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ZONES OF THOUSANDS
SEEN IN REDSHIFT
DISTANCE MEASUREMENTS

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c/o Physics Dept.
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Z ZONES

CDK 7

It was Mrs. H who first noticed the following curious fact.

She knew that large-scale redshift is in "SPEED JUMPS" of 72 km/sec. * And she had read CDK 4, ** where the deceleration of light speed is suggested to be a neat 24 km/sec per year.

Mrs H. pointed out that TODAY there should be exactly THREE light-years of light travel between speed jumps of 72 km/sec !

This set our New Zealand "Lollo" researchers thinking ! What, for example, was the average light-travel distance between 72 km/sec speed jumps in the past ? That is, from far out in space ?

Our three light-sleuths studied the graph on Page 6 of CDK 5, ** FRED'S REDSHIFT LIMIT is at a DISTANCE of 1.37 billion light-years. (b.l.y.)

And the "RECESSION SPEED", AT THAT DISTANCE, is 40,000 miles/sec. (64,360 km/sec)

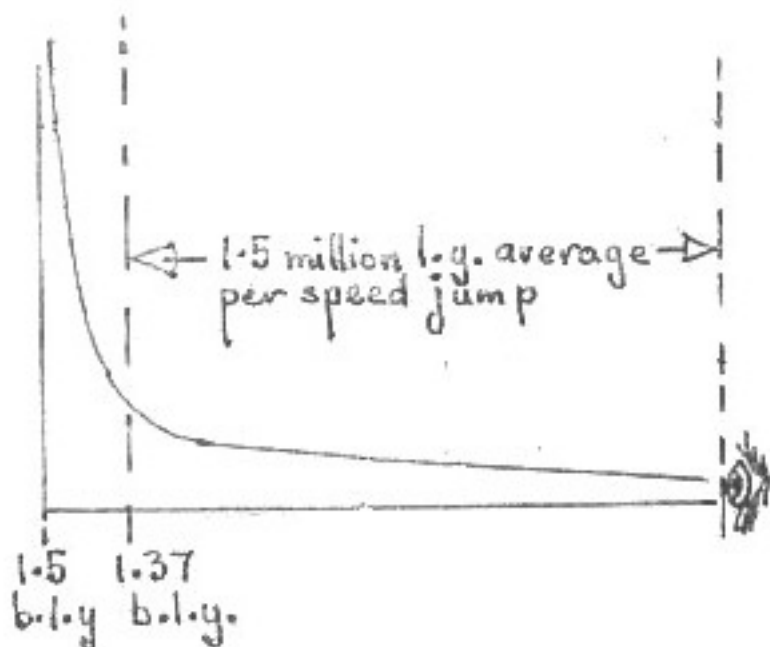
Sparrow divided the 64,360 km/sec total speed by 72 km/sec, to get 894 INDIVIDUAL SPEED JUMPS. Then he divided the total distance of 1.37 b.l.y. by 894 to get..... (on average)...

1.5 MILLION LIGHT-YEARS (m.l.y.) OF LIGHT-TRAVEL DISTANCE PER SPEED JUMP !!

* Technically speaking, in 'jumps' of .00024 of a wavelength of received light.

** See website, or contact Univ of Auckland, N.Z.

Inky carefully drew a picture of this....



PICTURE ONE.

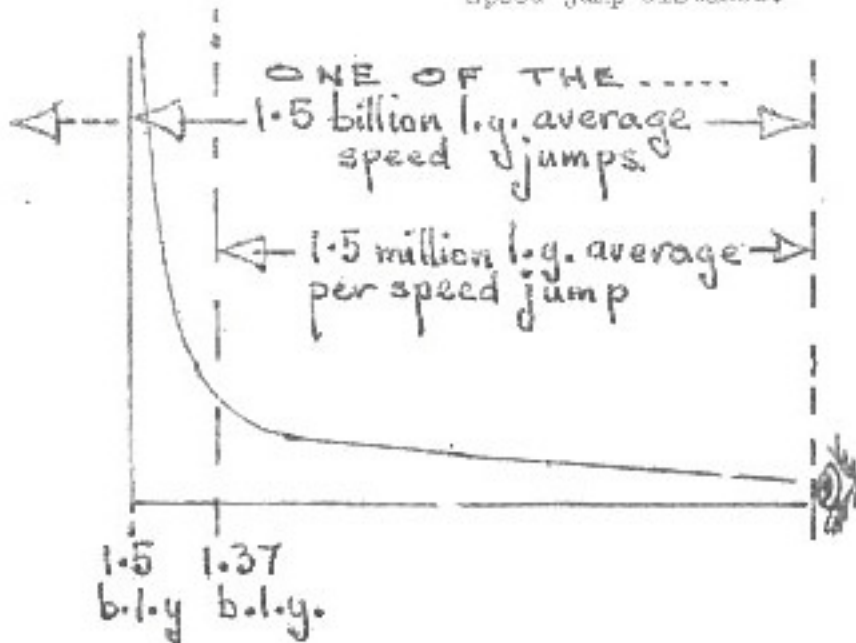
Bill noticed a similarity between the 1.5 BILLION L.Y. 'lollo' distance, and the 1.5 MILLION L.Y. speed jump distances WITHIN Fred's redshift limit.

Bill proposed that the 'lollo' distance might be A BIGGER SPEED JUMP TRAVEL DISTANCE !!

A THOUSAND TIMES BIGGER !!!

This prompted some discussion ! After all, there is some sort of 'natural barrier' to ordinary redshift observation at Fred's redshift limit! AVERAGE speed jump distances of a thousand times bigger, BEYOND Fred's redshift limit, could certainly explain a natural barrier !!

Inky sketched in a single, 1.5 billion l.y.,
speed jump distance.



PICTURE TWO.

Bill pointed out that TODAY'S 3 l.y. of light-travel per jump was TWICE '1.5'.

Bill said that the '3' could be the start of a NEW AVERAGE of '1.5'.

After some thought, Inky and Sparrow agreed.

We do seem at a very special time.
See "Speed of light decay... timing is everything"
Website or A.V.C.K

Inky indicated today's 'start of an average of 1.5 l.y.' distance per speed jump.

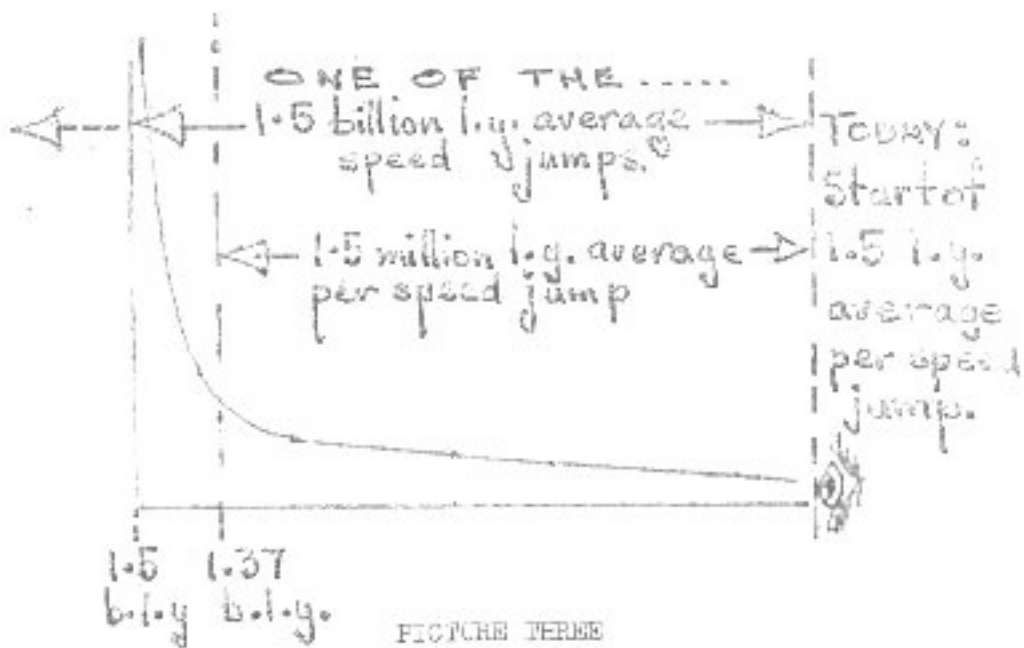
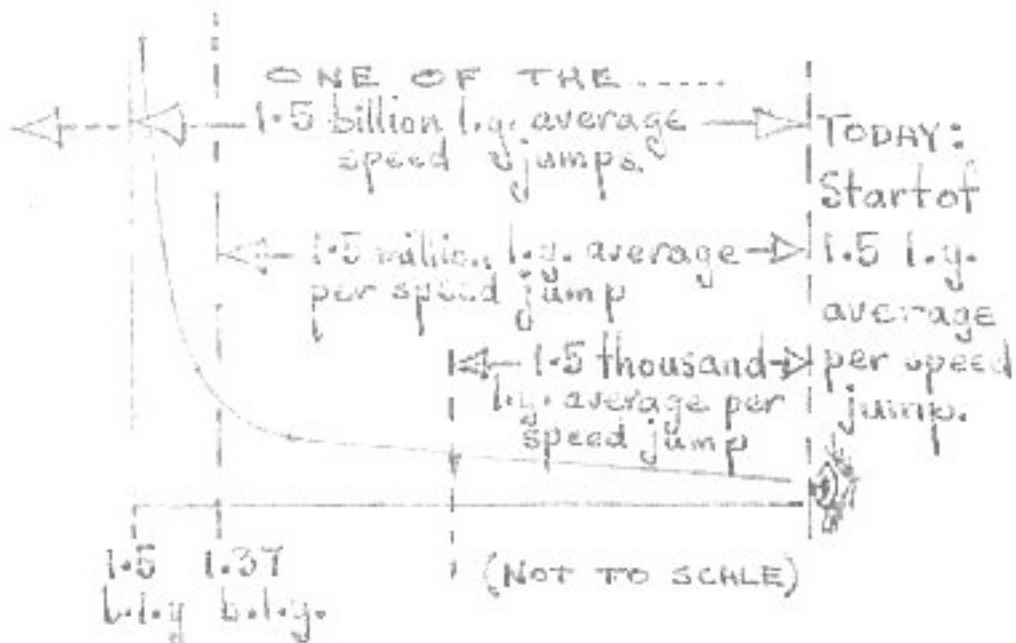


FIGURE THREE

Inky, Sparrow, and Bill considered this third picture carefully. 'Billions', 'millions', and 'units' were represented in the picture. Was there a place in the picture for a 'thousands' zone too?

Inky sketched in a 'thousands' zone, thus....



PICTURE FOUR

THE 'THOUSANDS' ZONE DISCUSSED....

Inky said that this thousands zone would be LOCAL.
And that LOCAL galaxies* have speed jumps BETWEEN
STARS WITHIN THE GALAXIES themselves !
(See 'The Average Speed of Light' on the website. -E.C.)

*LOCAL galaxies are those which are neighbours to
our own 'Milky Way' galaxy.

The 'thousands' zone continued....

"These internal speed jumps in LOCAL galaxies are no longer discussed," said Inky.

"They were the first speed jumps to ever be noticed, but now they are an embarrassing 'mystery'."

Inky explained. "Conventionally, locking out, each speed jump increase of 72 km/sec is BELIEVED, to ALWAYS mean, an extra 3.26 million l.y. of distance. That is, a 'MEGAPARSEC' of distance."

"But take Andromeda, a BIG, LOCAL galaxy of some 200 thousand light years in width.....
THE ONE - SIZE - FITS - ALL, ONE MEGAPARSEC DISTANCE, IS FAR TOO BIG TO FIT SPEED JUMPS INSIDE ANDROMEDA."

Inky concluded: "Local speed jump distances of a thousand or so light years fit with actual local galaxy observations."

THE 'MILLIONS' ZONE DISCUSSED....

Sparrow offered the following: "Way beyond the local, thousands zone, out towards Fred's redshift limit, astronomers only see speed jumps between different galaxies.

The 'millions' zone continued.....

Galaxies can be millions of l.y. apart.
So distances between speed jumps of an average of
1.5 MILLION l.y. per jump, OUT TOWARDS FRED'S RED-
SHIFT LIMIT, FIT with what is observed out towards
Fred's redshift limit."

Furthermore, Sparrow said that Fred's redshift
limit was the start of an average of 1.5 million l.y.
per speed jump.

So that, by Bill's reasoning, (under picture 2-3d)
there would be 3 million l.y. travel per speed jump
at Fred's redshift limit.

"This fits beautifully with the conventional
ONE MEGAPARSEC (3.26 million l.y.) distance between
speed jumps of 72 km/sec," said Sparrow.

"But the 'MEGAPARSEC' distance is only suitable
at around Fred's redshift limit. Light sources that
lie near the start of the 'millions' zone and the end
the 'thousands' zone will show some strange distance
anomalies if the MEGAPARSEC MEASURING STICK is used !!

Associated galaxies may measure at millions of
l.y. apart. And galaxies may measure at millions
of l.y. distant from internal, moving, light sources.*+

* Arp's anomalies?

THE 'BILLIONS' ZONE DISCUSSEE....

Beyond Fred's redshift limit, astronomers use Fred's "improved techniques" to detect speed jumps ONLY BETWEEN LARGE NUMBERS OF GALAXIES.

The speed jump distance, far away out there, is in BILLIONS of light years!! There is room for hundreds, or even thousands of galaxies to be included in one speed jump distance!

Very distant galaxies appear to be thickly layered on the surface of equally spaced, concentric spheres. We appear to be at the centre !!

But this is just an illusion, brought about by the ENORMOUS 'billions' zone speed jump distances.

BACK TO EARTH....!

Mrs H's discovery has sure had a far-reaching effect !! But back on Earth, Mrs H's tiny THREE l.y. of light travel for each 72 km/sec drop in light speed is noticed as the following

-Slowing atomic clocks
-'Drift' in cosmological 'constants'
-'Deceleration' of the Pioneer space probe
- And so on.

LAST, BUT NOT LEAST, Sparrow has sent in a sum or two! These should get us thinking!!

Sparrow says to add up these distances..

1,370,000,000 l.y. (i.e. 1.37 billion l.y.)
 137,000,000 l.y.
 13,700,000 l.y.
 1,370,000 l.y.
 137,000 l.y.
 13,700 l.y.
 1,370 l.y.
 137 l.y.
 13 l.y.
 1 l.y.

Notice that Fred's "fastest rate of recession" is "close to" 40,000 miles per second. Not EXACTLY, as has been used to get the value 1.37 billion l.y. See CDK 5, page 3.

However, the 1.37 billion l.y. distance value has been used because it compares so nicely with the conventional 13.7 billion l.y. 'size' of the universe. You may try adding '135's' instead of '137's' if you want an exact 1.5 billion as the answer to the sum shown above. Oops, I've given the answer away! Yes, the answer is, the lollo distance, 1.5 billion l.y.

Sparrow also sees an extraordinary comparison in these results.....

$$\frac{1.37}{1.5} = .913$$

where 1.37 billion l.y. is Fred's redshift limit, and 1.5 billion l.y. is the lollo distance.

.....and,
$$\frac{894 \times 102.4}{100,000} = .915$$

where '894' is the number of individual speed jumps in the 'millions' (or each?) zone, and the 102.4 is Sparrow's GENERAL DECAY FREQUENCY.

(See: 'Calculus (Don't Panic!) and the Deceleration of Light', especially pages 5 & 6. Website, or c/o Univ. of Auckland.)

Until next time, regards from Inky, Bill, Sparrow, and..... the Editor.

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END NOTES!

The REAL SPACE requirement for 894 divisions of, each, 1.5 billion l.y average distance, is

13.7 thousand billion l.y. Thus, this

is the minimum requirement for the radius of the universe, outwards from us in all directions. (Light is affected, thus, equally in all directions)

∴ The minimum size of the universe is thus 27.4 thousand billion l.y. across.