## 2701: A NUMBER OF RAREST DISTINCTION


#### Abstract

: בראשית ברא אלהים את השמים ואת הארץ As normally understood, this opening line of the Hebrew Scriptures informs us that "In the beginning God created the heavens and the earth." However, in a fair alternative reading we find $$
296+407+395+401+86+203+913=\mathbf{2 7 0 1}
$$ and here consider the merits of this number per se as a fitting accompaniment to this powerful and strategically placed assertion. [Readers, please note: a background to this matter is provided in the author's book, The Second Edge: a Role for Numerical Coincidence in the Pursuit of Truth which may be freely downloaded from www.whatabeginning.com/book.pdf]


## Introduction

Within the infinite set of whole numbers we find just one which overshadows all others in respect of its many remarkable properties.

However, before we can begin to explain the particular uniqueness of 'two thousand seven hundred and one', it is necessary that we consider two important aspects of number in general. These are perhaps best introduced as answers to the question "How many 'reds' are there in a game of snooker?" One might say 'fifteen', or write '15' (meaning one ten plus five), or write 'XV' (the 'Roman' reply), or simply draw a picture like


Fig. 1
and rely on the questioner's ability to determine the answer for himself by counting.

Observe that these are all valid ways of delivering the correct answer to the question. But, whereas the first three possibilities rely on a commonly
known symbolism (involving knowledge of the characters used and their associated 'rules of construction'), the pictorial method (involving the use of counters in one-to-one correspondence with the objects counted) is quite different - being both intuitive and absolute.

As may be seen, these fifteen circular counters may be packed together to form a simple symmetrical object - in this case, the equilateral triangle which features in snooker. Such a regular arrangement (and, for other numbers there may be alternatives which include square, hexagon, hexagram and cube) is a fundamental and comparatively rare property of certain numbers which are said to be figurate. Such digital structures are impervious to manipulation, and are completely independent of place, time, and of the things represented.

In respect of 2701, therefore, let us first consider its properties as they arise from its familiar appearance as a numerical object (i.e. one based upon ten - the radix, or 'collective unit' of the denary, or decimal system of numeration.

## The attributes of $\mathbf{2 7 0 1}$ arising from its appearance, as normally expressed.

Here is a list of these radix-dependent features:

1) $2701=37 \times 73$; i.e. its factors are reflective.
2) These factors are revealed when 2701 is added to its reverse; thus, $2701+1072=3773$.
3) From the digit sequence '2701' we can read three pairs of numbers, thus (2)(701), (27)(01) and (270)(1); adding the numbers which form each pair, we obtain 703, 28 and 271 - each of which is figurate. (see Fig. 2 below).
4) The digits of 2701 sum to 10 - an important number which, in addition to being the base or radix of our familiar decimal system of numeration also functions as a collective unit in metric systems of measurement (Fig.2).


Fig. 2

And then, a catalogue of its absolute features:

## The attributes of 2701 arising from its symmetrical representation as a collection of uniform circular counters.

In absolute terms, 2701 is the supreme figurate number in that, along with its factors and the derivatives listed above, it displays so many examples of pictorial interest.

Here are the details:

1) Since it is the sum of the numbers named when counting to seventythree, 2701 is a triangular number - the $73^{\text {rd }}$ of an infinite series (Fig.3).


Fig. 3
2) The outline of 2701-as-triangle comprises 216 counters, i.e. $6 \times 6 \times 6$, or $6^{3}$ (Fig.4).
3) The central counter occupies the $25^{\text {th }}$ position in the $49^{\text {th }}$ row (Fig.4).


Fig. 4
4) The $37^{\text {th }}$ triangular number, 703 ( $=19 \times 37$ ) may be precisely inscribed within 2701-as-triangle (Fig.5).


Fig. 5
5) The remainder of 2701 is thereby divided into a trio of 666-astriangle.
[Observe: 666-as-triangle has a story of its own to tell www.whatabeginning.com/SEDGE/SE-1.pdf , pp.8-10]

Its triple presence here represents powerful supporting evidence for the uniqueness of 2701 .
6) 2701-as-triangle combined with an inverted copy of itself generates the hexagon/hexagram pair 1801/3601 (Fig.6).


Fig. 6

In this diagram, each of the six triangular spurs comprises 300 counters.
The inner hexagon is unique: it has a side of $25\left(=5^{2}\right)$, a height of $49\left(=7^{2}\right)$ and an outline of $144\left(=12^{2}\right)$.
7) The factors of 2701 and 703-73, 37 and 19-are related figurates (Fig. 7).


Fig. 7
8) The second of these forms the basis of two 'star-of-stars' realisations of 2701, thus: (a) 73 smaller stars of 37 ,


Fig.8(a)
or, alternatively, (b) 37 larger stars of 73,


Fig.8(b)

From a consideration of the foregoing, we deduce that 2701 is one of an elite subset of triangular numbers which are also 'star-of-stars', or 'stellars'. Here is that subset of 5 values that occurs within the range 1 to 5 quadrillion (i.e. 5 followed by 15 zeros):


Table 1
[The numbers which are both triangle and stellar appear on the left; their factors, the related 'star-pair', on the right.]

Observe that 2701 is the only number in this group that satisfies, in addition, the further attributes,

1) the triangle has a cubic outline 2) its factors are reflective
2) and are displayed when the usual symbolic representation of the number is reversed and added to the original.

Clearly, over the extensive range considered, 2701 is unique, and we may surely extend this conclusion to embrace the entire range of whole numbers. What, then, may we reasonably deduce from the following train of 'coincidences'?

The first verse of the Hebrew Bible, may be alternatively (and fairly) read as a set of 7 numbers whose total is 2701 - our unique number !!
[See www.whatabeginning.com/SEDGE/SE-1.pdf , p.3]

This truly amazing coincidence is accompanied by an equally remarkable correspondence between the individual numbers and each of the three figurate expressions of the verse, as presented here. The details follow...

## First, those arising from the triangle:

Genesis numbers 1 through 5 total 1998, or $3 \times 666$; numbers 6 and 7 total 703 - itself triangular and fitting precisely within 2701-as-triangle.

The first word has 6 letters; the first verse has 28; these are the first two perfect numbers (i.e. each is equal to the sum of the numbers that divide them: $6=1+2+3$ and $28=1+2+4+7+14)$. Both are triangular - respectively, $3^{\text {rd }}$ and $7^{\text {th }}$ of the series.

When augmented by the first word of the Bible's second verse, the sum of words $4-8$, inclusive, yields 1801 - value of the hexagon arising from the self-intersection of 2701-as-triangle (Fig.6).

Word 8 provides a perfect plinth for 2701-as-triangle thereby revealing that the sum of the Bible's first 8 words (3003) is also triangular.


Fig. 9

666 is of course a 'surface feature' of the Bible (Rev.13:18). The sum of its triangular attributes is $6^{3}$, or 6.6 .6 - i.e. the outline of 2701-as-triangle.

Second, those arising from the first of the stellar arrangements:
Because 703 (the sum of words 6 and 7, meaning 'and the earth') = $19 \times 37$, it may be represented symmetrically as a hexagon within the 'star-of-stars' (Fig.10); similarly, because 481 (the sum of words 3 and 5 , meaning 'God' and 'heaven' = $13 \times 37$, it too may be represented centrally as a hexagram, or star (Fig.11).


Fig. 10


Fig. 11

We further observe that 481 is a stellar in its own right (alternatively, 37 of 13 ): however, it is not also triangular!


Fig. 12
Third, those arising from the second of the stellar arrangements:

Because the sum of words 1 and $4=1314=18 \times 73$, and the sum of the remaining five of the first verse, $1387=19 \times 73$, an alternative symmetrical division of the verse (rendered brown and blue, respectively) may be generated, thus:


Fig. 13
These wonders were spoken into being by Almighty God when He inspired Moses to write "In the beginning God created the heavens and the earth." In so doing, He anticipated the Hebrew scheme of alphabetic numeration by a millenium or so! [www.whatabeginning.com/SEDGE/SE-1.pdf , p.3]

At a critical time in the life of the Church the Lord God of the JudeoChristian Scriptures graciously opens our eyes to reveal the unique numerical fanfare that accompanies this fundamental statement.
Here is the backbone of a cryptogram which endorses Biblical truth - in particular, confirming the Gospel of Jesus Christ!

Worldly wisdom lies in a heap of ruins! The days of wilful ignorance have run their course!

## Appendix - Principles involved in the foregoing analysis

The analysis hinges on a series of observations which involve particular figurate numbers, viz.

1. All hexagon/hexagram pairs $(X / Y$ - such as that represented in Fig.6) take the form of 6/12 elemental triangles (e) - drawn from the general series - disposed about a single central counter. Thus, $X=6 e+1$ and $Y=12 e+1$. Fig. 14 reveals this dichotomy in respect of the pair 37/73.


Fig. 14

Observe that at (a) and (b) the constructional element, $e=6$; while at (c) it is 3 - one half of 6 . It follows that 37 has two figurate realisations.

Clearly, (a) together with (b) form a related hexagon/hexagram pair (observe that the elemental triangles are identical - 6 in the first, and 12 in the second).

Since the product (a).(b) is a triangle* and the product (b).(c) is a 'star of stars' - both arising from $\mathrm{T}=2 \mathrm{t}$, i.e. a pair of triangles in which the first is twice the second - this is the underlying principle upon which our analysis is based.
2. The following computer-generated table (Table 2) reveals all such triangular pairs that occur in the first billion whole numbers.

| $\mathrm{t}_{\mathrm{i}}$ | $\mathrm{t}_{\mathrm{j}}=2 \mathrm{t}_{\mathrm{i}}$ | i | j |
| ---: | ---: | ---: | ---: |
| 3 | 6 | 2 | 3 |
| 105 | 210 | 14 | 20 |
| 3570 | 7140 | 84 | 119 |
| 121278 | 242556 | 492 | 696 |
| 4119885 | 8239770 | 2870 | 4059 |

Table 2
Observe here that i and j represent the order numbers of the triangles concerned - the smaller represented by $\mathrm{t}_{\mathrm{i}}$ and its double by $\mathrm{t}_{\mathrm{j}}$.

For convenience, the triangle/stellar table (Table 1) is reproduced here:

$$
\begin{gathered}
2701=37 \times 73 \\
3178981=1261 \times 2521 \\
3670659721=42841 \times 85681 \\
4236010111801=1455337 \times 2910673 \\
4888354443324661=49438621 \times 98877241
\end{gathered}
$$

Observe that each of the pairs of factors ( $f_{1} / f_{2}$ ) recorded on the righthand side are simply derived from Table 2 , as follows:

$$
\begin{aligned}
& \mathrm{f}_{1}=12 \mathrm{t}_{\mathrm{i}}+1 \\
& \mathrm{f}_{2}=12 \mathrm{t}_{\mathrm{j}}+1
\end{aligned}
$$

Their respective products are as shown on the left.

## *Multiplying an XY-pair yields a triangle:

Because $X$ (hexagon) $=(6 e+1)$ and $Y($ related hexagram $)=(12 e+1)$ $Y \times X=(12 e+1) \times(6 e+1)=(12 e+1) \times(12 e+2) / 2$

Setting $\mathrm{n}=(12 \mathrm{e}+1)$
$X \times Y=n(n+1) / 2=$ standard formula for the numerical triangle, $T_{n}$ QED

