APPENDIX 3

FURTHER SCIENTIFIC PROOF OF THE SUPERNATURAL ORIGIN OF THE HOLY SCRIPTURE

The reading and the interpretation of the Bible has never been easy. The presence in the Biblical text of obscure verses with apparent contradictions, until now, has prevented almost everyone from acquiring an acceptable understanding. The main causes of these difficulties lie in both the supernatural origin of this Text and in the excessive boldness of some scholars who forget that man is a small being in comparison with God, and therefore they are not humble enough to even attempt to understand the Divine Word. Unfortunately, in the last few centuries, especially since the beginning of the period of the Enlightenment, a proper humble approach towards the Bible has become more and more rare. Indeed some scholars have actually started to doubt the Divine Word instead of admitting their incapability in understanding It, and have hypothesized that this Word is human and not Divine (although obviously written in human language). Ever since then, a school of researchers has come forth with their own cunning documentary hypothesis and historical-critical method and have tried to trace back the origin of the Biblical text by sacred authors, assuming that the book of the Jews has purely human origins, just like any other book (even if the foundation for this reasoning has yet to be proved). In other words, the followers of this documentated hypothesis assumed that the Bible was only the word of man, and it is on this that they have drawn their conclusions.

The first of these researchers was a certain J. Astruc (1684-1766), doctor of Louis XIV (the famous Sun King), who, towards the end of the 18th century, observed the use of different Divine Names (Adonay, Elohim) and advanced the hypothesis of the existence of different authors and sources in the Pentateuch. Thus, he became the pioneer of that literary criticism that later many other researchers would have applied to the whole Bible.

However, let's avoid narrow-minded fundamentalist attitudes[19], and while

19 The word "fundamentalist" has its origins in the American Biblical Congress which was held in Niagara, in the State of New York in 1895. At that time, the Protestant exegetes defined at least "five points of fundamentalism" including the inerrancy of the Holy Scripture. Even if fundamentalism is right in insisting on the Divine Origin of the Bible, the inerrancy of the Word of God and on all other biblical truths, it introduces these truths in a way derived from an ideology that is not biblical. That is, fundamentalism tries to enforce its own reading of the Bible which is excessively rigid and refuses any scientific approach or research.

on one hand, we respect the work of these scholars who try to understand the origins of the Holy Scripture using rather approximate methods; on the other hand, we want to demonstrate its supernatural Origin by using mathematics, which is the only exact science par excellence[20].

By so doing we will not offend the intelligence of anyone, not even that of non-believers, because mathematics is well-known for its procedure which uses rigorously logical-deductive methods and guarantees results of absolute validity, once the axioms[21] of departure are fixed.

It is really thanks to the universal characteristics of mathematics that allow it to be applied to various different sciences which are definitely less exact: archaeology, textual criticism, biology, medicine, physics, chemistry, engineering, economy, statistics, etc.

Mathematics provides all the procedures of calculation which are indispensable to be able to quantitatively face any scientific problem. We will make some demonstrations that will be added to those already made on page 59 regarding the presence of equidistant letter sequences (ELS) in the Bible, which evidently have a Supernatural Origin.

The method we will use is not arbitrary and does not consist of a technique that allows you to find "what you wish to discover"; it is contrary to what the sceptics say superficially. In order to convince oneself immediately, it's enough to use this method with any other ancient text which is not biblical. In any case, we will try to limit ourselves to a mere appendix and we will prove all this by making only two demonstrations:

- **THE FIRST DEMONSTRATION** shows that with two simple multiplications and a division we are able "to discover" a value of the Pi hidden inside the First Verse of Genesis which is so precise in comparison to the value known at biblical times, that it allows us to exclude any human intervention in its "insertion".

20 Being that this writing is also aimed at laity we would like to make mention of the famous Godel's Incompleteness Theorem. In 1931, the mathematician Kurt Godel (1906 Brno-1978) called Herr Warum, that is, Mr. Because) published a sensational article, showing, in substance, that mathematics is incomplete! In extreme synthesis, if any system of rules is built, creating elementary arithmetic (addition, subtraction, etc.), there are statements that cannot be proved right or wrong using the rules of the same system. In practice, ever since 1931, logicians and philosophers know very well that in mathematics it is always possible to find something whose falsehood or truth cannot be proved. In order to have an idea of what this theorem means we should examine a famous "logical" puzzle of Epimenides (6th century B.C.), one of the seven Sages of ancient Greece, which dedicates its attention to the logical insubstantiality of self-reference statements as the following: "This statement is false". If this sentence were true , then it should be false; if it were false, then it should be true. In any case, Epimenide's example does not prevent us from using language effectively.

21 From the Greek αξιος "worthy", literally means "what deserves consideration": a word used by Aristotle to point out what is clearly evident by itself, and thus does not need to be proved.

- **THE SECOND DEMONSTRATION** shows that the Divine Name Elohim has numerical proprieties which are absolutely unique and which can be picked out only with the help of the computer. Thus, the exact sequence of the five letters that make up this Name could not have been guessed by pure chance by any "human sacred author of holy books" of the biblical époque.

These demonstrations will thus give those people who are intellectually "honest" but who doubt in the existence of the Numerical Biblical Language (or consider the analysis misleading), the opportunity to change their minds definitely. Moreover, we must point out immediately that it is not at all restrictive if we linger over the numerical analysis of the Biblical first verse. In fact the name Elohim appears throughout the Holy Scripture with a dominating role, as one of the Names of God, and other incredible peculiarities similar to the Biblical Pi are widespread throughout the Holy Text.

THE BIBLICAL PI

If we reconsider the 28 letters of the first verse and we associate it with the numerical values indicated in the chart on page 32 we will get this simple table:

ם	י	ה	ל	א		א	ר	ב		ת	י	ש	א	ר	ב
40	10	5	30	1		1	200	2		400	10	300	1	200	2

ץ	ר	א	ה		ת	א	ו		ם	י	מ	ש	ה		ת	א
90	200	1	5		400	1	6		40	10	40	300	5		400	1

and therefore this sequence of whole numbers:

2, 200, 1, 300, 10, 400, 2, 200, 1, 1, 30, 5, 10, 40, 1, 400, 5, 300, 40, 10, 40, 6, 1, 400, 5, 1, 200, 90

At a first glance, these 28 numbers do not seem to have anything remarkable about them. However if, instead, we analyse them in depth, we will discover that this is not the case at all. The first thing that we can do, which is the most banal, is to multiply them together, obviously leaving out number 1 because it is uninfluential in the multiplication:

$$2 \times 200 \times 300 \times 10 \times 400 \times 2 \times 200 \times 30 \times 5 \times 10 \times 40 \times 400 \times 5 \times 300 \times 40 \times 10 \times 40 \times 6 \times 400 \times 5 \times 200 \times 90.$$

From this multiplication, we immediately get the following formula in scientific notation[22]

$$2{,}3887872 \times 10^{34} = (2^5 \times 3^2 \times 10^9)^3,$$

which is the cube of a very simple number that is equal to 288 billion.

Even if it is rare that the product of 28 whole numbers gives the exact cube of another whole number, said result alone does not prove anything. However it is a totally different story if we divide this cube by the product of the numerical values of the 7 words of the first verse.

In fact we have:

ת	י	ש	א	ר	ב	**913**
400	10	300	1	200	2	2 + 200 + 1 + 300 + 10 + 400 = 913

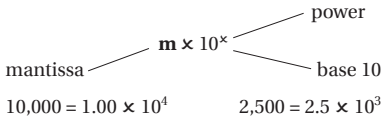
א	ר	ב	**203**
1	200	2	2 + 200 + 1 = 203

ם	י	ה	ל	א	**86**
40	10	5	30	1	1 + 30 + 5 + 10 + 40 = 86

ת	א	**401**
400	1	1 + 400 = 401

22 In our calculations we will be forced to use large numbers, which are usually indicated with scientific notation. As this book is aimed at laity, I should like to make a brief comment on this scientific notation of numbers. Large (or small) numbers are indicated with great difficulty in calculations. Therefore, for a long time scientists have written such numbers by resorting to the scientific or exponential notation, that is, large (or small) numbers are introduced as the product of two parts: of a number (usually with one or more digits after the comma), the so-called mantissa, raised to a (negative or positive) power by the number ten.

For example:



ם	י	מ	ש	ה	**395**
40	10	40	300	5	5 + 300 + 40 + 10 + 40 = 395

ת	א	ו	**407**
400	1	6	6 + 1 + 400 = 407

ץ	ר	א	ה	**296**
90	200	1	5	5 + 1 + 200 + 90 = 296

Therefore we have:

$$\frac{prod.\ letters}{prod.\ words} =$$

$$\frac{2 \times 200 \times 300 \times 10 \times 400 \times 2 \times 200 \times 30 \times 5 \times 10 \times 40 \times 400 \times 5 \times 300 \times 40 \times 10 \times 40 \times 6 \times 400 \times 5 \times 200 \times 90}{913 \times 203 \times 86 \times 401 \times 395 \times 407 \times 296}$$

That is

$$\frac{2.3887872 \times 10^{34}}{3.041535\ldots \times 10^{17}} = 0.785388\ldots \times 10^{17} = \frac{\pi_{\text{ biblical}}}{4} \times 10^{17}$$

The symbol π, indicated in the result represents a number (3.1415...), Pi, the ratio of the circumference to its relative diameter. Nowadays, it is very familiar, even to middle school children, but at biblical times it was much less well known, above all, at a level of numerical precision because during this époque[23] only the first digit of this number, that is, 3 was known.

It wasn't until a thousand years later, at the time of the great mathematician Archimedes of Syracuse (287-212 BC) that another two exact digits were discovered and the famous 3.14 was calculated.

23 The value 3.16..., which is derived from the ancient document (the Papyrus of Rhind) written by an Egyptian scribe called Ahmes, around 2,000 BC, does not allow us to assert that at least 2 digits of the Pi were known during the biblical époque. In fact, the scribe Ahmes states: Divide the diameter into 9 parts. Take 8 parts and build a square 8 by 8. Such a square has a surface which is practically equal to that of the assigned circle. This approximate method resolves the squaring of the circle by using a value of 3.16 for Pi.

In fact, back in 260 BC, Archimedes wrote: "The circumference is triple its own diameter, plus a part that is included between 1/7 and the 10/71".

Thus, if we multiply the result by the number of the letters and we divide them by the number of the words:

$$\frac{2.3887872 \times 10^{34} \times 28 \text{ (num. letters)}}{3.041535\ldots \times 10^{17} \times 7 \text{ (num. words)}} = \pi_{\text{ biblical}} \times 10^{17}$$

We obtain the exact length of a circumference with a diameter of 10^{17}, that is, 1 followed by 17 zeros, thus a further demonstration of the intentions of the insertion of this fundamental number, Pi, in the verse.

Today, thanks to the help of computers, Pi has been calculated with innumerable exact digits.

For instance, if we indicate it with 10 exact digits, it results as

$$\pi \text{ exact} = 3.1415\ 92653\ldots$$

Let's take the first 5 exact digits, in bold type, and let's compare them with the value hidden in the first verse of the Bible:

$$\pi \text{ biblical} = 3.1415\ 54\ldots$$

Well, these 5 exact digits of the $\pi_{\text{ biblical}}$, which are too many to be the fruit of pure chance, cannot have been inserted in the first verse by some human being for two reasons: not only did no one know Pi with that precision during the biblical époque but not even humanity of the third millennium could insert this numerical value in a sentence because it would be impossible, as it involves many mathematical principles which cannot be resolved by technology and powerful computers alone.

However, if there is a reader who is particularly experienced with computers, science and mathematics, and who is not convinced about this, he can always attempt this task and report his results to us.

As to the number π, everybody knows that it is not an ordinary number but instead a real "King of numbers". This is why it is the number which has been the most studied one in the history of mathematics. This mysterious number is hidden in the rhythm of both acoustic waves and the waves of the sea and is omnipresent as much in nature as in geometry. In fact, a lot of great scientists and mathematicians have done their utmost in attempts to understand its nature.

Besides, Pi is indissolubly tied to the legendary squaring of the circle which is one of the most famous problems of antiquity. It is evident that man first learned about it in ancient times, which is perhaps suggested by the circular figures already present in nature. Its complexity and charm have been passed down over the centuries throughout the entire history of human civilization.

In fact, the stories of its resolution is one of the most illuminating episodes of mathematical procedure.

This problem can be simply stated as follows:

TO DETERMINE THE SIDE OF A SQUARE
WHICH HAS THE IDENTICAL AREA OF A GIVEN CIRCLE.

One of the most important developments of these studies was the demonstration (even though not perfectly rigorous) made by Johan Heinrich Lambert (1728 - 1777) in his essay "Vorlaufige Kenntnisse fur die Quadratur und Rectifation des Circuls suchen", that π is an irrational number, that is, it is a number that cannot be obtained by the ratio of two whole numbers. This was a particularly important discovery if we consider the fact that rational numbers (fractions) have decimal digits that can be finished or are periodic and, therefore, they end all of a sudden or are followed only by zeros or they show a continuous repetition of digits (periodicity). Moreover, about one century later in 1882, Carl Louis F von Lindemann (1852 - 1939) showed that it is not only irrational but it is also transcendent. A number is called transcendent if it is not the solution of any algebraic equation with whole coefficients. An important consequence is that no transcendent number can be made with a ruler and compass. Thus, the discovery of Lindemann demonstrated once and for all that the mythical squaring of the circle, which has puzzled many mathematicians since antiquity until recent times, was indeed a lost cause right from the start: circles cannot be "transformed" into squares using a ruler and compass.

THE UNIQUENESS OF THE DIVINE NAME ELOHIM

In the following study we will discover some of the extraordinary numerical properties of the name Elohim by using once again a non-arbitrary technique. This technique is not the type that lets you find out "what you want to discover", but, on the contrary, is a mathematical method which is rigorously scientific and can always be repeated by anyone.

At first, we must understand what is meant in mathematics by the word "triangular number":

THE NTH TRIANGULAR NUMBER
IS SIMPLY THE SUM
OF THE FIRST N WHOLE NUMBERS.

For instance 6, 10, 55... are triangular numbers, because 1 + 2 + 3 = **6**, 1 + 2 + 3 + 4 = **10**, 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = **55**, etc.

Let's take a general case, the Nth triangular number can be obtained by the formula:

$$T(N) = \frac{N \times (N + 1)}{2}$$

which reminds us a lot of the calculation of the area of a triangle:

$$\text{Area of triangle} = \frac{\text{Base} \times \text{Height}}{2}$$

This is why these numbers are called "triangular numbers". They correspond exactly to the area of a triangle of base N and height N+1 or vice versa.

For example, the number 55, 10th triangular number, is the area of a triangle with base 10 and height 11, or vice versa.

And now let's study these four tables carefully:

ם	י	ה	ל	א
40	10	5	30	1

		ה	ל	א	**36**
		5	30	1	1 + 30 + 5 = 36

	י	ה	ל		**45**
	10	5	30		30 + 5 + 10 = 45

ם	י	ה			**55**
40	10	5			5 + 10 + 40 = 55

The first shows the sequence of the numerical values of the letters that compose the word Elohim, while the following three underline the presence of 3 consecutive triangular numbers hidden within the letters, and these are precisely the eighth, the ninth and the tenth triangular numbers as we can verify immediately:

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = 45

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55

Apparently if we base our research on a superficial analysis, this fact does not mean anything, but if we analyse this result in depth, things change radically.

Why?

Because it is not evident at all that in a language based on an alphabet of 22 letters, a name of 5 letters can have, even "by chance", such a special numerical property.

Let's try to verify this from a theoretical point of view, and take an alphabet of 22 letters. We are able to form 22 × 22 × 22 × 22 × 22 = 5,153,632 or rather five million, one hundred and fifty-three thousand, six hundred and thirty-

two distinct words, even if only a few of them have a precise meaning.
Then, if we use a suitable program on a personal computer, we can examine all of them in order to see which have the previously mentioned property of three consecutive triangular numbers hidden within them.

The results are reported in the following chart.

The name Elohim and the numerical properties are highlighted:

ה	ד	א	א	א	12	1	ז	ח	ו	א	ג	25	22
5	4	1	1	1	3 - 6 - 10			7	8	6	1	3 10 - 15	- 21

ו	ה	ד	א	א	17	2	ז	ז	א	ב	ג	20	23
6	5	4	1		16 - 10 - 15		7	7	1	2	3	6 - 10 - 15	

ז	ו	ח	א	א	23	3	ח	ח	ה	ב	ג	26	24
7	6	8	1	1	10 - 15 - 21		8	8	5	2	3	10 - 15 - 21	

ז	ה	ג	ב	א	18	4	ט	ט	י	ב	ג	33	25
7	5	3	2	-	6 - 10 - 15		9	9	10	2	3	15 - 21 - 28	

ח	ו	ז	ב	א	24	5	ט	ח	ד	ג	ג	27	26
8	6	7	2	1	10 - 15 - 21		9	8	4	3	3	10 - 15 - 21	

ח	ה	ב	ג	א	19	6	י	ט	ט	ג	ג	34	27
8	5	2	3	1	6 - 10 - 15		10	9	9	3	3	15 - 21 - 28	

ט	ו	ו	ג	א	25	7	י	ח	ג	ד	ג	28	28
9	6	6	3	1	10 - 15 - 21		10	8	3	4	3	10 - 15 - 21	

ט	ה	א	ד	א	20	8	ו	ח	א	א	ד	20	29
9	5	1	4	1	6 - 10 - 15		6	8	1	1	4	6 - 10 - 15	

י	ו	ה	ד	א	26	9	ז	ט	ה	א	ד	26	30
10	6	5	4	1	10 - 15 - 21		7	9	5	1	4	10 - 15 - 21	

ם	י	ה	ל	א	86	10	ח	י	י	א	ד	33	31
40	10	5	30	1	36 - 45 - 55		8	10	10	1	4	15 - 21 - 28	

ץ	כ	ק	ע	א	281	11	ח	ט	ד	ב	ד	27	32
90	20	100	70	1	171-190- 210		8	9	4	2	4	10 - 15 - 21	

ק	כ	צ	פ	א	291	12	ט	י	ט	ב	ד	34	33
100	20	90	80	1	171-190-210		9	10	9	2	4	15 - 21 - 28	

ו	ו	ג	א	ב	18	13	ט	ט	ג	ג	ד	28	34
6	6	3	1	2	6 - 10 - 15		9	9	3	3	4	10 - 15 - 21	

ז	ז	ז	א	ב	24	14	י	י	ח	ג	ד	35	35
7	7	7	1	2	10 - 15 - 21		10	10	8	3	4	15 - 21 - 28	

ז	ו	ב	ב	ב	19	15	י	ט	ב	ד	ד	29	36
7	6	2	2	2	6 - 10 - 15		10	9	2	4	4	10 - 15 - 21	

ח	ז	ו	ב	ב	25	16	ז	י	ד	א	ה	27	37
8	7	6	2	2	10 - 15 - 21		7	10	4	1	5	10 - 15 - 21	

ח	ו	א	ג	ב	20	17	ח	י	ג	ב	ה	28	38
8	6	1	3	2	6 - 10 - 15		8	10	3	2	5	10 - 15 - 21	

ט	ז	ה	ג	ב	26	18	ט	י	ב	ג	ה	29	39
9	7	5	3	2	10 - 15 - 21		9	10	2	3	5	10 - 15 - 21	

י	ח	י	ג	ב	33	19	י	י	א	ד	ה	30	40
10	8	10	3	2	15 - 21 - 28		10	10	1	4	5	10 - 15 - 21	

י	ז	ד	ד	ב	27	20	ך	כ	פ	ה	ו	131	41
10	7	4	4	2	10 - 15 - 21		20	20	80	5	6	91 - 105 - 120	

ו	ז	ב	א	ג	19	21	ך	מ	ו	ט	ל	105	42
6	7	2	1	3	6 - 10 - 15		20	40	6	9	30	45 - 55 - 66	

Thanks to this new chart, we will discover that only 42 names plus, obviously, the 42 names that we obtained by reading in the opposite direction, including naturally the name Elohim, satisfy our condition.

Therefore, the probability of haring guessed even one of the first 42 names is extremely remote, practically microscopic, less than a hundred-thousandth,

in that, it is one probability against 122,704.

This fact is so true, that if we naturally exclude the name Elohim, all the other 41 words of 5 letters do not correspond with any word, either in ancient or modern Hebrew, which testifies the fact that no human being has ever paid any attention to this peculiarity.

But, surprises do not end here, in that, the name Elohim has another characteristic that clearly distinguishes It from the other 41 triangular names: in fact, if we add up Its three triangular numbers: 36 + 45 + 55, we get the number 136, which is the 16th triangular number:

$$1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 + 13 + 14 + 15 + 16 = 136$$

The fact that the sum of three consecutive triangular numbers is in turn a triangular number, is extremely rare, and, therefore, much more unlikely than the previous case. In order to be convinced, it is sufficient for the reader to try a simple test on the computer, by which he will obtain the result which is shown in the chart below:

4th	1st	2nd	3rd
10	1	3	6

16th	8th	9th	10th
136	36	45	55

61st	34th	35th	36th
1891	595	630	666

229th	131st	132nd	133rd
26,335	8,646	8,778	8,911

856th	493rd	494th	495th
366,796	121,771	122,265	122,760

3,196th	1,844th	1,845th	1,846th
5,108,806	1,701,090	1,702,935	1,704,781

11,929th	6,886th	6,887th	6,888th
71,156,485	23,711,941	23,718,828	23,725,716

44,521st	25,703rd	25,704th	25,705th
991,081,981	330,334,956	330,360,660	330,386,365

166,156th	95,929th	95,930th	95,931st
13,803,991,246	4,601,234,485	4,601,330,415	4,601,426,346

In the first column we have reported only the triangular numbers that are the sum of three consecutive triangular numbers, and in the other three columns the three consecutive triangular numbers.

In this chart it is very clear that if we count up to thirteen billion, only eight numbers, including naturally 136, comply with the criterion of "wide triangularity".

In addition, it is evident that the number 10 is too "small" to form a word of five letters and 1,891 and the following ones are too large. Therefore, the uniqueness of the name Elohim is amply shown and the mere thought that a hypothetical sacred human author could have guessed such a word by pure chance with the odds of only one against 5,153,631, is really unacceptable.

In conclusion, the scientific proof on the Biblical Pi and on the uniqueness of the name Elohim, that we have just reported, like in the case of the ELS, leads us to exclude both the documentary hypothesis and any other hypothesis of human origin of the Holy Scripture, even if divinely inspired. Thus, the only possible origin of the Biblical text is that of God Himself, who, as we have already said on page 63, has used men as "living pencils" to write It.

These conclusions must not seem excessive or unrealistic, in that it is evident that God does not have the least difficulty in dictating His own Word "letter by letter" to any human being, both by making the letters visible one by one, or by grafting them on a stone, or in any other way.

If we were to exclude this, we would never be able to proclaim that God is the Pantocrator, the Almighty One.

In addition, as God is outside of time, and obviously knows the past, present and future perfectly, He can easily follow the transmission and story of any text, and, if this is His will, can ensure that not even a letter is lost over history, notwithstanding human mistakes and imperfections.

ק"ק רומא יע"א
COMUNITA EBRAICA DI ROMA

הרבנות הראשית
IL RABBINO CAPO

ב"ה

Roma, 1 Adar Rishon 5765
10 Febbraio 2005

L.tevere Cenci - Tel. 06 68400651-2 - Fax 06 68400655

Ing. Paolo Marra
Roma

Caro Ing. Marra

Ho letto con interesse il Suo libro. Vorrei segnalarLe che l'idea che conduce la Sua ricerca è presente proprio all'inizio del commento di Rabbi Moshe Nachmanide alla Genesi, nel quale si suggerisce che l'intera Torà sia un codice di nomi divini e in particolare la prima frase è da leggere

בראש ית ברא א-להים

Con i migliori auguri per il proseguimento delle ricerche

Il Rabbino Capo
(Dr. Riccardo Di Segni)

LETTER FROM THE CHIEF RABIN OF ROME TO THE AUTHOR OF THIS BOOK

From: The Jewish Community of Rome - Office of the Rabin

Rome, February 10, 2005

Dear Ing. Marra,
I read your book with great interest. I would like to mention that the idea which leads to your research can be found at the beginning of Rabbi Moshe Nachmanide's comment on the Genesis, where he suggests that the entire Torah is a code of divine names and, in particular, that the first phrase should be read: בראשׁ יתברא אלהים

Sending best wishes for the continuation of your research

Chief Rabin
Dr. Riccardo Di Segni