

STARRY MESSENGER

THE LIFE OF GALILEO

1. When I Was A Boy 1564 – 81
2. Wrangler 1592
3. The Lecture 1600 - 1609
4. Stars Out Tonight 1609
5. The Brightest Star in Heaven 1611
6. Passion
7. Days Like These
8. Target
9. Letter to Christina 1615
10. Save The Appearances 1616
11. Something Must Be Done 1632
12. Still It Moves 1633
13. When I Was A Boy 1642

Lyrics

Hannes Kvaran

except tracks 7 and 9 by Hannes and Ragnar Kvaran

Music

Hannes Kvaran: tracks 1, 3, 10, 12, 13

Ragnar Kvaran: tracks 6, 9, 11

Hannes and Ragnar Kvaran: tracks 2, 4, 5, 8, 7

© 2000 by the authors

Starry Messenger
The Life of Galileo
 Hannes Kyanan

<p>1. <u>When I Was A Boy</u> An old Galileo -- blind, ailing and under house arrest -- recalls his beginnings and his three remaining sources of solace: his work, his son and his music.</p>	<p>7. <u>Days Like These</u> Accepting a new position as court philosopher to the Medici family back in Florence means leaving in Venice his common-law wife, Marina, and their three children.</p>
<p>2. <u>A Wrangler</u> He secures his first teaching post at the University of Pisa, where he had been a student. His colleagues, once his teachers, are unimpressed.</p>	<p>8. <u>Living As A Target</u> The acceptance and promotion of Copernican cosmology makes many enemies for a man largely incapable of backing down</p>
<p>3. <u>The Lecture</u> Upon losing his first job, Galileo secures a second at the University of Padua in the Republic of Venice, where he studies and presents the laws of motion.</p>	<p>10. <u>Save The Appearance</u> Cardinal Belarmine presents the church's position: teach the heliocentric view as a computational device, and not as the truth, and we will have no problem.</p>
<p>4. <u>Stars</u> In Venice, Galileo perfects the telescope and turns it to the skies.</p>	<p>11. <u>Something Must Be Done</u> Aristotelian philosophers, seeing the new book, "A Dialogue on the Two Chief World Systems," an attack on their domain, convince Pope Urban that the book is dangerous.</p>
<p>5. <u>The Brightest Star in Heaven</u> His book "Starry Messenger," detailing his celestial observations makes Galileo famous. In Rome he is inducted into the Society of the Lynxes, a group of pro-science radicals who hail him as their torch-bearer.</p>	<p>12. <u>Still It Moves</u> Forced to publicly recant his beliefs, Galileo swings from despair to triumph.</p>
<p>6. <u>Passion</u> They all recognize that promoting science creates serious risks.</p>	<p>13. <u>When I Was A Boy (reprise)</u> A summation of a life.</p>

My name is Galileo Galilei. I am 76 years old and I am blind. I live under house arrest by order of His Holiness Pope Urban VIII. I suspect I will live this way until I die. I still have three pleasures left in life. The first of these is my work. My new book *Dialogue on Two New Sciences* has been smuggled out of this country to be published in France. Of course no one in this country would publish a book by a man branded a heretic. The second pleasure is my son Vincenzo who lives with me and helps me. When I lost my sight over the last few years I turned to dictating the book to him. The third pleasure is, as it has been most of my life, my music. When I need cheering up I can still play the lute. And I can rarely play it without thinking of my father, Vincenzo; it was he that taught me to play when I was a boy.

WHEN I WAS A BOY

When I was a boy, living in the western coast of
Pisa
Where towers and people stand less straight than
they should
Our family of nine struggled and bickered
As families of nine often will
And mother was dismayed
That this poor musician she married
Would never support her the way she proper

For father was a man
With a dream and a plan
To play and write music that captured the
grandeur of Greece long gone
From Venice to Florence for princes and nobles
He searched for the patron who'd pay for his
passion
"Son," he told me once,
"You've got to work hard and you've got to have
talent
Then find a rich man to make it all happen."

When I was boy
I studied with monks in the monastery school
And I had decided on giving my life to God
'Til father came and he took me away
He said, "Son, a boy with a mind like yours
Should set his sights a little higher
It's clear to me that a doctor is what you should
be"

University bound, in Pisa again
Determined to do what father wanted me to
But all that I learned was that all my professors
Were arrogant, out-dated fools
Til I saw the beauty of Euclid
And the genius of Archimedes
And I was struck by mathematics just as surely
as if by lightning
And I knew where my future would lie

When I was a boy
And a long road ahead lay waiting
All that I had, as my journey began,
Were hope for the future, faith in myself
And a stubborn belief that someday I was
destined to be
More than just a boy
But the world had not yet moved
When I was a boy

Upon discovering mathematics I quit medical school
and became a tutor of mathematics until I secured a
position at the University of Pisa, where I had recently
been a troublesome, irritating student known for my
still-annoying habit of attacking the teachings of
Aristotle. Those arrogant, out-dated professors were
now arrogant, out-dated colleagues, and they felt no
warmer to me than I did toward them. I can well
imagine what they used to say about me.

A WRANGLER

Well he seems to think that he's the light of the
world
The universe revolves around him
And he seems to believe every word he speaks
Is a gem and a pearl of wisdom

You see it when he's standing in front of a class
Watch it in the way that he walks
It's clear the sound that he likes best
Is the sound of his own voice when he talks.

*He's a wrangler - he won't act as he should
A trouble maker - he's doing us no good
I didn't like him as a boy; I don't like him as a man
If he won't toe the line, surely we can find
A mathematician who can, who can*

Give a little credit where credit is due
He's made a couple of fine inventions
If he'd spend his time doing work like that
He'd save us all a lot of trouble.

But he thinks he can argue philosophy
When he's in way over his head
He's saying he can prove Aristotle is wrong
He's proving that he's a fool instead.

Chorus.

He treats his students as if they were friends;
No respect for his colleagues
He spends his nights out on the town
With cheap wine, chasing women

And he seems to be quite unaware
That he's digging himself in deep
If he doesn't learn to keep his place
He'll wake to find that he has no place to keep

*He's a wrangler - he won't act as he should
A trouble maker - he's doing us no good
And when his contract's done
And he doesn't have a friend
We will watch him leave and I do believe
That we'll never have to, ever have to, hear from
Galileo again
We'll never hear of him again*

And indeed, when my contract expired it was not renewed and I was again out of work until influential friends intervened and I was hired as a mathematics instructor in the prestigious University of Padua, located in the Serene Republic of Venice. I lived there for eighteen years and did work in many fields. Two of these were to be of utmost importance. The first was the discovery of the basic laws of motion.

A LECTURE

Gentlemen take your seats. Class will begin
Today we mean question maiden nature
And have her tell us something of herself
But she's shy so we must ask politely and obliquely
You see, nature's like a woman,
Who doesn't give her secrets on the cheap
But if you are polite and if you are persistent
Perhaps you can persuade her to drop her silken cloak
And give us just a glimpse of what lies underneath

But you must know what to ask.
So prepare your questions well
And you must know how to ask
For she speaks in mathematics
And the words she understands are circles and numbers and triangles
But we'll try today and see what she'll reveal.

And for that we'll need a tempo – some way to measure time
So we'll use the time-piece that each one of us carries
That's the never-ending tapping of a pulse inside a wrist

There's the beat, now clap along and keep it steady, and watch the ball rolling down the plank
As the beat proceeds 1-2-3
The ball covers distances of 1-4-9
Moving ever faster with the square of passing time

The distance that it covers remains in strict proportion to the square of the time
When it's 1 – 2 - 3. It moves 1 – 4 – 9

When it's 1-2-3-4. It moves: 1-4-9-16
When it's 1-2-3-4-5-6
It travels 1- 4- 9-16 - 25 -36
And it happens every time
So let's try that again, and again and again

So how should we suppose that an object means
to move?
Let's watch a ball again

Roll it down a slope it speeds up...
Roll it up a slope it slows down ...
Down -- speeds up
Up -- slows down

So now we can imagine what must happen
If we send it rolling neither up nor down.
It should not speed up
It should not slow down
Which is to say it ought to merely roll along
forever.
So the native inclination of a body once in
motion
Is to carry on in motion and to never stop.

Yes, you in the back I see you have some
reservation
How can I deny the fact that things around us do
in fact
Always come to rest. Good question

And the answer, friend, is friction,
That inevitable counter-force
That wrestles every earthly motion finally to a
halt
But that doesn't change the fact that motion is as
natural as rest

And you there in the next seat
What would be your comment?
Do I think that I'm contradicting the mighty
Aristotle, the grand old philosopher himself?
He said the speed of fall depends upon the mass
of the object that is falling
I've told you here and shown you over there that
it isn't true

He said anything in motion always comes to rest
I've told you and I've shown you that it simply
isn't true
So how, then, do I reconcile my stand with
Aristotle?

The answer is I don't.
The answer is I won't
Aristotle was wrong.
Class dismissed

It is the subject of the laws of motion that my new book
addresses; it took me fifty years to finally write down
what I discovered in my twenties. The second great
adventure began when I heard of a Flemish inventor
who was trying to sell his newest toy. It was a long tube
that made far away objects appear to be near. I sensed
the importance of such an invention and I spent a
fevered week of work experimenting until I had created
something far better than the poor Flemish gentleman
had ever imagined. In 1609, at the age of 45, I aimed
my new invention at the sky and set the rest of my life
in motion.

STARS

The sun has almost set, in western skies
And soon, as countless times before, a full moon
will rise
This time for the first time
One man will see this all with new eyes
The air is clear and bright
There will be stars out tonight

Questions the ancients asked, the centuries
concealed
Now tonight to one man the truth will be revealed
And this could be the moment that we learn
Was it Aristotle or Copernicus who's right
The truth will soon be told
By the stars out tonight

And O, who could have known; who would have
guessed
I am awed, I'm overcome, I am possessed
By the magic of the moment, by the music of the
stars
The miracles this instrument shows
There are shadows on the planets,
And mountains on the moon
And I am the only man alive who knows

Suddenly the misty the Milky Way
Shows itself as separate points of light
There are stars... stars upon stars
There are hundreds on thousands, no there must be
millions
Of stars out tonight

Within a year I had published *Starry Messenger* to announce to the world my discoveries. The most shocking were: the moon is pock-marked and imperfect, not perfect, as demanded by Aristotelian theory and that Jupiter has four moons revolving around it, indicating that not *everything* in the universe revolves around the Earth. I began to be convinced of the correctness of the theory of the Polish cleric Nicolai Copernicus, whose work in reforming the calendar for the Church had led him to the radical conclusion that the Earth revolves about the sun.

The book made me a celebrity. I used my new renown to secure a position back in my home-state of Florence as court mathematician - and philosopher. My decision to name the four moons of Jupiter after the Medicis - the rulers of Florence - may have helped in this effort.

I soon traveled to Rome and met with the most influential people. I had two audiences with the Pope who blessed my work. I was also inducted into the Society of Lynxes - a group of young men dedicated to the advancement of science and experimentation. At the ceremony to make me a member we made fine speeches, we spoke of the pursuit of the truth - but mostly we drank.

THE BRIGHTEST STAR IN HEAVEN

Once upon a time the Earth and Heaven
Stared across an empty, lonely space
Here below the center of existence
And up there changeless beauty in its place

Suddenly this man and his invention
Looked into the distant night-time skies
Reaching out he grasped the very heavens
And suddenly the stars are in our eyes

*So raise a glass and drink a toast
To this man tonight we host
Then sing it loud for all you're worth
That the brightest star in Heaven
Now lives on Earth*

Galileo, no one could deny you
Feelings of vindicated pride.
Let your hapless critics try to stop you
God himself is standing at your side.

Every eye and ear is now upon you
Surely you must find this moment sweet
Science, and your wit, they are your weapons
And Rome lies captive at your feet
Chorus

One by one you've overcome the doubters
Soon someday you will convince them all
Lead us on, Galileo, we will follow
Through the breach in old tradition's wall
Chorus

To the stars and back he has been
Returned to Earth to tell us what he's seen
Let those with wisdom open up their eyes
Leave it to the fools to refuse to recognize
The strength of the message he brings from the
skies
The challenge in our lives we all must recognize
The brightest star in Heaven now lives on Earth
The brightest stars in Heaven now live on Earth

PASSION

Inside this room, the winds of change
Blow like a storm in the winter
Open these doors let this cleansing wind fly
All we risk is all we have

Outside this room, cold sullen walls
Block out the forces of reason.
Close by and watching, a desperate voice calls,
Hoping to hold back the tide.
With everything but time on its side.

*Will the passion that brought us here
Carry us from now on
Have we courage and strength enough
To fight till the battle is won
'Til ignorance flies and at last
The darkness is gone.*

This fragile candle that we now light
Could be snuffed out any moment
Truths we have seen in its faltering flame
May not survive 'til the dawn

For there those who stand to lose
Self-so called masters of wisdom
Rather than yield they will simply refuse
They'll fight for the right to be wrong
They are desperate now and they are strong
Chorus

We have seen the shadows of tomorrow
Cast by the glowing light of youth
So we pledge our hands to each other
So we pledge our lives to the truth.

And raise a glass, and drink a toast
To the Father, Son and the Holy Ghost
And sing it loud and we will say
That the brightest stars in heaven
Have come to Earth to stay

When I left Venice I left behind some hard feelings,
some fine friends, and my common-law wife Marina
and our three children. I was sure that we would all
meet again, but Marina and I were to never each other
again.

DAYS LIKE THESE

My heart's in a letter, and the letter's in my hand
I only hope you'll understand why we are apart
I know that I'd feel better if I thought you would
believe
That I had to leave to save this homesick heart

*We have been so much
Promise we'll never lose touch
I still need you on days like these.*

Will I be forgiven for doing what I must?
I can only hope and trust and believe in you.
This love that I've divided I know I bear the
blame
But my home called me and I came.
What else could I do?
Chorus

I don't expect you'll agree with my reasons
I know you'll think I've made a bad choice.
But I see my dreams coming true.
No longer scratching at making a living
Here they know what I'm worth
They'll give me all I want
Everything but you.
Chorus

The implications of my conversion to Copernicanism
were not lost on some in the church. I came in for
criticism by those who felt that scripture demanded that
the sun rotates around the Earth. How else, for
instance, could one explain the story of Jericho?
Clearly I posed a threat to two sets of people -- the
clergy, who defended scripture and the philosophers
who saw in me a challenge to the cosmology of
Aristotle. The harping at me was incessant. I was even
formally accused of heresy and an investigation was
begun although nothing came of it at the time.

TARGET

I see my enemies on every side
Trying to leave me with no place to hide
Should I fight them or forget them?
Soon I must decide

Who will determine what the other man thinks
We stare each down and wait to see who blinks
In the end I know we'll win this
This war between a pigeon and a lynx

*Living as a target, caught in the sights
Of fools and philosophers afraid I might be right
When they cannot fight the truth, rather than try
They'd murder the messenger
And hope the message dies*

There are stakes in this they cannot see
This is about a man's right to think free
I did not make the Earth and heavens
Their quarrel is with God and not with me

*Living as a target, always on my guard
Weary and wary and battle-scarred
Still they should consider this before they attack
This is a target prepared to shoot back*

Heresy - the word has been spoken
From a pulpit in Florence by a fool of the cloth
Suddenly the safety of silence has been broken
This could be the undoing of us both
From now on, this will take on
A life of its own

*Living as a target, living with the doubt
That sooner or later my luck will run out
If I give them half a chance and falter just a bit
An arrow will fly and the target will be hit
The target will be hit*

I sent a letter to a friend in which I outlined my growing belief in the Copernican system and my opinion that the Church and Science had separate roles and that for the church to rule on matters of science could be devastating should they be proven wrong. The letter, along with false, incriminating versions of it began to circulate. Ultimately the letter was published in the form of that I sent to the Archduchess Christina of Florence.

THE LETTER TO CHRISTINA

The words of God
Whisper to the hearts of men
Of sin and holy grace
It was no intention of scriptures to teach
Of moon and stars and space

When Jesus spoke
It was in subtle parables
His message to tell
If God the son chose to speak in metaphor
Could it also be, that the Father does as well?

*Days come and they're gone before I know it
Fear cannot be my excuse
If I've learned anything my duty is to show it
Trusting that the God who made my mind
Will not condemn me for its use*

Once we had all the answers
Or so we could believe
We should have known we were lucky
But it's too late to close our eyes,
As if we cannot see

Oh men of God,
Don't put our faith on the wrong side of truth
That would be the greatest crime
If you take a stand and it turns out you're wrong
It will haunt us for all time.

*Chorus
I know the God who made my mind
Will not convict me of its use*

The letter circulated widely. I was finally summoned to Rome and told by Cardinal Belarmine that it was acceptable to teach the heliocentric theory only as a mathematical convenience and not as literal truth.

SAVE THE APPEARANCE

Galileo, it can't be news to you
That some of us can't get used to you
Saying this world of solid ground,
Is floating and flying and spinning around the sun

The very idea it's ... I'm looking for the word...
It's absurd, it's nonsense, we will not countenance
This much violence to scripture and to common sense.

Trust me friend, I'm on your side, we'll keep the censors satisfied
If you say it's just a theory, an abstract hypothesis,
Come on Galileo -
Work with me on this!...
You know the problem

Thomas Aquinas has perfectly reconciled
Aristotelian logic
And Christian scripture
If you take even a brick from the wall
Then surely you see that the whole thing falls
And we're left believing in nothing at all

Fighting this, it wouldn't be wise
But I know you can't close your eyes
So let me offer you a small surprise.
Galileo - a compromise

*If you want your clearance, without interference
Then play it smart, save the appearance
Say it's hypothetical, say it's theoretical
Say it any way you feel you have to.
But just don't say that it's true.*

Friend won't you behave.
Be one less soul we need to save
Promise this won't be taught or defended
We can say this conversation is ended

But if you persist in this act defiance
Then I will insist that you come to compliance
Why don't you see there's an easy alliance
You leave the truth to us and you go on with your
science.

But honestly...
Are you suggesting that God in his wisdom would
spend his affection
On some insignificant planet?
Would he have placed, the very creation
He made in his image at any place else but the
center of all of existence?
It makes no sense...

And don't you find it odd?
That you know more than Aristotle,
You know more than St. Aquinas
More than God?
But we needn't worry Galileo

*Chorus ...
You can say it's mathematical, nothing really
radical
Just don't say that it's ...
You know that there's no way that it's...
Just don't say that it's ...
You'll never get away with it ...
Just don't say that it's true*

In 1632, at the age of 68 I finally published "A Dialogue on the Two Chief World Systems." I felt that I complied with the church's demands by structuring the book as a conversation among three men: Salviati, presenting clearly and rationally the Copernican view, Sagredo (modeled on a now-dead friend from Venice) as the interested, but uncommitted listener, and, Simplicio

arguing as the tired, befuddled Aristotelian. The book was approved by a Florentine censor and printed. Had the plague not been afoot it would have been sent to Rome and much may have turned out differently. The book caused a sensation as soon as it hit the stores. A group of Aristotelian philosophers approached Pope Urban to convince him that the book was heretically dangerous, and, worse, that Simplicio was a mocking caricature of the Pope himself.

STOP HIM

Surely your Holiness knows why we are here
Surely you must share our concern
It's clear this man will never learn
Nor will he will disappear

By now you've thought about the characters in the
book
A simple man uses words you once used
Your holy honor stands abused
Consider how it will look
If you do nothing

*Something must be done to stop him
He's already gone too far
He has disobeyed yet he stands proud
This arrogant heresy cannot be allowed*

We need not remind you the duty that you hold
The faith of our fathers in your hands
He must be made to understand
The faithful do as they are told

North of the mountains, Protestants wait
To see if you will or if you can
Take control of this errant man
You must not hesitate.
They'll call it weakness if you do
Chorus

How could I have been so mistaken?
How could he have been so cruel?
Words that were spoken in friendship
He puts in the mouth of a fool.

I thought that he understood me
He would not teach or defend
If he's permitted, unchallenged
Who knows what message it sends

*Ban the book and burn it
Summon him without delay
And if he says he's too sick to travel
Send someone to fetch him anyway*

I know that I won't rest easy
Until the faith is made strong
There is one way to please me
He must admit that he's wrong

*This unacceptable position
Must be addressed now and here
Notify the Inquisition
Summon Galileo to appear*

Something will be done to stop him
He's already gone too far
Do it by persuasion or do it by duress
But one way or the other Galileo must confess.

*I, Galileo Galilei, touching the Holy Scripture with
my own hands, swear that I have always believed
and will in the future believe that the sun is not the
center of the world and that the earth does not
move.*

*With a sincere heart and faith I renounce, curse,
and hate these errors and heresies contrary to the
scriptures. I swear that in the future I will
nevermore write or say anything to cause such
suspicions again. Moreover, if I know of any
heretic who holds similar opinions I will denounce
him to the holy office.*

*If I violate any of the promises and oaths I have
made I will subject myself to all the pains and
punishments decreed against me.*

*Signed with my own hand on the twenty-second of
June, 1633.*

STILL IT MOVES

I have lost and they have won
A lifetime's work is now undone
I can't believe that I will ever raise my head up
again
I turned my back on all I believed
My life is over
I think I understand, the sadness that Saint Peter
felt
When he chose to save his life, when he denied
Jesus Christ
Surely I sinned no less when I denied the truth.

And there can be punishment too harsh, no
penance that's enough
To cleanse this tarnished soul
I know that I can never be forgiven
Not by gracious heaven
And surely never, ever by myself

But this much I know; whatever my fate
They will change the truth with fear and hate
They shout at the stars, they order the earth to
stand still
They believe that it will.
As if God's holy plan needed permission from
man.

*O, no this world will roll on
Whether or not mankind knows or approves
Let them say what they will
Still it moves.*

If we will observe the work of God's hand
Then we may understand, but we not will
command
They think that this firmament of light
And the stars arrive at night
Just to dance for our delight
As if this whole universe had nothing better to do.
Chorus

Let them quote Aristotle to the stars
And read scripture to the dirt for whatever that
proves
The sky is not listening and the earth does not hear
Let them say what they will,
Still it circles and cycles, revolves and it rotates
It twists and turns and tumbles and gyrates
They hope to hold it frozen in place
But it slips from their grasp and flies into space on
its way

And it moves
No matter what they want --
It moves
And though I shall never speak of it again –
Still it moves.
Still it moves

WHEN I WAS A BOY reprise

When I was a boy
I could hardly have known
How long a road, I'd set my feet on
A journey too far, too much for one man
Would that I could have
A whole other lifetime to finish what I began

But if I were a boy
And I could live my life again
If all I know now had been known to me then
If I could have chosen, would I have changed
Spared myself the sorrow
And saved myself the shame
O, no, I swear I'd have lived my life the same.
I will not regret one single step
Of this journey I began
When I was a boy
When I was a boy