Πῶς προλαβαίνει ὁ Ἅν-Βασίλης

Μὲ δεδομένη τὴν ὑπαρξή του δυὸ καθηγητὲς τοῦ Πανεπιστημίου τοῦ Σικάγου, ὁ Γκάρυ Χορβὶτς κι ὁ ἑλληνικῆς καταγωγῆς... Βασίλης Ξανθόπουλος θάλθηκαν νὰ λύσουν τὸ πρόβλημα: πῶς προλαβαίνει καὶ φέρνει σ' ὅλα τὰ παιδιὰ τοῦ κόσμου τὰ δῶρα του μέσα στὴν ἴδια νύχτα ὁ Ἅν-Βασίλης.

Οἱ δυὸ ἐπιστήμονες ἔβαλαν κάτω τὶς γνώσεις τους, λογάριασαν καὶ βρῆκαν, πόσο γρήγορα πρέπει νὰ τρέχει ὁ πιὸ ἀγαπημένος ἅγιος τῶν μικρῶν — ἂν καὶ στὴν πραγματικότητα, ἂν λιφθεῖ ὑπ' ὄψη ἡ περὶ τὸν ἄξονά της περιστροφὴ τῆς Γῆς, ἔχει στὴ διάθεσή του 24 ὧρες γιὰ νὰ τὴ γυρίσει ὁλόκληρη «μέσα σὲ μιὰ νύχτα» μὲ κατεύθυνση, φυσικά, ἀπὸ Ἀνατολὴ πρὸς Δύση...

Καὶ νὰ μὲ δυὸ λόγια ἡ ἀπάντησή τους:

Δὲν μπορεῖ νὰ μείνει περισσότερο ἀπὸ ἕνα δεκάκις χιλιοστὸ τοῦ δευτερολέπτου σὲ κανένα ἀπὸ τὰ κάπου δύο δισεκατομμύρια σπίτια τῆς Οἰκουμένης, ποὺ ἔχει νὰ ἐπισκεφθεῖ διατρέχοντας συνολικὰ μιὰ ἀπόσταση 100 ἑκατομμυρίων μιλίων.

Ἔτσι ἐξηγεῖται, ἄλλωστε, τὸ ὅτι καὶ μεῖς δὲν προλαβαίνουμε νὰ τὸν δοῦμε!

Ἀπογευματινή 20.12.1972.

Santa's visits possible? With fast reindeer, yes

By Daniel McCaughna

YOUR KID IS a skeptic. He's only 4 and already he wants to know how Santa Claus can bring presents to people all over the world in just one night.

He gives you a cold stare when you try to explain that for a fat guy Santa is very nimble.

Well, a couple of University of Chicago scientists have come up with an answer that should have your suspicious kid believing in Santa Claus even after he grows up and earns a degree in physics.

BASILIS XANTHOPOULOS and Gary Horowitz, both physicists, point out that because of the rotation of the Earth, Santa Claus really has 24 hours of Christmas Eve to make stops at the houses of all the good children on Earth.

With about 2 billion households in the world, Santa has to travel about 100 million miles during the night.

Horowitz and Xanthopoulos figure Santa can spend about one half of one ten-thousanth of a second at each house and still have half an hour to traverse the Earth.

TO DO THIS he travels about 70,000 miles a second. And if anyone says it can't be done, just remind him that while this seems fast, it is really less than half the speed of light.

How does Santa know who has been naughty or nice? During the year he speeds from house to house to check up. Because he's in and out so quickly, boys and girls can't see him.

By moving briskly, Santa is able to make his rounds year after year, century after century. Time slows down for bodies that accelerate at Santa's speed.

THE TWO SCIENTISTS explained that the energy accelerating Santa's reindeer and sleigh comes from a rotating black hole outside his home at the North Pole.

In physics, a black hole is a dense area that has collapsed under its own weight to the point where even light cannot escape it.

When Santa needs more energy he swings his sleigh very close to the whirlwind surrounding the black hole without falling in.

By a technique known to physicists as the "Penrose Process" he leaves with more energy than he had.

There's your answer. And if your little doubter still isn't convinced, tell him that if he asks one more question he'll wind up with a lump of coal in his stocking.

Chicago Tribune,
12.19.77

The Cleveland Press
CLEVELAND, OHIO
D. 332,358
DEC 19 1977

All you kids who want to catch a glimpse of Santa Claus on Christmas Eve — forget it! He only spends one-half of one ten-thousanth of a second at each house — apparently enough, however, for him to leave gifts, eat cookies and lay a finger alongside his nose. Two bright University of Chicago graduate students, **Gary Horowitz** and **Basilis Xanthopoulos**, have calculated that Santa would have to travel at 70,000 miles an hour in order to visit each of the Earth's approximately 2 billion households in 24 hours.

HOUSTON CHRONICLE
HOUSTON, TEXAS
D. 299,228 SUN. 363,711
DEC 18 1977

Santa doesn't have time to waste on his Christmas round

CHICAGO — All you kids who've tried to catch a glimpse of Santa Claus on Christmas Eve — forget it!

He only spends one-half of one ten-thousanth of a second at each house. That's apparently enough, however, for him to leave gifts, eat cookies and lay a finger alongside his nose.

This startling fact comes from two bright University of Chicago graduate students, Gary Horowitz and Basilis Xanthopoulos.

Both are general relativity students in the university's Department of Physics.

They have calculated that Santa travels at 70,000 miles an hour in order to visit each of the Earth's approximtely 2 billion households during the 24 hours of Christmas Eve. He accelerates quickly after each stop.

That acceleration keeps him young, because time slows for accelerating bodies. And Santa certainly has a body.

The Evening Press
BINGHAMTON, NEW YORK
D. 72,288 SUN. 75,468
DEC 21 1977

Santa, world-class sprinter

A YOUNG skeptic we know began to have problems with her faith in Santa Claus about the time it occurred to her that, unlike other vintage males of her acquaintance, he never appeared to get any older.

Thanks to a bright young pair of University of Chicago graduate students, there is an answer to the question such an observation raises, and, in the spirit of the season, we pass it on.

The Chicagoans are physicists, general relativity specialists, and they computed Claus must travel at 70,000 m.p.h. to complete his appointed rounds during the 24 worldwide hours of Christmas Eve.

In order to touch base at each of the Earth's approximately 2 billion households, he spends only one-half of one ten-thousandth of a second at each house, barely long enough to leave gifts, eat cookies and lay a finger alongside his nose.

Then he must accelerate quickly to 70,000 per. It's the acceleration that does the trick, keeps him young, because time slows for accelerating bodies, and there, Virginia, you have it.

Los Angeles Times
Metro
LOCAL NEWS
CC PART II
SATURDAY, DECEMBER 24, 1977

70,000 MILES PER SECOND

Holy Night—Santa Will Whiz Through It in Flash

BY GEORGE ALEXANDER
Times Science Writer

You better watch out,
You better not cry,
You better not pout,
I'm telling you why . . .

Santa Claus is coming—at 40% the speed of light.

At least that's the speed two University of Chicago students have calculated Santa would have to travel if he were to visit every one of the estimated 2 billion households on earth during Christmas Eve.

Gary Horowitz and Basilis Xanthopoulos, both graduate students in the university's department of physics, did the calculations during a spare moment.

They figured that Santa would put something like 100 million miles on his sleigh's odometer if he stopped at every terrestrial household.

To do that in 24 hours of darkness, traveling from east to west, Santa's reindeer would really have to pick 'em up and lay 'em down at a considerable clip—on the order of 70,000 miles per *second*. That is roughly 40% of the speed of light, which is 186,000 miles per second.

Horowitz and Xanthopoulos also calculated that Santa had approximately 1/20,000 of a second to land on a roof, jump out of the sleigh, wriggle down the chimney to where the stockings were hung with care, set out the presents, gulp down the inevitable cookies and glass of milk, scramble back up the chimney, dive back into the sleigh and dash away to the next household.

It all seems terribly tiring, but as Santa himself once remarked: "It's a living."

Still, there is a benefit to be had from this life in a super-fast lane and it is perpetual youth.

The two graduate students noted that, according to Einstein's theory of general relativity (which just happens to be their special area of interest), because time slows down for an accelerating body, Santa should remain forever young.

And that's only as it should be.

Chicago Daily News

FRIDAY, DECEMBER 16, 1977

Public Eye / Bob Herguth

Faster than a speeding bullet—that's Santa Claus

Santa can visit the world's 2 billion households on Christmas Eve because he travels at about the speed of light. So say two University of Chicago doctoral candidates in physics, **Gary Horowitz and Basilis Xanthopoulos.** According to their calculations:

—Santa can spend about 1/20,000th of a second at each house and still have half an hour to traverse the Earth.

—Santa is in and out of a house so fast, kids can't see him.

—He knows who's naughty or nice because he checks up during the year.

—Santa's speed accounts for his staying so young: Time slows down for bodies accelerating as fast as his.

—Santa gets energy for his accelerations from a rotating black hole at the North Pole. He swings his sleigh close to the whirlwind surrounding the black hole. He leaves with more energy than he had by a technique known to physicists as the "Penrose Process."

Chicago-based Sears received a report from Santa after he sat in its stores across the nation. Santa says the five most-requested toys from young female supplicants are, in order: Baby Come Back, Baby This 'n' That, Baby Thataway, Baby Alive and Barbie. Boys want Stretch Armstrong first, then Stretch Monster and a bike (tied for second), then a train, trucks and race cars. Living dolls are IN.

Cleveland, Ohio

Scientific answer: Santa's very speedy

From wire reports

How can Santa get everywhere in one night, parents often are asked at this time of year. Answer from two University of Chicago physicists: He's fast.

Gary Horowitz and Basilis Xanthopoulus, doctoral candidates in physics, said Santa travels at the speed of light, and the rotation of the earth gives him 24 hours of night to stop at every house on Christmas Eve. With about two billion households worldwide, this gives Santa about one-half of one ten-thousandth of a second for each.

During the year he flies from house to house to check up on nice boys and girls, and because he's so fast the tots don't see him, said Horowitz, of Silver Spring, Md., and Xanthopolous,, of Drama, Greece.

* * *

The appearance of **Anita Bryant,** orange juice promoter and antihomosexual crusader, at the Orange Bowl football game has been canceled by NBC. The network said if Miss Bryant, a former Miss Oklahoma, appeared at the game between Oklahoma and Arkansas there might be trouble from gay activists.

In turn,, the commander of a Disabled American Veterans chapter in a suburb of Oklahoma City urged a boycott of the game. Jan. 2 at Miami. "We're pro-Anita, not antifootball," said Commander **Arthur W. Jones.**

* * *

Followup: When Queen Elizabeth II opened London's new subway extension to Heathrow Airport Friday, she recalled her first ride on the underground in 1939 with her sister, Princess **Margaret.** The quewen, then 13, remembered that she had to pay the fare out of her weekly pocket money of one shilling (then about 20 cents) and the escalator "like some here today" wasn't working. Four of the six escalators at the new terminal were out of service Friday.

People

* * *

Steve McGarrett, the crime-fighter character in TV's "Hawaii Five-O," said a 70-hour work week is too much and he may retire after this series. The show is winding up its 10th year. . . Mayor **William P. Quigley** of Merced, Calif., is snarled in blue tape, not red, in his dealings with Uncle Sam. He signed a request for federal low-cost housing aid in black ink and got it back with a note asking that he use blue ink. The feds said black looks too much like a photocopy and they want to be sure the signature is genuine. Quigley complied but wrote **James Price,** regional director of Housing and Urban Decvelopment, that the request "approached the height of idiocy." He signed the letter in red ink.

* * *

Splitting: **Cristina Ford,** second wife of auto magnate **Henry Ford II,** has filed papers seeking a legal separation. The action Friday in Detroit was no surprise, as Ford has been palling around for months with model **Kathleen DuRoss.** . . **Cornelia Wallace** asked a Montgomery (Ala.) circuit court Friday for an immediate hearing to order her estranged husband, Gov. **George C. Wallace,** to pay her temporary alimony and support while their divorce suits are pending. Mrs. Wallace said she is "penniless" and "has no money for Christmas" . . . **Robert Hegyes,** 25, "sweathog" Juan Epstein in the the ABC television series "Welcome Back Kotter," has filed for a divorce from his wife, Mary. They've been married four years.

* * *

Sidney Rittenberg, one of the most mysterious figures in China's recent history, has been freed after spending nine years in Chinese prisons.

Several foreign residents have passed him in the streets of Peking or seen him in the shops for foreigners. He told a British correspondent who phoned him: "I have decided not to say anything to the press for the time being."

Rittenberg was arrested in 1968 along with several foreign residents who had taken an active part in the political struggles in China during the Cultural Revolution.When those foreigners were freed in 1973, Premier **Chou En-lai** apologized to them, saying they had been "misled by this very bad person, Sidney Rittenberg."

Rittenberg, born in the southern United States, and about 60, married a Chinese woman and had worked in China since the 1940s as a radio expert.

At the time of the Cultural Revolution, he took part with a group of Red Guards, the "Mao Tse-tung Thought Combat Corps," in an operation which gave them control of Radio Peking.

Santa and the Penrose Process

23rd Dec. Telegraph London

By IAN BALL in New York

TWO physicists at the University of Chicago offered yesterday some scientific guidance for parents trying to cope with the same merciless questions about Father Christmas: How does he visist everybody's house in one night? Why does he never grow old?

Mr Gary Horowitz and Mr Basilis Xanthopoulos, who are engaged in graduate work on Einstein's theory of general relativity, said that the key to both these puzzles lies in Santa's speed.

They have calculated that, with about 2,000 million households distributed over the earth's surface, he must travel about 100 million miles during the night of Dec. 24-25.

½ hour journey

Assuming he spends about one half of one ten-thousandth of a second at each house—"No wonder the kids never see him," commented the physicists—he must accomplish his 100-million-mile journey in about half an hour. Taking into account the rotation of the earth, he has 24 hours of night to stop at every household.

"To do this, he travels at nearly 70,000 miles per second," say Horowitz and Xanthopoulos. "This speed is still only 40 per cent. of the speed of light

Continued on Back P, Col 6

SANTA QUERIES

By IAN BALL

Continued from Page 1

and no challenge at all for Santa.

"The tremendous acceleration that Santa continuously undergoes in travelling from house to house helps keep him young, because time slows for accelerating bodies."

The Chicago physicists expect that some precocious youngsters will want to know how Father Christmas can generate the immense quantities of energy needed to achieve these accelerations.

"At the North Pole," they speculate, "Santa has a rotating 'black hole'," a dense object collapsed under its own weight to the point that even light cannot escape it.

Re-charging technique

"When he needs more energy for his journeys, Santa can swing in very close to the vortex without falling in and dump defective toys into the hole. By a technique known to relativists as the 'Penrose Process,' he leaves with more energy than he had originally.

"Some future Christmas, however, Santa will face his own 'energy crisis,' because the black hole's rotation is slowed every time he uses it.

"When it comes to a stop, so will he, unless his elves can devise an alternative energy source in the meantime."

The clippings are starting to come in—here are a few you may not have seen.

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