in Part III does not equate to the total obtained by adding the six figures in the corresponding 'Major traditions, 1910 and 2010' table. This is because, as noted above under 'Growth rates', the total number of Christians in any area consists of the figures for each of the six major traditions (Anglican, Independent, Marginal,

Orthodox, Protestant and Roman Catholic), plus the unaffiliated (those who claim no affiliation with a church), minus the doubly affiliated (those who are counted as affiliated with multiple major or minor traditions), minus the disaffiliated (one-time church members who have repudiated their membership).

Thus, the figures given for the major traditions can perhaps be considered a measure of 'affiliations' rather than individuals. A count of affiliations, unlike one of individual Christians, legitimately can exceed not only the number of Christians in an area, but also even the total population. While some of the affiliations reported by the churches are inaccurate (disaffiliated Christians; Christians who have left one tradition for another with no intention of returning), others are indeed accurate - at least to the doubly affiliated individuals who genuinely hold to dual identities (for example, as both Catholic and Protestant, or both Protestant and Independent, or in more than one minor tradition within a major tradition). Asking such individuals to select a single affiliation would seem, to them, arbitrary.

The pie graphs for major traditions in Part III (as well as in the section 'Global Christianity by major traditions' in Part II) were constructed by dividing the reported number of affiliations for each major tradition by the total for all six. Because the rectangle graphs in Part II (unlike pie graphs) cannot show fractions of percentages, they were constructed using the following method:

• The percentage values for each of the major traditions (obtained using the methodology for the pie graphs) were rounded to the nearest integer. Rounding was based on the procedure described under 'Religion "rectangles"' below.

• If the percentage values totalled more than 100%, adjustments were made to reduce the sum to 100%. Where possible, these adjustments were made based on the likely areas of double affiliation.

MAPPING

The Robinson projection is used for all maps, but the central meridian changes according to region. All maps are orientated with north pointing to the top of the page in the middle of the map. Looking front on at a globe of the earth, the shapes of countries look different when they are on the globe's edges than when the globe is turned and the countries are closer to the middle. Similarly, when a globe is projected onto a flat surface to become a map, the countries at the edge of the map likewise appear with some distortion. Most maps in this atlas, including all global maps, are centred on 0° longitude (known as the Greenwich Meridian or the Prime Meridian). Regional maps are centred on their region so that country distortion is minimised.

Thus, all global maps, Africa (continent and all regions), Europe (continent and all regions except Eastern Europe) and Western Asia are centred on the Greenwich (Prime) Meridian. Eastern Europe, Asia as a whole and South-central Asia are centred on 70° east of Greenwich. Eastern Asia, South-eastern Asia, Oceania as a whole, Australia/New Zealand and Melanesia are centred on 120° east. Micronesia is centred on 165° east, and Polynesia is centred on 150° west (or 210° east). Latin America (continent and all regions) is centred on 70° west of Greenwich, and Northern America is centred on 120° west.

Maps are partially stylised and obviously not designed for navigation nor intended as a political statement. Map scales are not included (maps are of well-known geographic areas). Antarctica and Siberia east of 180° are not shown on global maps. Maps of Europe do not show the full eastern or northern extent (refer to global maps instead). Bougainville (defined by WCD as a country) is included within the maritime border of Papua New Guinea. Disputed border areas were assigned arbitrarily to the geographically larger of the countries involved. Provinces on the maps do not always equate exactly to WCD province data, so the colour of a mapped province might have been determined by data from an adjacent or similar province. Maps do not generally show lakes within countries, the exception being the Great Lakes of Northern America, which are added to achieve more recognisable borders.

Maps are designed to convey a broad geographic overview of the data in question, and so fine detail of

small countries and provinces at times are not visible. In any case, maps are not an efficient method of looking up data for particular countries, which is a task better accomplished in a raw listing of the data.

Data ranges on maps
The chosen data ranges and the chosen colour of each category can make a significant difference to the impression any set of data can give. Colour differences imply significant data differences, but this might not be the case where two countries happen to straddle an arbitrary category boundary. The need for meaningful breaks in the data (termed 'natural' breaks), however, sometimes has to be balanced against the need for the map to describe the most interesting categories of data.

Natural breaks thus emphasise that the data values of one set of countries or provinces are different from the values for another set. Often a quantile map – where the breaks between groups of data fall at points that are not as relevant to the topic at hand – is more useful. Quantile maps also minimise the effect of outliers. To put it another way, on quantile maps, countries of the same colour might still have widely different values, but they are all of similar ranking. For example, on a quintile map countries are divided into five groups, and each group contains 20% of the countries. With natural break maps, four colours (groups) might be occupied by only one country each, but the remaining countries of the same colour are all of the same order of magnitude.

A third type of categorisation is that of pre-determined intervals, which are scaled for easy interpretation when the relative size is more important than the absolute size. Examples include the number of denominations in a country; for purposes of comparison between maps where each map otherwise would have a different set of natural breaks (such as comparisons between the years 1910 and 2010); and comparisons between religions (such as the percentages of personally evangelised Muslims versus personally evangelised Hindus). The intervals can be equal (20, 40, 60, 80, 100), or staged (0, 10, 40, 60, 90), or almost logarithmic (1, 50, 100, 200, 1000) as most suited to the data.

In practice, the atlas uses a combination of these methods, so that most variables are mapped with modified natural breaks (modified so that the breaks are a more convenient '5, 30, 60, 200' rather than '3, 27.5, 63.8, 218') or modified quantiles. All the larger religions are displayed at the same pre-determined scale to allow better comparison between religions. As a result, comparison between countries on a given map is sometimes sacrificed for better comparison between maps.

Most maps show data as percentages, so that small countries are not always forced into the lowest scale categories (lightest colours). Of course, maps showing total counts will almost by definition show smaller countries in a lighter shade. Readers should also be aware that if the darkest colour of a colour ramp is relatively light, then the impact of the highest category will appear relatively muted.

Mapping languages
Language maps are sometimes useful for conveying the intricacy hidden beneath country or province averages, but can suffer because only one language can occupy any one area on a thematic map. In practice, priority is given to indigenous languages, and this often leaves no place to map large populations of 'migrant' languages (however long the language has existed in the country). Further, the indigenous language areas often are located in places where many people, or even the vast majority, now speak different languages; but still only one language can be mapped in that location without resorting back to province or country averages, and widespread languages may miss out altogether. There are also large scattered areas of the world that do not have a specific language associated with them, so for the purposes of this atlas they have been allocated to the majority language of the country. Finally, it should also be noted that in some cases the attributes of a widespread language can hide differences that show up at the province level. Tree maps of languages are thus employed in the atlas to complement the geographic language maps by more accurately conveying the dominance of widespread languages

and the complexity of the sheer numbers of smaller languages.

The difference between the mapping of ethno-linguistic people groups and the mapping of language groups is subtle. In cases where the language is identified closely with a single people group, the difference is strictly numerical. For instance, assume language 'AA' is associated with people group 'A' (this is especially the case when the people name and language name are the same or very similar, as with Japanese/Japanese, Russians/Russian, or Turks/Turkish). The number of people who speak language AA as their mother tongue is thus (total size of people group A) minus (members of people group A who speak a different language as their mother tongue) plus (members of other people groups who speak AA as their mother tongue). Because the second and third categories are likely to be small relative to the over-all size of the people group in such cases, the number of native speakers of 'language AA' is often close to the size of 'people group A' in a specific country. Other data (such as adherence to different religions) will then also be similar between the people group and the language (which can serve as a surrogate for the people group).

In some cases, of course, this does not apply, particularly when a single 'national language' is spoken as a mother tongue by members of many people groups. Outstanding examples include Spanish and Portuguese in Latin America, along with English in Northern America and Australia/New Zealand. In such cases, tree maps – because they show population as well as percentage religion – can highlight differences (both between peoples who speak the same language and between a people and the composite for its native language) that physical maps cannot.

Mapping programme
Geography from Global Ministry Mapping System 2007 (GMMS); language locations from World Language Mapping System. The source for both programmes is Global Mapping International, 15435 Gleneagle Drive Ste 100, Colorado Springs, CO 80921, USA. More information on the programmes can be found at their web site (http://www.gmi.org).

Modifications to maps
Maps appearing in this atlas have been modified from the GMMS formats in the following ways:
Country maps
• added Kosovo and other *World Christian Database* countries
• modified Kashmir's India–China border
• removed Antarctica
• removed Siberia east of 180˚
• removed lakes (to be consistent with province maps), except the Great Lakes in the USA/Canada
Oceania maritime boundaries
• modified from lines to polygons and added Guam
Province maps
• combined GMMS provinces where the corresponding WCD entities were larger
• where GMMS provinces were larger than WCD entities, coloured the entire area of the GMMS province according to data for the largest, closest or most representative WCD entity
• added Kosovo and other WCD countries
• added the Great Lakes to the province map of Northern America
Language maps
• for Northern America, merged uninhabited areas in the USA into the language area (polygon) for English, and removed the Great Lakes
• on all other language maps, coloured areas that not covered by a specific language according to the largest language for the country in which they occurred

MISSIONARY SENDING
The sending and support of foreign missionaries is overwhelmingly the work of affiliated Christians – persons who belong to or are connected with organised congregations. Therefore, the tables and scatterplots in Part V report the number of missionaries sent from each country and continent as per million affiliated Christians (rather than per million total Christians). Figures for affiliated Christians are available in the *World Christian Database*.

PERSONAL CONTACT
In recent years the concept of translation has become one of the significant motifs in Christian mission, not only for Bible translation but for the serial expansion of Christianity around the world. The starting point of translation is personal contact, in which a Christian, from any other culture or tradition, learns the language and culture of the people he or she is trying to reach. In normal missionary practice, this means making friends. With this in mind, we have recently been asked, 'How many Muslims have a Christian friend? How many Hindus personally know a Christian? How many Buddhists have significant contact with Christians?' Considering these questions carefully, we realised that the concept of personal contact was built into the measurements we had previously made related to evangelisation of ethnolinguistic peoples. For our study of evangelisation mentioned above, we isolated 20 variables measuring evangelisation among every ethnolinguistic people in the world (Barrett and Johnson, *World Christian Trends*, 756–7). Two of these variables relate very closely with personal contact between Christians (of all kinds) and non-Christians. The first, 'discipling/personal work', is an indication of how much contact local church members have with non-Christians. The second, 'outside Christians', extends this concept further by looking at the presence of Christians from other peoples who live nearby. Under normal circumstances, the more Christians there are nearby, the more likely the contact between Christians and non-Christians. Thus, for every non-Christian population in the world there is an indication of Christian presence and contact. A formula was then developed to make an estimate of those personally evangelised (contacted) by Christians. The formula applied to each ethnolinguistic people is (Population 2010 * [Disciple Code (0-10) + Outside Christian Code (0-10)]) / ([100-Christian Percentage] * [Percentage Non-Christian]). Separate values for these two codes are reported for each ethnolinguistic people. These are added up for each country, region, and continent, producing a global total reported in this atlas. Listing of the world's peoples with these variables appear in Barrett, Kurian, and Johnson, *World Christian Encyclopedia*, 'Part 8 Ethnosphere' vol. 2, 30–241 and in the online *World Christian Database*. For a more complete treatment on this subject see Todd M. Johnson and Charles L. Tieszen, 'Personal Contact: The *sine qua non* of Twenty-first Century Christian Mission', *Evangelical Missions Quarterly*, October 2007, pages 494–502.

POPULATION DATA
Population figures for the world as a whole, the 21 United Nations regions and most countries were obtained from *World Population Prospects: The 2006 Revision*, (http://esa.un.org/unpp), prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. Data for countries not listed in *World Population Prospects* were obtained from national surveys and census.

For cities listed in Part IV, 2010 populations were taken from *World Urbanization Prospects: The 2007 Revision*, also prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (New York: United Nations, 2008). Figures for 1910 are from Tertius Chandler and Gerald Fox, *3000 Years of Urban Growth* (New York: Academic Press, 1974).

PROVINCES
The term 'provinces' as used to describe major civil divisions by country in Part III is normally the first level of political subdivision. In some countries, such as Canada, the first level of political subdivision below the national level is in fact called a province. In other countries, a province is a second-level subdivision, usually below a region (for example, in the Philippines, Italy and Spain). Thailand, as another example, has 76 provinces (really 75 plus Bangkok) that are first-level administrative subdivisions but which often are grouped into (non-administrative) regions for statistical purposes (and the number of regions varies with the agency).

Thus, our list of provinces is an attempt to describe the world by the first order of major civil division in each country. This results in the use of different subdivision levels for different countries. For example, Britain is shown divided into its four

constituent countries (England, Scotland, Wales and Northern Ireland). The European Union's Nomenclature of Territorial Units for Statistics (NUTS) actually divided England – but not the other three countries – into multiple first-level subdivisions (NUTS-1), while all four countries are subdivided in various ways by the British government. Norway, however, is shown divided into its 19 *fylker* (counties), which are NUTS-2 but more like provinces (NUTS-1 is the whole country). And Spain, mentioned above, is also depicted by its NUTS-2 regions (autonomous communities). As another example, Russia is shown divided into its seven federal regions rather than its 83 federal subjects (which are really more analogous to the idea of 'province'). For practical purposes, several provinces are missing from their regional maps (for example, Hawaii is not on the Northern America map; the Canary Islands, the Azores and Madeira are not on the Europe and Southern Europe maps).

RELIGIOUS DIVERSITY
The Religious Diversity Index (RDI) used in this atlas is derived from a modification of the Herfindahl Index (HI) formula. The Herfindahl Index (also called the Herfindahl-Hirschman Index), which measures the concentration of competitors within a market or industry, is calculated as the sum of the squares of the market share of each competitor. That is,

$$HI = \sum_{i=1}^{N} s_i^2$$

where s1, s2 , … sN represent the percentage shares of each competitor and N is the total number of competitors.
    The RDI is calculated as

$$RDI = 1 - \left[\frac{\rho - \frac{1}{N}}{1 - \frac{1}{N}} \right]$$

$$\text{where } \rho = \sum_{i=1}^{N} \left[\frac{r_i}{100} \right]^2$$

and r1, r2 , … rN represent the percentages of a country's total population that profess adherence to each of N different religions (in this atlas, N = 18); each ri value is divided by 100 to change it from a percentage into a fraction. Thus, when a population exhibits the maximum possible religious diversity (each religion claims an equal percentage of adherents), then ri = 100/N for each religion, ρ = 1/N and RDI = 1. Conversely, if there is no religious diversity (that is, 100% of a country's population adheres to a single religion), then r1 = 100, all other r values = 0, ρ = 1 and RDI = 0.

RELIGION 'RECTANGLES'
When forming the religion 'rectangles' for 1910 and 2010 in Part III, the following rules were applied:
Initially
• Round numbers ending in '.7' or greater up and numbers ending in '.6' or less down (so 0.7 = 1 and 0.6 = 0).
• Place any religion with less than 0.7% of the population in the 'All other religions' category.
If the total for the region is over 100%:
• Rank the religions by size.
• Starting with the largest, round each one down until the total is 100%. For example, if Christians are 72.8%, round down to 72% to make the total 100%. But if Christians are already 72.2%, keep that figure at 72% (don't change it to 71%) and move on to the second-ranked religion.
• Do not round down if the figure is 0.7%, 0.8%, or 0.9%, however.
If the total for all religions (using the initial rounding instructions) is less than 100%, round up according to the following hierarchy until the total reaches 100%:
• Individual religions with values of 0.6%. If the new value of 'All other religions' ends in .7 or greater, round it up; otherwise, round it down (but see below).

• Individual religions with values of 0.5%. If the new value of 'All other religions' ends in .7 or greater, round it up; otherwise, round it down (but see below).
• 'All other religions' valued at 0.6% (after any individual religions have been removed and rounded up).
• 'All other religions' valued at 0.5% (after any individual religions have been removed and rounded up).
• Any other religion ending in .6 (such as 7.6, 52.6).
• Any other religion ending in .5 (such as 3.5, 98.5).
• If the total is still less than 100% at this point, proceed to (1) any religion at 0.4% included in 'All other religions'; (2) 'All other religions' valued at 0.4%; (3) any other individual values ending in .4; and so on, until the total for all categories is 100%.
As examples of the above:
• If 'All other religions' is 2.3% and a religion with 0.6% is removed, round the individual religion up to 1% and the rest of 'All other religions' up to 2% (from 1.7%). The sum total has now increased by 1%: from 2% for 'All other religions' to 3% for 'All other religions' (2%) plus the new individual religion (1%).
• If 'All other religions' is 1.8% and a religion with 0.5% is removed, round the individual religion up to 1% and the rest of 'All other religions' down to 1% (from 1.3%). The sum total has not change as a result: it has gone from 2% for 'All other religions' to 2% for 'All other religions' (1%) plus the new individual religion (1%). Therefore, the process must be continued according to the scheme described above.

RENEWALISTS
The atlas views the twentieth-century Renewal in the Holy Spirit as one single cohesive movement into which a vast proliferation of all kinds of individuals and communities have been drawn in a whole range of different circumstances. Whether termed Pentecostals, Charismatics or neocharismatics, they share a single basic experience.
    The case for the statistical presentation of the Renewal as a single interconnected movement can best be made by considering how the movement starts off and spreads in any area, from the days of the earliest Pentecostals to those of current Charismatics and neocharismatics. The start of the movement anywhere has always been an unexpected or unpredictable happening rather than the result of any human planning or organisation. First, individuals (at random across the existing churches), then groups, then large numbers in organised movements become filled with the Spirit and embark on the common Charismatic experience. All of them, originally, can collectively and correctly be termed Renewalists. All these Renewalists find themselves living initially within existing mainline nonpentecostal churches and denominations. But before long evictions begin, and ejections, withdrawals and secessions occur in varying degrees. First, various individuals, then groups, then whole movements are forced into schism or opt for it and so begin separate ecclesiastical structures and new denominations.
    From its beginnings in this way, the Renewal has subsequently expanded in three surges or waves.

First Wave: Pentecostals
These are defined as Christians who are members of the major explicitly Pentecostal denominations whose major characteristic is a rediscovery of, and a new experience of, the supernatural, with a powerful and energising ministry of the Holy Spirit in the realm of the miraculous that most other Christians have considered to be highly unusual. This is interpreted as a rediscovery of the spiritual gifts of New Testament times, and their restoration to ordinary Christian life and ministry.
    Pentecostalism usually is held to have begun in the USA in 1901. For a brief period Pentecostalism expected to remain an interdenominational movement within the existing churches without beginning a new denomination, but from 1909 onward its members increasingly were ejected from all mainline bodies and so forced to begin new organised denominations.
    Pentecostal denominations hold the distinctive teaching that all Christians should seek a postconversion religious experience called baptism in the Holy Spirit, and that a Spirit-baptised believer may receive

one or more of the supernatural gifts known in the Early Church: instantaneous sanctification; the ability to prophesy, to practise divine healing through prayer, to speak in tongues (*glossalalia*) or to interpret tongues; singing in tongues, singing in the Spirit, dancing in the Spirit, praying with upraised hands; dreams, visions, discernment of spirits, words of wisdom, words of knowledge; miracles, power encounters, exorcisms (casting out demons), resuscitations, deliverances, signs and wonders.
    From 1906 onward, the hallmark of explicitly Pentecostal denominations, by comparison with Holiness/Perfectionist denominations, has been the single addition of speaking with other tongues as the 'initial evidence' of one's having received the baptism of the Holy Ghost (or Holy Spirit), whether or not one subsequently experiences regularly the gift of tongues. Most Pentecostal denominations teach that tongues-speaking is mandatory for all members, but in practice today only 35% of all members have practiced this gift either initially or as an ongoing experience.
    Pentecostals are defined here as all associated with explicitly Pentecostal denominations that identify themselves in explicitly Pentecostal terms, or with other denominations that as a whole are phenomenologically Pentecostal in teaching and practice.

Second Wave: Charismatics
These are defined as Christians affiliated to non-Pentecostal denominations (Anglican, Protestant, Catholic, Orthodox), who receive the experiences above in what has been termed the Charismatic Movement. The Charismatic Movement's roots go back to 1907 and 1918, but its rapid expansion has been mainly since 1950 (later called the Charismatic renewal). Charismatics usually describe themselves as having been 'renewed in the Spirit' and experiencing the Spirit's supernatural and miraculous and energising power. They remain within, and form organised renewal groups within, their older mainline nonpentecostal denominations (instead of leaving to join Pentecostal denominations). They demonstrate any or all of the *charismata pneumatika* (Greek New Testament: gifts of the Spirit) including signs and wonders (but with *glossalalia* regarded as optional). The whole Movement is sometimes termed the 'Second Wave' of the twentieth-century Renewal. Concerning the key word, note that 'In the technical Pauline sense *charismata* (AV, gifts) denote extraordinary powers, distinguishing certain Christians and enabling them to serve the church of Christ, the reception of which is due to the power of divine grace operating in their souls by the Holy Spirit' (*Thayer's Greek–English Lexicon of the New Testament*, 1886, 1977: 667).
    Charismatics (or, until recently, Neopentecostals) usually are defined as those baptised or renewed in the Spirit within the mainline nonpentecostal denominations, from the first mass stirrings in 1918 in Africa on to the large-scale rise from 1950 of the Charismatic Movement (initially also termed Neopentecostalism to distinguish it from Classical Pentecostalism) who remain within their mainline nonpentecostal denominations. The Movement was later called the Charismatic Renewal. Note that many individuals and groups in the mainline churches already had been receiving baptism in the Spirit without publicity for many years before the usually quoted beginning dates.

Third Wave: Neocharismatics or Independent Charismatics
Since 1945 thousands of schismatic or other independent Charismatic churches have come out of the Pentecostal or Charismatic Movements; these independents have from 1900 to the present numbered more than the first two waves combined. They consist of evangelicals and other Christians who, unrelated or no longer related to the Pentecostal or Charismatic Renewals, have become filled with the Spirit, or empowered or energised by the Spirit and experiencing the Spirit's supernatural and miraculous ministry (though usually without recognising a baptism in the Spirit separate from conversion); who exercise gifts of the Spirit (with much less emphasis on tongues, as optional or even absent or unnecessary) and emphasise signs and wonders, supernatural miracles and power encounters; and who leave their mainline nonpentecostal denominations but also do not identify themselves as either Pentecostals or Charismatics. In a number of countries they exhibit

Pentecostal and Charismatic phenomena but combine this with rejection of Pentecostal terminology. These believers frequently are identified by their leadership as Independent, Postdenominationalist, Restorationist, Radical, Neo-Apostolic or the 'Third Wave' of the twentieth-century Renewal. Because they constitute a major new revitalising force, in this atlas we also term the movement the Neocharismatic Renewal.

Also largely Pentecostal or semipentecostal are members of the 250-year-old Independent movement of Christians, primarily in the Global South, or churches begun without reference to Western Christianity. Though indigenous denominations, which, though not all explicitly Pentecostal, they nevertheless have the main phenomenological hallmarks of Pentecostalism (including Renewalist spirituality; oral liturgy; narrative witness/theology; dreams and visions; emphasis on filling with the Holy Spirit; healing by prayer; atmospheric communication [simultaneous audible prayer], and emotive fellowship). The case for enumerating adherents of these movements as Renewalists has been fully made by W. J. Hollenweger, in 'After twenty years' research on Pentecostalism,' *International Review of Mission* (April 1986), and *Pentecostalism* (1997).

ROUNDING
For display purposes, large numbers are rounded using a custom function which tiers the amount of rounding according to size, allowing smaller values to retain their meaning. For example, in a table of country populations, rounding all populations to the nearest 1,000 would leave countries with fewer than 500 people showing as zero population. Calculations, however, such as growth rates and percentages, are made on the unrounded 'actual' values for greater accuracy between tables. Numbers in some of the pie charts do not add up to 100% due to rounding.

SOCIO-ECONOMIC AND HEALTH DATA
Data for the six socio-economic indicators and the six health indicators described in Part I and listed in the 'Country-by-country statistics' section of the Appendices were obtained from a variety of sources. The primary references are listed below, along with the indicator(s) for which they provided data.
• Joint United Nations Programme on HIV/AIDS (UNAIDS), 2008 Report on the Global AIDS Epidemic (Geneva: UNAIDS, 2008) – HIV

• Transparency International, '2008 Corruption Perceptions Index', http://www.transparency.org/news_room/in_focus/2008/cpi2008/cpi_2008_table (last accessed 26 March 2009) – Corruption
• United Nations Development Programme, Human Development Report 2007/2008 (New York: Palgrave Macmillan, 2007) – Human development, income, education, adult literacy, life expectancy, infant mortality
• United Nations Statistics Division, 'Millennium Development Goals Indicators Database', http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=605 (last accessed 26 March 2009) – Internet use
• United Nations Statistics Division, 'Millennium Development Goals Indicators Database', http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=665 (last accessed 26 March 2009) – Safe water
• World Health Organization, World Malaria Report 2008 (Geneva: WHO Press, 2008) – Malaria
• World Health Organization Department of Human Resources for Health, 'Global Atlas of the Health Workforce', http://who.int/globalatlas/dataQuery/reportData.asp?rptType=1 (last accessed 26 March 2009) – Physicians
No single source of data for all 239 countries in this atlas was available for any of the 12 indicators. Therefore, figures also were obtained from numerous secondary sources – both print and on-line – including governmental, non-governmental and academic. This was particularly true for non-sovereign countries and for nations with small populations. When data were either unavailable or severely outdated, figures were estimated based on comparisons with countries having similar social and economic conditions.

STATISTICAL CENTRE OF GRAVITY
The data for calculating the geographic centre of gravity of Christianity are set out in detail on pages 319–34 in *World Christian Trends*, which utilises the United Nations classification of all countries, from which this atlas derives its definition of the North as the 50 countries in Europe plus the five in Northern America; and the South as all other 184 countries in Africa, Asia, Latin America and Oceania. The table below reproduces these estimates for the number of Christians in millions in each of the 21 current United Nations regions at 25 points in history. These

estimates were used as the baseline of this analysis. The following steps were taken to estimate the statistical centre of gravity of Christianity. First, latitude and longitude were assigned (second and third columns in the table) for an approximate geographic centre for each UN region based on geography and population patterns. Second, these coordinates were recalibrated by depicting southern latitudes as negative numbers (50°S = -50) and then adding 90 to all latitudes. This produced a range of 0 at the South Pole to 180 at the North Pole. Longitude was recalibrated by retaining values for all eastern longitudes while subtracting all western longitudes from 360 (100°W = 260). This produced a range of 0 to 350 (10° west of Greenwich) by moving eastward around the world from Greenwich. Third, the number of Christians (in millions) in each region (found in the table below) was multiplied by the recalibrated latitude, summed for every region, and then divided by the total number of Christians in the world. Repeating the process, substituting longitude for latitude, then produced an approximate geographic centre (latitude and longitude) for Christianity, expressed in recalibrated form. These values were then converted to actual latitude and longitude and appear in the table on page 53 in columns 5 and 6. Note that adjusting either the geographic centre of a single UN region or the estimate of the number of Christians in a region would change the location of the statistical centre (latitude and longitude) for any given date.

TREE MAPS
Tree maps of people groups and languages were constructed using Enterprise System 2 (ES2) software (Breuer & Co., 500 Edgewater Drive Ste 557, Wakefield, MA 01880 USA; website http://www.breuer.com). For every continent except Asia, tree maps depict all peoples and native languages. Tree maps for Asia depict only people groups with 5,000 or more members and only languages with 2,000 or more native speakers. For the entire world, the threshold values for depiction are 30,000 for both peoples and languages. These global and Asia threshold values were necessary to ensure clarity in the resulting tree maps and resulted in the omission of 4,180 peoples (with 29 million members) and 3,865 languages (with 26 million native speakers) from the global tree maps, and 660 peoples (with 1.2 million members) and 377 languages (with 300,000 speakers) from the Asia tree maps.

Statistical centre of gravity

Number of Christians in millions by UN region and by North/South dichotomy, AD 33–AD 2100

UN Region	Lat	Lon	33	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	1970	2000	2025	2050	2100
THE 'NORTH'																										
EUROPE																										
Eastern Europe	55° N	40° E	—	0.01	0.10	0.30	0.70	1.00	1.40	1.70	2.30	2.70	5.00	8.00	11.50	14.20	13.50	19.80	24.00	32.00	56.00	151.94	158.22	239.50	233.93	196.58	205.00
Northern Europe	60° N	10° E	—	0.01	0.10	0.20	0.40	0.70	0.80	0.85	0.90	1.20	2.60	3.50	4.80	6.30	4.70	6.90	8.50	12.30	21.70	56.89	75.76	77.41	80.33	81.00	67.00
Southern Europe	40° N	10° E	—	0.25	1.60	4.00	7.80	9.40	8.00	7.00	7.50	8.00	10.00	12.00	15.00	19.50	14.00	19.00	25.50	26.50	39.00	68.55	111.63	120.53	123.34	115.58	83.00
Western Europe	50° N	5° E	—	0.04	0.15	0.60	1.20	2.70	4.20	6.00	7.20	7.50	8.50	11.50	17.00	25.00	16.00	24.00	33.00	41.00	55.00	103.27	146.93	135.05	126.11	115.27	110.00
NORTHERN AMERICA																										
Northern America	40° N	100° E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	5.60	78.81	211.58	260.56	304.64	331.52	310.00
Total in NORTH			0.00	0.31	1.95	5.10	10.10	13.80	14.40	15.55	17.90	19.40	26.10	35.00	48.30	65.00	48.20	69.70	91.00	112.20	177.30	459.46	704.12	833.04	868.36	839.96	775.00
THE 'SOUTH'																										
AFRICA																										
Eastern Africa	4° S	40° E	—	—	—	0.01	0.30	0.50	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.40	1.70	1.80	2.00	2.50	3.00	4.52	55.09	162.96	313.79	483.27	550.00
Middle Africa	0°	20° E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.02	0.04	0.08	0.19	30.67	79.28	159.80	266.62	335.00
Northern Africa	30° N	10° E	—	0.09	0.91	3.00	3.92	5.00	5.30	4.80	3.45	2.01	1.06	1.10	1.10	1.00	1.00	1.00	0.80	0.70	0.85	2.70	7.99	15.08	21.94	28.10	37.00
Southern Africa	25° S	25° E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.10	2.06	19.30	42.36	49.80	53.01	61.50
Western Africa	10° N	0°	—	—	—	—	—	—	—	—	0.01	0.01	—	—	—	—	—	0.03	0.08	0.15	0.30	0.47	31.87	84.74	155.04	224.41	260.00
ASIA																										
Eastern Asia	35° N	110° E	—	—	—	—	—	—	—	0.01	0.30	0.50	0.10	0.05	0.60	0.80	0.01	0.01	0.10	0.40	0.30	2.17	11.03	104.26	202.03	251.34	240.00
South-central Asia	30° N	70° E	—	0.20	0.80	2.40	4.00	10.90	12.00	11.00	9.00	8.50	7.00	7.30	7.50	7.70	0.80	0.20	0.40	1.00	0.85	4.60	27.26	54.13	100.56	130.98	185.00
South-eastern Asia	5° N	110° E	—	—	—	—	—	—	—	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.20	1.00	2.20	8.41	51.72	107.28	162.78	197.19	250.00
Western Asia	33° N	35° E	0.01	0.20	1.00	3.50	7.00	7.60	8.20	8.60	9.50	9.60	9.50	7.50	7.00	8.00	5.00	3.00	3.30	3.80	5.00	6.74	6.37	12.76	14.78	15.84	26.00
LATIN AMERICA																										
Caribbean	20° N	70° W	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.04	0.30	1.70	6.72	19.90	31.47	39.72	43.07	46.50
Central America	20° N	110° W	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.00	3.00	5.00	17.77	68.30	130.22	170.48	188.76	237.00
South America	20° S	60° W	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.10	1.50	5.00	8.20	37.52	183.18	322.04	417.73	462.34	540.00
OCEANIA																										
Australia/NZ	30° S	150° E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	4.44	14.52	17.54	19.94	21.17	23.00
Melanesia	15° S	170° E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	3.00	6.35	9.92	12.79	14.30
Micronesia	10° N	150° E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.06	0.23	0.46	0.62	0.72	1.52
Polynesia	20° S	160° W	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.11	0.41	0.59	0.73	0.80	1.18
Total in SOUTH			0.01	0.49	2.71	8.91	15.22	24.00	26.00	25.02	22.97	21.43	18.57	16.96	17.41	18.91	8.53	6.19	9.44	17.91	27.68	98.70	530.85	1,171.52	1,839.67	2,380.39	2,808.00
Global total			0.01	0.80	4.66	14.01	25.32	37.80	40.40	40.57	40.87	40.83	44.67	51.96	65.71	83.91	56.73	75.89	100.44	130.11	204.98	558.16	1,234.97	2,004.56	2,708.03	3,220.35	3,583.00

For each year the UN region with the highest number of Christians is highlighted. A dash signifies no Christians in that year.
Source: D. B. Barrett and T. M. Johnson, Table 7-2, *World Christian Trends*, William Carey Library, 2001, pp. 319–34.