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**THE CALENDAR, THE MILLENNIUM, COMPUTER TECHNOLOGY
AND THE CERTAINTY OF BIBLE PROPHECIES**

by

Olawale J. Omotosho; *PhD, MInstMC, CEng.*
Babcock University, Ilishan-Remo,
Ogun State, Nigeria.

**476-00 Institute for Christian Teaching
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Silver Spring, MD 20904 USA**

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Olawale J. Omotosho; *PhD, MInstMC, CEng.*

Dean, Faculty of Science & Technology, Babcock University, Ilishan-Remo, Ogun State, Nigeria

ABSTRACT

This paper examines the controversial question as when a new millennium begins vis-a-vis the widely publicized computer millennium bug which has come and gone without much catastrophes as anticipated. The paper presents the basis or fundamental principle of time scale and the relationship of the birth/death of Jesus Christ as a reference point of numbering a length of time that we know as a year. Consequence to this, some calendars were constructed which now form the basis of calculating when a decade, a century and a millennium ends and another one begins. The paper also highlights how computer millennium bug compounded the confusion as a result of the fact that computers count in binary number system instead of decimal numbers that human beings are used to.

The paper relates the concept of time and dating of events with the Bible prophecies to establish the certainty and supremacy of the Word of God. It also reveals that God's time has an absolute reference point while man's time has as many relative reference points as there are conventions; hence the accuracy and variability of the two time elements respectively.

Summary notes of different calendars are also presented to illustrate that the beginning/ending of any millennium depends on which calendar is the reference. The paper is therefore to educate and share knowledge about the controversy over the correct beginning of a new decade, a new century and a new millennium and to make everyone aware that what is most important is the expectation of the second coming of our Lord Jesus Christ whether or not millennium is starting now or yet to begin or has since commenced.

1.0 INTRODUCTION

I was inspired to write this paper by the different arguments and debates about the beginning and the ending of a new millennium, which came up on national dailies and electronic media early last year and which was followed by big celebrations in many countries of the world. I became more interested when I noticed that some members of our church, SDA, took a definite position on the issue (Ref.: Sabbath School Bible Study Guide 2000). Another point of interest is the computer phenomenon known as the millennium bug which, was the most widely publicized anticipated disaster in history. This was probably why the awareness of a millennium beginning or ending became prominent at the time and it generated a lot of interest in different quarters. Individual arguments were so tense that the importance of living seems to be lost to me (that is, living for Christ, waiting for His second coming, etc). I therefore decided to write this paper not necessarily to provide a logical conclusion why some SDA members believes that a new millennium actually began on January 1, 2000 but to highlight the essence of time - the second coming of Jesus Christ.

In order to appreciate this essay, we must remember the concept of integration of faith and learning as explained by Rasi¹ and Mathews². While the ultimate goal is to have both faith and knowledge fully integrated or one assimilating the other, there is need to recognize that there may be areas that are Faith-specific and Knowledge-specific separately distinct on their own right as depicted by the figure 1.0 below. The size of such areas depends on the subject matter that is being considered.

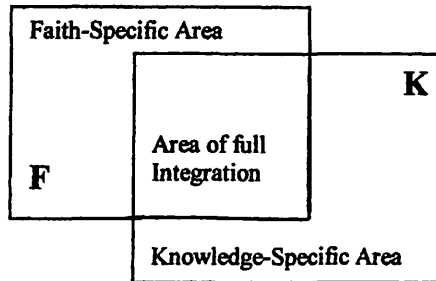


FIGURE 1.0 : CONCEPT OF INTEGRATION OF FAITH (F) AND LEARNING (K)

In the subject matter that this essay will address, the area of full integration may not be seen to be broad but it is important to know that when God kicks off a phenomenon, the subsequent consequences will not hold if such phenomenon is ignored. In effect, no matter how small the area of integration may be, as long as the origin of a concept could be traced to its source, which is Almighty, the author believes that the subject matter is fully integrated. This is why the postulate of Holme³ that "all truth is God's truth" is unquestionably accepted. Rasi¹ also echoed and justified this postulation with an appropriate Bible passage in his paper like this: "If there are discrepancies between "God's truth" and "human truth", it is because we misunderstand one or both. Since in Christ 'are hidden all the treasures of wisdom and knowledge' – Col 2:3, all truth is God's truth."

2.0 POST COMPUTER MILLENNIUM BUG

In the early part of the year 1999, computer experts suddenly realized that the way computers were designed and programmed to recognize dates would be inadequate by the year 2000. If this awareness was earlier appreciated, say 3-5 years before the year 2000, all it would have needed was to correct the anomalies in subsequent models. No one (or at worst, only a few users) will suffer any loss of data due to such phenomenon or inadequacy since serious computer users change/replace their computer installations with the latest models after an average of 2-3 years. By the year 2000, all the defective/old models would have been phased out within this period of awareness without anyone

¹ Humberto M. Rasi, Faith, Reason, and Choice: Loving God with all our Mind, a paper delivered at the Integration of Faith and Learning Seminar held at Babcock University, June 17-28, 2001

² John Mathews, Integration of Faith & Learning I & II, papers delivered at Integration of faith and Learning Seminar held at Babcock University, June 17-28, 2001

³ Arthur F. Holme, The Idea of a Christian College, 1999 Revised Edition, William B Eerdmans Publishing Company

knowing the danger that was to befall the entire computer world. How many of such similar limitations might have been corrected in the past without the knowledge of the public, thereby avoiding unwarranted panic and noise-making!

The problem of computer millennium bug, as it can be seen today, is more of time lag between the experts' awareness and the public and the way and manner the issue was handled. It was like killing an ant with a sledge hammer. The actual problem fundamentally stemmed from three main issues:

- a) Two-digit storage
- b) Leap Year calculation and
- c) Special meaning of "dates".

The two-digit problem was about the most widely known of the problems associated with Year 2000 bug, and this occurs when software has been written to store/and manipulate dates using only two digits for the year instead of four.

Leap year calculation is less widely known as one of the problems associated with Y2K but it is no less vital. Generally, leap years are calculated by a set of simple rules. A year is a leap year:

If it is divisible by four (4), but if it is divisible by a hundred (100), it is not a leap year.

Applying the above rules will not indicate that the year 2000 is a leap year. This may cause some systems and applications that do not recognize the year 2000 as a leap year to fail and such systems will cause dates following February 29, 2000 to be off-set, incorrectly, by one day. The Year 2000 is a special case of a leap year that occurs every 400 years. Hence, the following modification of the rules:

If it is divisible by four (4), but if it is divisible by a hundred (100), it is not a leap year, but if it is divisible by four hundred (400), it is a leap year.

The awareness of computer millennium bug extended into the controversy of millennium origin/ending. It posed a different dimension that equally took the attention of the public at about the same period. This limitation due to date format was partly as a result of memory size consideration and the level of technology available as at the time the format was developed. Therefore, what happened was a normal phenomenon caused by the dynamics of nature as predicted by Daniel (Daniel 12:4 – knowledge will increase). The more knowledge, superior arguments and better light, the more possibilities exist to cause changes of conventions, practice, norms, etc. Man and his environments are dynamically stable only within God's plan of creation.

The implication of computer millennium bug, amongst others, is to map future events on the time scale of the past since the year 2000 will be read and used as 1900. This will consequently override the past events and destroy history. This would have been more serious in the world of religious history if it happened and computers remained the heart of Information Technology (IT). The redemptive work of Jesus Christ would have been lost to the future generations. It is better imagined than real. However, such disaster that will prevent the plan of God will surely be avoided divinely, even if all other things fail.

3.0 THE ESTABLISHMENT OF DAYS & NUMERALS THROUGH CREATION

God was and He is a God of order hence, the origin of numbers. He is therefore, the first and the greatest mathematician and computer specialist. To examine this, let us go into the Scripture: (Note all quotations are from the KJV Bible, except otherwise stated)

Gen 1:1-5

In the beginning God created the heaven and the earth and the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters. And God said, Let there be light: and there was light. And God saw the light, that it was good: and God divided the light from the darkness. And God called the light Day, and the darkness He called Night. And the evening and the morning were the first day. *This is the equivalent of numeral one (1).*

Gen 1:6-8

And God said, let there be a firmament in the midst of the waters, and let it divide the waters from the waters. And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament: and it was so. And God called the firmament Heaven. And the evening and the morning were the second day. *This is the equivalent of numeral two (2).*

Gen 1:9-13

And God said, let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so. And God called the dry land Earth; and the gathering together of waters called He Seas: and God saw it was good. And God said, let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so. And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good. And the evening and the morning were the third day. *This is the equivalent of numeral three (3).*

Gen 1:14-19

And God said, let there be lights in the firmament of the heaven to divide the day from the night; and let there be for signs and for seasons, and for days and years: And let them be for lights in the firmament of the heaven to give light upon the earth: and it was so. And God made two great lights; the greater light to rule the day, and the lesser light to rule the night: he made the stars also. And God set them in the firmament of the heaven to give light upon the earth, And to rule over the day and over the night, and to divide the light from the darkness: and God saw that it was good. And the evening and the morning were the fourth day. *This is the equivalent of numeral four (4).*

Gen 1:20-23

And God said, let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven. And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that it was good. And God blessed them, saying, Be fruitful and multiply, and fill the waters in the seas, and let fowl multiply in the earth. And the evening and morning were the fifth day. *This is the equivalent of numeral five (5).*

Gen 1:24-31

And God said, let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so.....And God said let us make man in our own image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image, in the image of God created he him; male and female created he them.....And God saw every thing that he had made, and behold, it was very good. And the evening and the morning were the sixth day. *This is the equivalent of numeral six (6).*

Gen 2:1-2

Thus the heavens and the earth were finished, and all the host of them. And on the seventh day God ended his work which he had made; and he rested on the seventh day from all his work which he has made. *This is the equivalent of numeral seven (7).*

The creative work of God forms all bases for all principles and ideologies of every subject matter that man may wish to develop and that man has developed. In the foregoing bible passages, I am concerned in highlighting only two basic facts that are relevant to the subject matter the essay is to address. These are:

- **Order:** As can be seen from sequence of creation, it leads to numbering/counting which is the fundamental of complex mathematics. Notice that this form of counting (i.e counting without figure zero in base 10 number system) was that which was known at the time the Bible was written. The concept of figure zero as a separate digit beginning any sequence of single-symbolled chain of numbers became prominent when it was discovered that there are other number systems other than the decimal numbers. The question one may therefore ask here is: Where is figure zero (0) in the above sequence? But remember before the creation of the heaven and the earth, there was God; this can therefore be the figure zero (0) in this sequence. Note that this agrees with the concepts of theism by Sire⁴, which recognizes that God is different from His creatures (cosmos).
- **Seasons, Days, and Years:** These form the bases of world calendars and times. The basic unit of time from the Scripture is "day". A further study reveals that this unit can further be broken down to *hours, minutes* and *seconds* on the lower side and *seasons*,

⁴ James W Sire, Disciple of the Mind: Learning to Love God in the ways we think; Inter Varsity Press 1990

years, months and weeks on the upper side. This has been studied in greater details in the field of Astronomy and only the summary required for this paper will be presented in the section below.

4.0 MEASUREMENT OF TIME

It has been seen (section 3.0) that events at a particular location can be placed in a unique serial order, the temporal order. This is obviously pre-scientific. The problem we are now concerned with is that of providing a measure of separation within this order – a measure, that is to say, of temporal intervals. The Scripture has separated this order by the term “the evening and the morning” equating it to a day. Another question is: by what method(s) can these temporal intervals be measured?

Denbigh⁵ provided three essential features, based on the opinion of another scientist, Carnap (1996), that any method employed to measure time must meet certain conditions.

- i) the method must satisfy a condition of additivity: If the ending of a temporal interval, (a) is simultaneously with the beginning of another interval, (b), we require that the total interval from the beginning of (a) to the ending of (b) is the arithmetic sum of intervals (a) and (b) separately.
- ii) The method must obey the rule of congruence: A rule which specifies when temporal intervals are equal
- iii) Finally, a unit of time must be derivable from such a method.

It has been realized for many centuries that periodic processes seem to offer the best candidates for the satisfying of these conditions. Therefore, it is natural to choose any one of these processes as providing a unit of time. For instance, if the unit ‘the day’ is chosen as the period of one revolution of the earth relative to a fixed star (sun), temporal intervals would be measured as so many multiples or fractions of this unit.

The large class of periodic processes provide the acceptable time measure, this class is by no means the only reasonable method for the purpose. A possible alternative would have been the class of radioactive decay since all radioactive elements obey the same law. In this essay, the relative motions of the celestial bodies are employed for the time measure.

4.1 THE CALENDAR

Probably the first practical use to which early civilizations put their astronomical knowledge was the devising of calendars, which were essential for organizing the social, economic and religious life of their society. The units of time required to construct calendars are the days, weeks, months and years. These are determined and defined by the relative motions of celestial bodies as follows:

1. A complete cycle of motion of the earth about its own axis is measured as ONE DAY. The precise duration is 23 hours, 56 minutes and 4.09 seconds (23H, 56’, 4.09’’)⁶. As a result of this motion and the spherical shape of the earth, different parts of the earth face the sun at different

⁵ Kenneth G. Denbigh, *Three Concepts of Time*, Springer-Verlag, Berlin Heidelberg, New York (1981)

periods⁶; hence creating night (evening) and day (morning) as quoted above (Gen 1: 1-31)

2. ONE MONTH is regarded as the time (27 days, 7 hours, 43 minutes, 11.5 seconds – *sidereal month*) taken for the moon to make one orbit of the earth or the period (29 days, 12 hours, 44 minutes, 2.8 seconds – *lunar month*) of one full moon to the next.
3. A complete cycle of motion of the earth round the sun is measured as ONE YEAR. The precise duration is 365 days, 6 hours, 9 minutes and 9.54 seconds (365D, 6H, 9', 9.54'')

The examples above consider earth motion relative to its axis and the sun; hence these derivations are termed solar days and solar years. Calendars that are devised on the basis of solar parameters are SOLAR CALENDARS. If the motion of the moon relative to the earth is measured, such measurements are known as lunar parameters and any calendars constructed using such lunar parameters are referred to as LUNAR CALENDARS.

From the above explanation, it becomes clear that

1. Many different calendars could be constructed based on different relative motions of different celestial bodies.
2. Using relative motions of any particular celestial body will still result in different calendars because the precise parameters are not exactly multiples of one another. That is, 7days is not exactly one hundred and sixty-eight hours (24hr x 7days = 168hr) as it is assumed in our present day calendar. Such approximations accumulate and must be compensated for. Different methods of compensation result into different calendars amongst other factors.

If compensations are not made, for instance, three minutes and fifty-five point nine-one seconds (24 hr – 23 hr 56' 4.09'' = 3' 55.91'' = 3.932 minutes) would have been added to each day of a time period. The following formula can be derived to calculate the actual year, correct to two decimal places if the only error is due to the above approximation:

$$\text{Actual Year} = \text{Current Year} \times 0.99727.$$

Example: Calculate the actual year for year 2000.

Actual Year = 2000 x 0.99727 = 1994.54. This implies that the world is yet to finish the twentieth century. That is, the world is shifted over five years backwards for an error that is less than 0.28%. This has demonstrated how the extent of human's inaccuracies (as a result of sin, separating Knowledge

⁶ The World Book Encyclopedia, World Book Inc. 1990

from Faith) can mar or distort the plan of God from generations to generations.

4.1.1 TYPES OF CALENDARS

Because there are several ways of measuring and defining each of these basic units of time, numerous different calendars have been developed through the ages, and even today, a number of cultures use calendars that differ from the Western type, such as the Islamic calendar, Jewish calendar and several Oriental calendars. There is no room in this essay to present all kinds of calendars. However, the author considers it pertinent to use Gregorian calendar as a model here because most dates referred to in our present day theology are with reference to this calendar.

Gregorian calendar:

This is the Western calendar mostly used today and is principally based on the sun. A day consists of 24 hours and a normal year of 365 days, divided into 12 months (*January, February, March, April, May, June, July, August, September, October, November, and December*) of between 28 and 31 days each. This leads to certain discrepancies, the most significant resulting from the fact that the solar or tropical, year is 365.242 days (365D, 6H, 9', 9.54'') long. Compensation is made by adding an extra day to February every fourth year, creating a 'leap year' of 366 days (except certain century years). This calendar was introduced by Pope Gregory XIII and first adopted in France in AD 1582 and adopted by America, Britain and its colonies in AD 1782 (200 years after France). Russia did not adopt it until 1918, and Turkey changed to it in 1927. It is a modification of the Julian calendar. The modification is done by eliminating those centenary years not divisible by 400 as leap years and advanced the date to correct previous mistakes.

The important thing to note in all the different calendars is that the reference points in time are different. Consequent to this, time, dates of same events will be quoted differently in the environment of the different calendars. Hence, Millennia in the Gregorian calendar are not Millennia in another. Other calendars are, *The Babylonians, The Egyptians, The Romans*. The computer millennium bug with the associated controversy over when a new millennium begins concerns only the countries of the world that use Gregorian Western calendar.

5.0 COMMENCEMENT OF NEW MILLENNIA BASED ON COUNTING MODE

Table 1.1 shows the sequence of counting logically in the first column titled 'COMPUTER COUNTING NUMERALS' and the sequence of counting traditionally or historically in the third column titled 'NATURAL (HUMAN) COUNTING NUMERALS'. Computer counting of numerals begins with zero (0) instead of one (1) which human beings learnt from the cradle – the natural counting numerals. The table shows the counting of decades, centuries and millennia. From the table, one can determine when these groups of numbers (decades, centuries and millennia) start and end in either counting sequence. This depicts one basis of controversy.

Traditionally and historically, counting is associated with physical, discrete and concrete articles in most cases by human beings. That is, a one (1) means an existence of one (1)

article. The concept of zero (0) meaning a zero (0) article cannot be imagined at infant stage when these numerals are normally being taught since there is nothing to see or feel. Counting is thus assisted by seeing and feeling; thus, anything that cannot be seen or felt does not contribute to the total sum of the numerals being counted. This in-built feeling or concept has lost a zero digit in the decimal number system of counting making the counting therefore incomplete. To gain the lost digit, an extra count is usually supplied at the end of the count; hence the new millennium is pushed a year ahead. That is, the new millennium has just started this year, 2001. Consequently, when anyone celebrates an x-birthday, the person is obviously beginning his/her $(x+1)^{\text{th}}$ year of life.

The advent of computer technology has called for a development of different a branch of mathematics called Boolean Algebra⁷ as a sub set of Binary Algebra. As a result of this, the concept and theory of number systems is today a valid and accepted proof of counting or manipulating numerals of any number system. The Decimal Number System is just one of many of such systems and this is what human beings have learned, known by heart and have been using to-date while a computer uses its binary equivalent to perform all its functions. Since computers are not human beings to see or feel, counting by computers is purely based on logical sequence, uninfluenced by external stimulus. Thus, zero (0) has its proper position in the orderly arrangement of all the single-symbol digits of any number system. (Example: For the Decimal Number System, DNS, the digits are as follows: – 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, as against 1, 2, 3, 4, 5, 6, 7, 8, 9, of the human counting sequence and for binary, BNS the bits are as follows: – 0, 1). Hence, as far as computer readout is concerned (more so that in a computer age) a new millennium has begun last year, 2000.

The public has suddenly become aware of the possibility of a new millennium beginning last year, 2000 simply because of the much publicized computer millennium bug. However, because of the manner in which human beings count numerals as explained above, many believe that a new millennium would not begin until this year, 2001 and this has generated a lot of controversy the world-over. The awareness of the computer millennium bug seems to have alerted human race that the sequence of counting has shifted the reference point of measurement from one (1) to zero (0) and hence a millennium is now shifted by one whole year (365days) forward while the solar system which determines the lengths of time has essentially remained unchanged in its natural state as God created it. This phenomenon has demonstrated the limitations of human discoveries (science/mathematics). The only way known by which time has changed from its time reference point, as different from geographical differential margins among countries in the world, is by a fundamental change in the solar system, which was brought about by God's decree as a result of Joshua's request from God. This example can be found in Joshua 10¹²⁻¹³ RSV,

“Then spoke Joshua to the Lord in the day when the Lord gave the Amorites over to the men of Israel; and he said in the sight of Israel, ‘Sun, stand thou still at Gibeon, and thou moon in the valley of Aijalon.’ And the sun stood still and the moon stayed, until the nation took vengeance on their enemies. Is this not written in the book of Jashar? The sun stayed in the mist of heaven, and did not hasten to go down for about a whole day.”

⁷ Ismail, Amin R & Rooney, Victor M; Digital concept and Applications, Saunders College, 1994

Millennium or no millennium, its starting and ending points are man-made, hence the confusion caused by it is not traceable to God and therefore whatever figure is set for its beginning and end cannot be absolute. Mathematical explanations as to how computers are made to work have created what today seems controversial and results in two opinions of when a new decade, a new century and a new millennium begins. If the computer theory which has given rise to this controversy is to be upheld as a new reference point of all number systems, which of course, it is, in the opinion of the author, the entire concept of numbers as known today by man would have to change and this would affect all past records (mainly dates & figures). There is the need to reconcile the present with the past.

5.1 COMMENCEMENT OF NEW MILLENNIA BASED ON THE BIRTH & DEATH OF JESUS CHRIST AS A REFERENCE POINT.

The above explanation uses an arbitrary point of reference based on counting of numerals to determine the correct commencement of a new millennium between the two alternatives derived from Gregorian calendar (i.e year 2000 or 2001). Since the reference point is not an absolute one, that is, it is not an agreed reference point by the whole human race (caused by the use of different calendars), it is logical to say therefore, that there would have been many other alternatives spoken or unspoken about. The only point of reference that could be common to the human race is that of creation or the birth/death of Jesus Christ or any other accessible dates of birth/death of a notable hero or heroine acceptable to the whole human race. Gregorian calendar is based on the birth/death of Jesus Christ since it is predominantly used in the Western part of the world where Christianity is practiced. Therefore, there is a need to establish the relationship between the various dates (years) and identify the different millennia in order to know if there is merit in the controversy or not.

Figures 1.1 and 1.2 show the graphical representation of Table 1.1 relating all figures (in years) to the birth and death of Christ. In Figure 1.1, the assumption is that 0 BC = AD 0; that is, at the end of the last years Before Christ (i.e 0 BC), Christ was born, marking the beginning of His life span (i.e AD 0). If this assumption is correct, then the 3rd Millennium begins in the year 2000 (Figure 1.1) corresponding to the computer counting of numerals.

Unfortunately, this assumption is grossly erroneous. Neither 0 BC nor AD 0 existed in the counting sequence of man. Logically, the time Christ was born automatically marked the end of the era referred to as BC 1 and the beginning of AD 1; that is, 1 BC = AD 1, the origin of the graph in Figure 1.2. There was also the possibility that the duration (length of time, e.g, days) of 1 BC is shorter than the rest 2 BC, 3 BC, ...etc because the probability that Christ was born at exactly the end of 1 BC is highly unlikely (cannot be ascertained). When this logical reasoning is applied, the origin of the graph in Figure 1.1 is shifted by one unit to the left as depicted in Figure 1.2 from where it becomes obvious that the beginning of the 3rd Millennium will not come up till the year 2001, corresponding to the human counting of numerals.

6.0 CERTAINTY OF ADVENTIST BELIEFS

William H Shea⁸ defined a Seventh-day Adventist as a Christian who observes the seventh-day Sabbath and who is preparing for the Saviour's second coming. More importantly, Seventh-day Adventist Church finds her identity in the biblical truth and understanding of the prophecies of Daniel and Revelation which is taught with sound biblical proofs.

According to Shea and Gerhard Pfandl⁹, there are different schools of interpretation of the apocalyptic prophecies of Daniel and Revelation. To mention but a few, they are as follows:

Futurists:- The Futurists accept the authorship of Daniel and his prophecies in the 6th century BC but do not agree that the little horn in Daniel 7 represents Papacy or another power in the past. Rather the little horn represents a future personality who will act as Antichrist. In essence, the time elements are interpreted as literal time.

Preterist:- This interpreter believes the book of Daniel is a revelation from God but limits the fulfillment of its prophecies to the time period which spans between the time of Daniel in the 6th century BC and the birth of Jesus Christ or the end of Roman Empire. The time elements in the prophecies are interpreted as literal time; hence shorter periods are involved.

Historicist:- Daniel's prophecies are interpreted to cover the entire historical period from Daniel's days to the final eschaton without any gap or interruption since Daniel is regarded as an historical person. That is, the time elements are interpreted as symbolic representation of longer periods of historical time. Hence, longer periods are derived according to the principle that a "prophetic day" stands for a "year" of actual calendrical time extending through the historical events in which they were fulfilled..

Amillennialist:- Its interpretation of time elements is also symbolic but believes that it does not represent any specific length of literal historical time.

Adventists employ the historicist school of interpretation to arrive at the understanding of the apocalyptic prophecies of Daniel and Revelation and today, the church is well known to be the exponent of the historicist principle of prophetic interpretation. This interpretation has fitted reasonably and accurately into human historical events such as:

- 3^{1/2} times = 42 months = 1260 days for the persecution of God's people referred to twice in Daniel (7:25, 12:7) and five times in Revelation (11:2,3; 12:6,14; 13:5).
- 10 days = 10 years for the persecution referred to in Rev. (2:10) during which the church at Smyrna was to experience tribulation. When this time period was interpreted according to the year-day principle, it fits very well with the Diocletian persecution from AD 303 to 313.
- Chronologically, the 70 weeks of Daniel 9 are related to the sabbatical year of Leviticus 25 through their fulfillment historically in the known postexilic sabbatical years of 457BC, AD 27 and AD 34.

⁸ Selected Studies on Prophetic Interpretation, Daniel and Revelation Committee Series, Volume 1, 1992 Revised Edition.

⁹ The time of the End in the Book of Daniel, published by Adventist Theological Society.

- 2300 days = 2300 years of Daniel 8:14 can be cited along with the 70 weeks of Daniel 9:24-27 as a time period that spans kingdoms

How well are these long standing and approved principles affected by the discoveries of science as regards time, calendars and computer millennium bug discussed earlier?

The astronomical derivation of time periods suggests that one time period is not different from another, hence, one day, one month, one year or one season, as the case may be, is very identical to another. Thus, an equal length of time period remains the same duration irrespective of the reference point. However, the duration may vary if plotted on a different scale of time periods. For example, a 2-day time period on a 7-day week will be equivalent to an hypothetical $1\frac{3}{7}$ -day time period on a 5-day week. The corollary or converse of this example is equally true; that is, 2-day time period on an hypothetical 5-day week will be equivalent to $2\frac{4}{5}$ -day time period on a 7-day week. This is similar to equating a number system of one base to another with a different base in mathematics or equating one currency to another in monetary markets.

The only significant attribute of time periods that makes a particular periods differ from another is the events that take place during the different time periods. No wonder Nweton-Smith¹⁰ defines time as a system of temporal items like events, processes, occurrences, changes, happenings, incidents, etc, where, by temporal items we understand things like instants, moments, durations, etc. He further explains "if we call up the impression of a particular moment, we at best produce the faded image of what event that happened at the moment. Like the human soul, the moment itself entirely eludes our grasp. Time, then, in virtue of being a system of abstract temporal items, is a rich source of philosophical perplexity. Consequently, we expect a satisfactory general account of time to include an account of what we are talking about when we talk about these temporal items." Hence, periods are usually referred to and known in terms of the reigns of different kings, since they used to be the most important figures who used to dictate the tone of events in the early days. A time period can therefore, be said to be absolutely and fully described if

- a length of time is known
- an apocalypse takes place during the period and
- a true reference point is specified.

6.1 GOD'S TIME Vs MAN'S TIME

All numbers and dates, as we know them today are referenced to arbitrary but agreed points of reference by 'man'. Such human-established reference points are different from the true reference point referred to in Gen 1:1 and Jn 1:1 which is God's point of reference, (the absolute-zero point and the origin). Human beginning is arbitrary, human ending is infinite, mathematically represented by a symbol known as infinity (∞); but God's beginning and ending are both found in Jesus Christ (Rev. 1:8 and Col. 1:15-20). The scale of time of God is therefore, undoubtedly different from that of 'man' and it is undisclosed in literal form. It is therefore, not surprising to have two scales of time depicted in the Scripture; one for the historical narratives or classical prophecies (referred

¹⁰ W.H Newton-Smith, The Structure of Time, 1st Edition 1980, Published by Rontledge & Kegan Paul

to as literal time scale) and the other for the apocalyptic prophecies in Daniel and Revelation (referred to as symbolic-representation time scale). The parallel of this, is what Denbigh described as “The Objectivity₁ and The Objectivity₂ of Time¹¹”. Examples of the historical narratives or classical prophecies can be found in:

- the cases of the 120 years to which man’s wickedness was limited before the Flood (Gen. 6:3),
- the 400 years prophesied for the oppression of Abraham’s descendants in Egypt (Gen.15:13),
- the 7 years of drought and famine prophesied through Joseph (Gen. 41:27),
- the 3^{1/2} years of drought and famine prophesied through Elijah (1 Kings 17:1) and
- the 70 years of exile for God’s people prophesied by Jeremiah (Jer. 25:11).

All the time elements in this type of prophecies are measured in man’s time (The Objectivity₁ of Time of Denbigh⁵)

The apocalyptic prophecies are usually given in the realm of the spirit which presupposes that the time elements of such prophecies are highly likely to be on a different scale of time from that of the physical realm. Thus, the historicist interpretation of the time elements of apocalyptic prophecies becomes a reasonable thing to do in order to align the various periods to that of the human physical realities and events. The parallel phenomenon is found between computer numbers (Binary Number System) and human numbers (Decimal Number System) where $100111_2 = 39_{10}$. The examples of apocalyptic prophecies and their symbolic interpretation of time have already been given in section 6.0 above.

In all cases, the reference points (where specified) are human reference points, hence time elements with human reference (or without reference at all) cannot be said to be absolute. They can only be finite with particular reference. For effective and meaningful communication amongst the people of the world therefore, a common and agreed reference point must be established concerning any measure. Hence, different conventions for different applications are established. A few examples are: American Standard Code for Information Interchange, ASCII and Extended Binary Coded Decimal Interchange Code, EBCDIC, for computer usage, International System of Units established by the General Conference of Weights and Measures for weights and measures and calendars for time and durations which have enabled ‘man’ to have records of history. There are many more of such conventions.

Denbigh⁵ equally postulates as follows: “for dating purposes, one needs a reference time, taken as zero, and this involves a convention. He also agrees that obviously, we do not know the exact ‘time’ when Jesus was born, not even to within a day. When we speak on a January 1st or 2nd of being in, say, the year 1978 what exactly do we mean? Paradoxical though it may seem, it is really to take whatever is the present year as being its own

¹¹ The Objectivity₁ of Time is that which is dependent on the notion of “the present”. There is no strong evidence concerning whether or not it would make sense to speak of “the present” if man did not exist. All timing which is based on human awareness during a moment may well be subject to an error.

The Objectivity₂ is the notion of time which makes no reference to “past”, “present” or “future”. This is more abstract than Objectivity₁.

reference year! Thus, when 1978 is the present year, what we are doing in effect on January 1st is to count backwards by 1978 units of a year to a time when Jesus was supposedly born. Presumably there is an official at Greenwich whose pleasant duty it is, each January 1st, meticulously to record the adding of 1 to the AD, thus ensuring the soundness of the whole system of dating”.

As time periods are shifted, based on any agreed conventions, so also are the associated events without loss of information and/or substance as long as the chronological order of the events are maintained. The fact that a new reference time is adopted does not cancel the events that have happened within a period of time, neither does it eliminate the consequent actions required to follow the events at a known time interval.

Since all prophetic time durations are principally given without particular reference points in time but in events, all the established hypotheses employed to arrive at different dates remain valid and they are not in any way violated or threatened by the astronomical theory of time periods. No wonder that Shea⁸ said, “regardless of the precise chronological starting point chosen for them, the 70 weeks of Daniel 9 should start sometimes in the Persian period, since, according to Ezra and Nehemiah, it was under one or another of the Persian kings that reconstruction of the city of Jerusalem began.”

6.2 THE SANCTITY & OBSERVANCE OF THE 7th DAY SABBATH

Though the establishment of time periods by scientific observations and calculations explained above conspicuously show that no one time period is different from one another, it leaves room however, to allow the time periods to be identified differently by the different events or activities that occur therein. Hence, the days are classified or numbered as 1st, 2nd, through the 7th day by God’s act of creation as earlier presented in section 3.0 of this essay. The 7th day of creation stands out distinctly by the following virtues, amongst others:

- a) The 7th day was given a specific name, the Sabbath as against all other days that are described as 1st, 2nd e.t.c. (Luke 23:54,24). Even the 6th day derived its name from the Sabbath as ‘the preparation day’. Sabbath remains the reference point throughout the old testament and possibly to date.
- b) The 7th day was hallowed, sanctified, blessed and pronounced a holy-day by God himself (Gen. 2:3).
- c) God laid a practical example of the Sabbath rest by not creating anything on that day i.e. God rested on the 7th day (Gen. 2:1-2).
- d) God’s people are always reminded to keep the day holy and do no work of their own on that day (Ex 20, Isa 58^o13-14).
- e) The 7th day was the only day manner was not provided for collection to signify the observance of the Sabbath as a holy day to the Israelites (Ex 16:25-30).
- f) The only day when 2 lambs, instead of one, were offered as a sacrifice, the burnt offering (Num. 28:9-10).

From the foregoing passage, the 7th day is the Lord’s day.

7.0 CONCLUSION

In conclusion, the year numbering is nothing but a theoretical construction, one which is built on the basis of primitive terms. It is not absolute and regular. There were years that were based on 10 months [*Martius, Aprilis, Maius, Junius, Quintilis (means five), Sextilis (means six), September (means seven), October (means eight), November (means nine), and December (means ten)*] as against the present popular 12-month years. Hence intervals between years are irregular and cannot be absolutely defined; consequently, the absolute beginning of any millennium cannot be determined. However, a millennium relative to a particular year is mathematically determinable. Another reason why absolute millennium cannot be said to begin from an imaginary origin of Figure 1.1 and/or Figure 1.2 is that the exact date¹² of the birth of Christ is not known. Many records take their reference point between arbitrary dates (years) Christ lived and died. Thus, any figure of such records are expressed as AD (Anno Domini), meaning "The Year of our Lord" rather than "After the death of Christ," AD' (see Figures 1.2 & 1.2). The Year of our Lord, AD includes the life span of Christ while the other, AD' excludes this period. Years expressed in AD, therefore could have up to 34 possible reference points depending on when exactly in the life span of Jesus Christ is taken, hence there are 34 possible beginnings of a millennium.

If the whole world (at least a greater percentage of the world population) has celebrated the beginning of the 3rd Millennium in January 1, 2000, let it be. But who is wrong and who is right? This confusion should not be surprising because it can be regarded as another "Tower of Babel", Gen 11:1-9.

Mathematics is the mother of inventions, be it engineering or technology or science. It is the language and tools employed to measure and understand principles of all physical phenomena. It is superior to feeling, instinct or any other dictates except that of the Holy Spirit who does come unambiguously to say 'thus said the Lord'. Since computers are products and tools developed to solve complicated and complex mathematical problems with high degrees of accuracy, the beginnings of new millennia, computed by computers are the valid and meaningful records, based on Gregorian calendar. A new millennium has thus begun in January 1, 2000 AD; anyone believing that new millennium has just begun this year, 2001 is certainly living behind computer age.

More importantly, it is significant to note that the Scripture is an inspired writing, expressing the redemptive plan of God for mankind from generations to generations. Its interpretations, therefore spans beyond human reasoning and logic. Its contents are as accurate as God Himself reveals and meet the needs of all times and ages, hence it is referred to as a Living Bible. Its provisions surpass any technological advancements and scientific discoveries or explanations. One cannot therefore expect the millennium controversies as a result of the origin, unit and format of dates to contradict the provisions of the prophecies of the Scripture. This essay has tried to maintain the supremacy and the

¹² Biblical Dictionary, Index and Concordance of The Holy Bible, Authorized King James Version - Jesus was born about 4 BC according to the calendar that is based on erroneous calculations by Exiguus who renumbered 754 of the Roman table to AD 1 but whose sixth century figures are four years in error.

certainty of the Word of God as revealed in different ways through classical and apocalyptic prophecies.

The question to ask now is; how does this knowledge help us to be ready for the second coming of Jesus Christ, controversy or no controversy? One thing that is certain about the second coming of Jesus Christ is that there is no controversy about it. When and how He will come are not in doubt. This can be found in different part of the scripture, Acts 1:11, Jn. 14:3,18,28, Rev 1:7 just to quote a few. The Holy Spirit, who has accuracy, precision and reliability of time and space, has revealed this good news and not by any mathematical hypothesis or computer ingenuity that may be changed by another discoveries "tomorrow".

8.0 REFERENCE

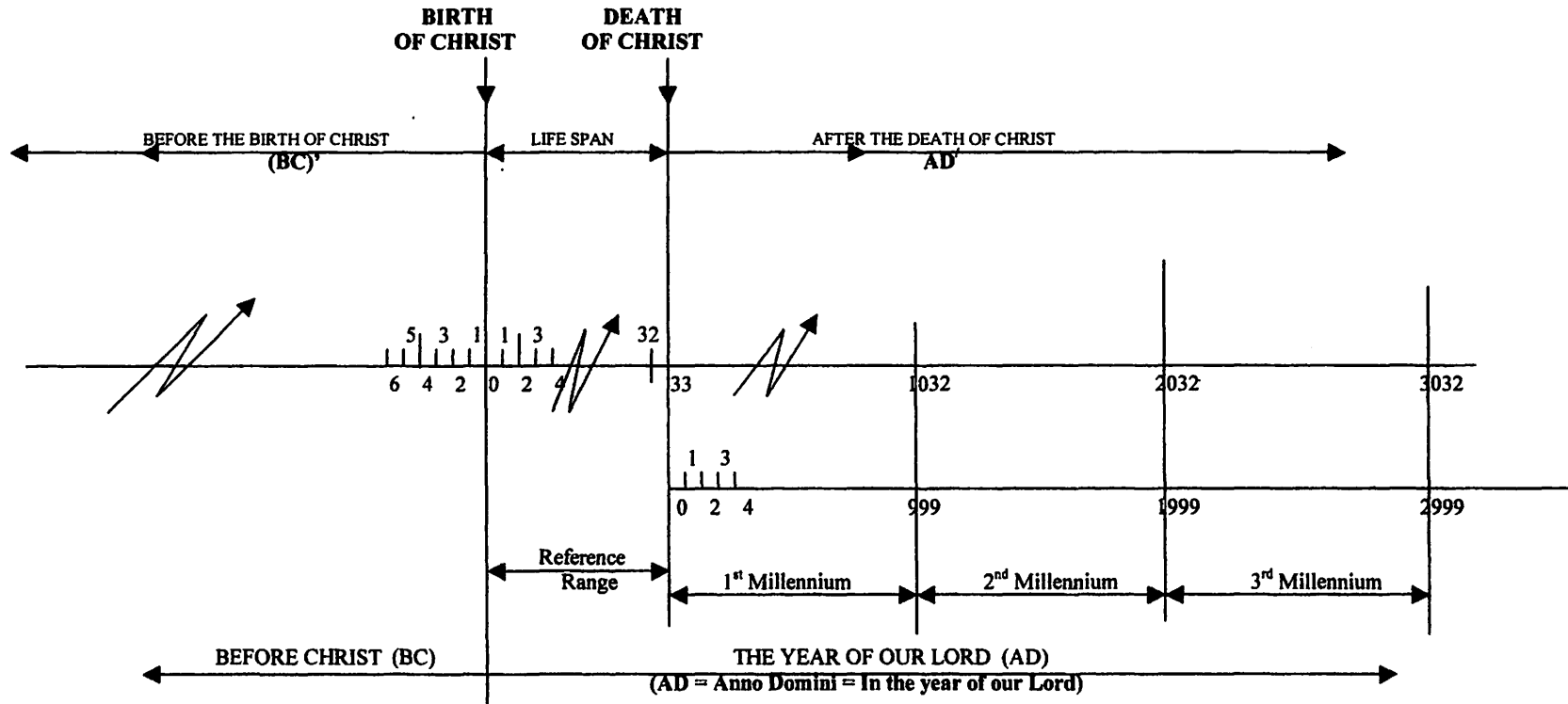
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TABLE 1.1: - COMMENCEMENT OF MILLENNIA BY COUNTING

COMPUTER COUNTING NUMERALS	NUMERAL GROUPING	NATURAL (HUMAN) COUNTING NUMERALS
0-9	1 st Decade	1 - 10
10-19	2 nd Decade	11 - 20
20-29	3 rd Decade	21 - 30
30-39	4 th Decade	31 - 40
40-49	5 th Decade	41 - 50
50-59	6 th Decade	51 - 60
60-69	7 th Decade	61 - 70
70-79	8 th Decade	71 - 80
80-89	9 th Decade	81 - 90
90-99	10 th Decade	91 - 100
100-199	2 nd Century (11 th - 20 th Decade)	101 - 200
200-299	3 rd Century (21 st - 30 th Decade)	201 - 300
300-399	4 th Century (31 st - 40 th Decade)	301 - 400
400-499	5 th Century (41 st - 50 th Decade)	401 - 500
500-599	6 th Century (51 st - 60 th Decade)	501 - 600
600-699	7 th Century (61 st - 70 th Decade)	601 - 700
700-799	8 th Century (71 st - 80 th Decade)	701 - 800
800-899	9 th Century (81 st - 90 th Decade)	801 - 900
900-999	10 th Century (91 st - 100 th Decade)	901 - 1,000
1,000-1,999	2 nd Millennium (11 th - 20 th Century)	1,001 - 2,000
3,000-3,999	4 th Millennium (31 st - 40 th Century)	3,001 - 4,000
4,000-4,999	5 th Millennium (41 st - 50 th Century)	4,001 - 5,000
5,000-5,999	6 th Millennium (51 st - 60 th Century)	5,001 - 6,000
6,000-6,999	7 th Millennium (61 st - 70 th Century)	6,001 - 7,000
7,000-7,999	8 th Millennium (71 st - 80 th Century)	7,001 - 8,000
8,000-8,999	9 th Millennium (81 st - 90 th Century)	8,001 - 9,000
9,000-9,999	10 th Millennium (91 st - 100 th Century)	9,001 - 10,000

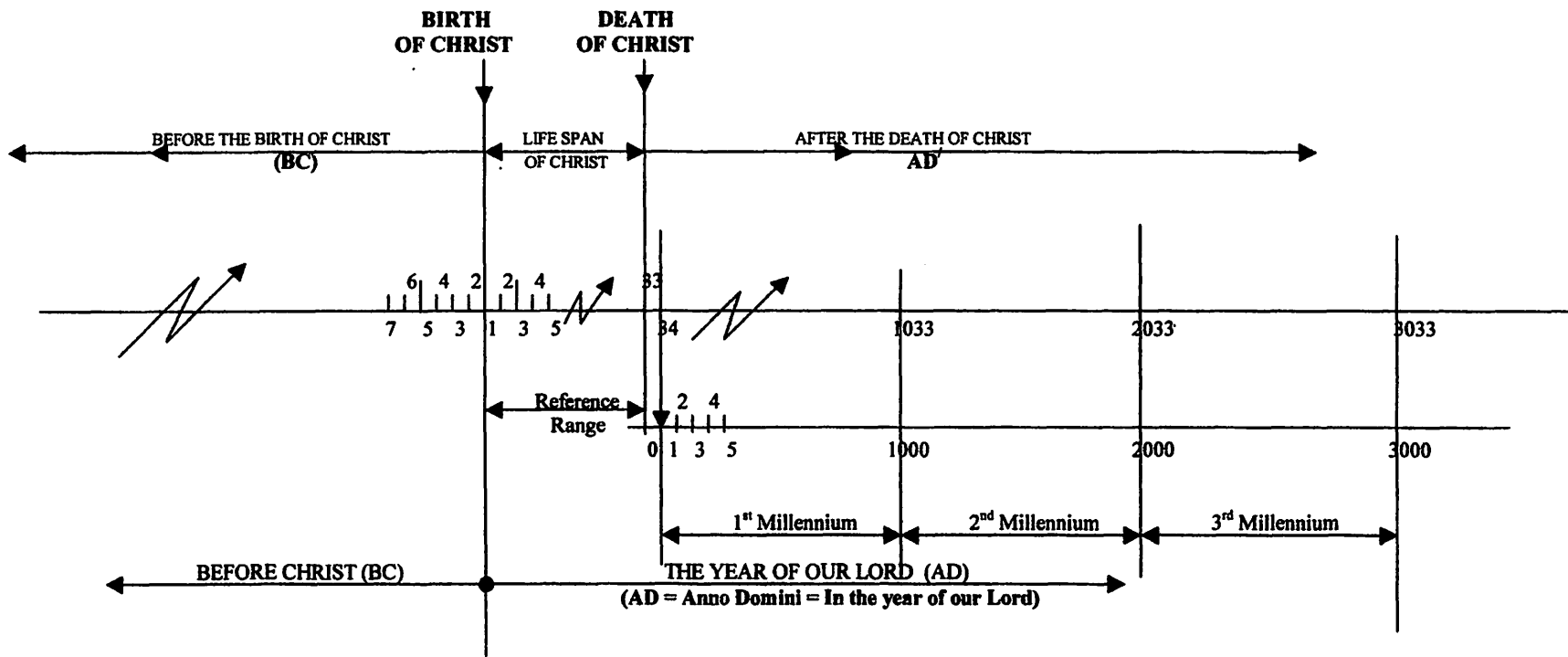
- NOTES:**
- 100 Decades = 1 Millennium
 - 3rd Millennium begins on January 1st 2000 using Computer Counting Numerals
 - 3rd Millennium begins on January 1st 2001 using Natural (Human) Counting Numerals
 - 21st Century begins on January 1st 2000 using Computer Counting Numerals
 - 21st Century begins on January 1st 2001 using Natural (Human) Counting Numerals

FIGURE 1.1: - CHRONOLOGY SHOWING 3 MILLENNIA (0 BC = AD 0 ORIGIN)



NOTE: - All figures in years using Gregorian Calendar (NOT TO SCALE)
 AD has 34 possible reference points, hence there are 34 possible beginnings of a millennium.
 2nd Millennium begins at 1000 and 3rd Millennium begins at 2000, etc

FIGURE 1.2: - CHRONOLOGY SHOWING 3 MILLENNIA (1 BC = AD 1 ORIGIN)



NOTE: - All figures in years using Gregorian Calendar (NOT TO SCALE)
AD has 33 possible reference points, hence there are 33 possible beginnings of a millennium.
2nd Millennium begins at 1001 and 3rd Millennium begins at 2001, etc