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# Einstein and Eddington

By Peter Moffat

Slowly and carefully!  
Keep it coming.  
Gently now.  
Ver careful.  
Careful with the telescope.  
Dyson! What are you doing?  
We need some help here!  
All right, men, come on,  
put your backs into it.  
Nearly there.  
Come on now, just one more push.  
Nearly.  
All right, men, not far to go.  
Another foot.  
- And up.  
- That's it!  
It's bad news, I'm afraid.  
The photographic plates,  
they've been damaged.  
It's the heat.  
They weren't stored properly.  
All of them?  
There are only eight  
which will work.  
Then we have eight photographs.  
We won't have any at all if this  
weather doesn't lift by tomorrow.  
If the cloud breaks  
at quarter past two tomorrow...  
and we look up into the heavens,  
take photographs of the eclipse...  
...we will be scientists at our work.  
We'll be looking at  
the poetry of existence.  
And if Einstein's right, the universe  
will never look the same again.  
Well, it had better stop  
raining then, hadn't it?!

Got it!

Match points.

This is it. Three years, we've been  
playing this pair, we've never won.  
Seize the moment, Eddington.  
Out!

We've won. We've won.  
Well played.  
Well played, old boy.  
Well played.  
William, I think it was in.  
What?  
I think the ball was in.  
The sun was in your eyes,  
you couldn't possibly see.  
You've taken five years of defeat  
with impeccable politeness, Eddington.  
- Accept this victory with good grace.  
- No, the ball was in.  
Let him have his moment.  
He's off to fight.  
Don't spoil this.  
He didn't tell me.  
I don't consider it a victory.  
I think you've made that very clear.  
- Sorry, I'm being...  
- What? Pig-headed?  
- Yes.  
- And stubborn.  
You're very fond of William,  
aren't you?  
I could see at the tennis.  
You should tell him.  
What's that?  
Some of the committee had  
doubts about appointing you  
on account of your youth.  
- Sir Oliver.  
- You must be the sister.  
Know what I said? I said  
there have been nine directors  
of the Cambridge Observatory  
since Isaac Newton was here.  
Each of them have slept where  
you'll sleep, eaten where you'll eat  
and each of them was as damned sure  
about Newton as the man before.  
Tea would be nice.  
And cake.  
Winnie.

I told them, "You listen to me,  
what is there to do after Newton?"  
We have the truth,  
we know how the universe works.  
We need a director who can measure  
and describe what we know to be true.  
We need Arthur Stanley Eddington.  
Bugger theory. Give me  
the best measuring man in England.  
The jam's home-made.  
Excellent.  
I'll leave you men to talk,  
shall I?  
Perhaps there'll be  
a Mrs Eddington soon.  
There's a minimum height of 5' 7".  
For astronomers' wives?  
My son Raymond is 5ft 6in.  
You know what they did?  
The recruiting officer  
measured him in his shoes.  
Oh, I see, the army.  
Which, um...?  
Cambridgeshires.  
We're damned proud of the boy.  
I know you're a Quaker  
and won't fight.  
I've no quarrel with that.  
But you're worried.  
Because you're an Englishman,  
you feel your patriotism  
is in conflict with your faith.  
I can help.  
The University of Berlin  
is gathering together  
the best German scientists.  
For reasons obvious.  
German science is putting itself  
at the right hand  
of German military ambition.  
I see.  
There's one man they want  
very badly. We don't know why.  
We don't see the point of him.

What does this have to do with me?  
I want you to look at this  
man's work and give a lecture.  
We need English science to remind  
everyone just how strong we are.  
Newton's truth is  
a great strength to us all.  
Good man.  
What's his name?  
Albert Einstein.  
What are we doing?  
I'm steering the boat.  
Without looking?  
The wind direction, the tiller.  
- Yes.  
- Close your eyes.  
Hans, Eduard, all of you,  
listen to me! What do you see?  
A man on a boat on a lake  
with his sons.  
The man is taking off his socks.  
He rolls them into a ball.  
Ready, Hans?  
And he hurls the socks  
at the people on the bank.  
What is the speed of the socks?  
The speed of the boat  
added to the speed of the socks.  
But what about light?  
What about light?  
What if I shine a beam of light at you  
on the bank from my boat?  
What is the speed of the light?  
The speed of the boat  
added to the speed of the light?  
Yes.  
No.  
Why not?  
Why not?  
Come on, boys,  
we'd better get home.  
Hey, wait for me!  
Sorry!  
He was in the lake!

**GUARD:**

Why were you in the lake?

In the interests of science.

Were there any women impressed by your performance? There usually are.

I was talking to the children.

You talk to the boys about your work, but not to me?

Any pudding?

- Where are you going?

- I'm leaving.

You can't leave, I'm working.

No!

Mileva, please!

Mileva!

Please!

When we were students, you said to me we would share our work, we are physicists together.

You lied!

What I'm doing now,

I can't talk about it.

I don't have the energy or the time to share it with anyone.

What is it? What is your work?!

Gravity?

Max! Max Planck!

Hello, Albert.

You don't remember me, do you?

You don't even remember my name!

Mileva!

It's fine. She's always leaving.

So, nine years' work on gravity and all you have are questions.

Beautiful questions, of course, but no answers.

Perhaps conditions are not right here in Zurich.

I think you need some help.

I don't need anything.

No.

If you are content to remain an obscurity

at a second-rate university...  
Why are you here, Max?  
We could offer you  
a great deal of money.  
You didn't answer my question.  
...a professorship  
and membership of  
the Prussian Academy of Sciences  
if you join us in Berlin.  
Come back to Germany, Albert.  
Who's us?  
The university.  
So, you're offering me money,  
status...  
Yes.  
- Prestige.  
- Yes.  
The answer is no.  
I have a family, Max,  
I can't just uproot them.  
No, you can't, I agree with you.  
To be a great scientist,  
there are always sacrifices  
that have to be made.  
Finish your work on gravity, Albert.  
I think you could be great.  
Train ticket to Berlin.  
In case you change your mind.  
Everything in the universe  
is ordered.  
Everything is bound  
together by one force.  
Gravity.  
Everything happens for a reason.  
Isn't that wonderful?  
Newton described how gravity acts  
and explained why.  
He was right, but he was worried.  
Because...  
...you can't touch gravity.  
You can't see it.  
And Newton struggled with this.  
He worried and he doubted.  
And then he found his answer.

What fills the unexplained?  
God, Winnie.  
God's will.  
Newton described  
everything perfectly.  
But he left room for God too.  
- I love you.  
- I love you.  
Don't forget to visit  
your aunt and uncle.  
- I'm going to work.  
- I know, I know.  
I'll send for you all  
as soon as I can.  
Look at me.  
Hans.  
Hans.  
Hans! Hans!  
Einstein, Albert.  
Anything we've got.  
This is nine years old.  
It's all there is.  
Max!  
You're here!  
Welcome to the greatest university  
in Europe.  
- Evening.  
- Good evening.  
Ah!  
- Fritz Haber, you know, of course.  
- Fritz Haber.  
Einstein.  
You look a little...  
Well, less Jewish  
than the last time I saw you.  
I'm a Christian now  
in a Christian country.  
I have renounced my Jewish faith.  
So what are you working on?  
- I'm looking at gases.  
- Which?  
Ammonia.  
What about it?  
Its conversion into nitrate.



Explosives?

What use is science

if it has no practical application?

We should go.

We're late.

For what?

There's someone I want you to meet.

Mr Koppel.

Thank you.

Who is this "someone"?

He who makes it all possible.

The 12,000 marks a year?

Mm-hm.

And he wants to have

a good look at his investment.

Max, I thought it was

part of my contract

that I would have total freedom.

Just keep what you say

clear and simple.

You're late.

I was invited precisely at the time

I was supposed to arrive here,

therefore it was impossible

for me to be here when I left.

What?

The energy which an object has because  
of its motion will increase its mass.

The increase in mass makes it harder  
for the object to increase its speed.

Try as he might,

the brilliant scientist setting out

to meet the fat industrialist

was always going to be late.

If the sun were to disappear now,

according to Isaac Newton

and his laws of gravity,

we feel it now.

Instantaneously.

The force of gravity moves faster

than the speed of light.

How can that be?

This is what I'm paying for?

What are you saying?

W-W-What is he saying?  
Thank you very much for all  
the money you're giving me.  
Goodbye.  
This is the Einstein  
you speak so highly of?  
Yes.  
What does he offer us?  
He has a truly original,  
probing mind.  
Questions don't win wars.  
You have plenty of scientists  
who can help you practically.  
He is a theorist.  
What good is theory to me?  
After two centuries,  
he might just prove Isaac Newton,  
the greatest ever English scientist,  
the man who set down the laws  
that describe the workings  
of the whole universe, wrong.  
That's what he can give us.  
Slow down! Wait!  
You're going too fast.  
So...  
We have done exactly 1,500  
in the first nine months of this year.  
So, if we keep going at the current  
rate, and building a variant for  
poor weather, shorter daylight hours  
and possible illness,  
then we should have filled in  
the whole map  
by mid-afternoon of December 25th.  
Otherwise known as Christmas Day.  
Well,  
Quakers don't celebrate Christmas.  
I should be back by then.  
"Over by Christmas"  
is what everyone says.  
William...  
There's something I want to say.  
When do you go?  
Seven days' training, then France.

That wasn't what  
you wanted to say, was it?  
No.  
I know what it is.  
Do you?  
Your religion is  
against what I'm doing.  
Which is why I was afraid  
to talk to you about it.  
I'm truly sorry, forgive me.  
Here.  
A token of our friendship.  
We were saying, it's been years.  
Ten.  
A nephew out of the ether.  
Hasn't my Elsa grown?  
She was still a child  
when you left Germany.  
Why did you leave?  
I have no attachment  
to any country or place.  
We all belong to the country  
we're born in.  
I renounced my German nationality.  
I was German, now I'm Swiss.  
What difference does it make?  
And there's no such thing  
as the ether.  
If it existed, light would be  
slowed down by it and it isn't.  
Light always travels  
at the same speed.  
There's no such thing as the ether.  
What else is there, nothing?  
Freedom.  
Imagination.  
I think your imagination  
is a little over-excited.  
Not excited enough.  
I intend to excite it  
a great deal more.  
Shall I take the top off the egg?  
Arthur?  
There you are.

There's something in this.  
That's good, isn't it?  
I don't know if it is or not.  
I'm delighted English science  
is taking such an enlightened  
approach towards Germany.  
How did you get in?  
You left the door open.  
I brought you some things.  
Thank you.  
I love Schubert.  
- Do you?  
- Yes.  
Good.  
Who else?  
Beethoven?  
Too personal.  
He makes me feel...  
Yes?  
Nothing.  
What does he make you feel?  
Naked.  
Music and physics are nourished  
by the same sort of longing.  
I don't know anything about physics.  
Good!  
Good.  
That is, what I mean to say is...  
...that it will have to be music...  
Between us.  
It's only noon.  
Your lecture's not until two.  
- I know.  
- Where are you going?  
- My friend William, his train is leaving.  
- When?  
Now. You were right about friends  
and how one must say things.  
Ah, not so fast!  
May I have a light, sir?  
Eddington!  
Come to see the regiment off?  
Yes.  
This is my son, Raymond.

Hello.

- Lady Shirley, you know.

- Yes.

It's a proud day to be English.

And to be in England.

- Yes, good luck.

- Won't need luck.

On you go, my boy. Go on, Raymond.

I'll get the door. On you get.

I wasn't given

much time to prepare this.

We have, I think, most of us, been  
the victims of Sir Oliver's requests.

Albert Einstein

has no regard for the conventions of  
scientific presentation.

Even his mathematical symbols  
are all of his own making.

To be frank, it might as well  
be a foreign language.

But I decoded some of it.

He's suggesting that time is  
at different speeds in the universe,  
depending on how fast you're moving.

The faster you move,  
the more time... slows down.

Time isn't the same everywhere?

That's what he says.

Yes, time isn't shared.

It's not an absolute.

What are his references?

None, but...

Acknowledgements?

None.

Does he propose how  
any of this might be tested?

No, but that's not the point.

What is the point of theory  
if it can't be tested?

What does he say about gravity?

Um...

Nothing.

What holds everything together?

What dictates

the motion of the planets?  
What controls the life  
of the universe as a whole?  
Gravity.  
Newton's laws.  
Our map for everything.  
So this Einstein, in other words,  
has nothing to say  
about the real world?  
Eddington?  
That's right, no.  
It's not real.  
Left them happy.  
Was that your intention?

**MAN:**

Germans make me sick!  
Stop this!  
Argh!  
Leave these people alone!  
Winnie, these are the Mullers,  
a German family who need our help.  
Let me clean you up.  
It was horrible.  
But it's over.  
No, no, no, it's not that.  
One of them asked a question  
I didn't answer.  
Who?  
At the lecture.  
He does say something about gravity.  
Einstein?  
He doesn't mention it, but if  
you look properly, it's obvious.  
He poses a question.  
Turn this way a little.  
Newton says that gravity  
is instantaneous,  
but Einstein says  
that the speed of light  
is the speed limit of the universe,  
so gravity can't be instantaneous.  
They can't both be right.  
Einstein or Newton,

that's the question he's asking.  
Well then, the truth  
is all that matters.  
And you must go after it.  
Our supper?  
I thought you were  
arriving tomorrow.  
Hans wants to know...  
Go on, ask your father.  
Is your work nearly finished?  
Let me show you  
what I've been working on.  
What is it made of?  
Where does it come from?  
What is it?  
Gravity.  
That's what I'm struggling with, Hans.  
I can't make sense of it.  
You have changed the way  
that you do everything.  
The symbols you're using are...  
...strange and complicated.  
You've moved a long way  
away from me.  
I brought the Schubert to play.  
- Play the music.  
- No.  
Why not? You love Schubert!  
No.  
I came to Berlin because I thought  
there might be a future for us.  
I see now that I was wrong.  
Do you want a divorce?  
Hans!  
When my work is finished,  
I will come and tell you  
what it means.  
I promise you!  
We withdraw into  
the presence of God.  
We are still.  
We are silent.  
We listen,  
so that God may be heard.

Show yourselves!  
Who are we?  
If we are anything...  
...we Quakers are  
men and women of principle.  
We will never believe...  
...that any man, woman or child  
is unwelcome  
in our beloved England  
because they were born in another country.  
This IS your home.

**CROWD:**

Traitors! Where's our traitor?  
- Coward.  
- No, it's not like that.  
My boy's gone.  
What makes you so different?  
Why is it so easy for you to say no?  
Stinking cowards!  
You should be ashamed of yourselves!  
Cowards!  
Absolute disgrace!  
I have it from the highest authority.  
A huge offensive will follow  
the first use of the gas.  
Then the war will be shorter?  
Oh, yeah.  
German lives will be saved.  
Yes.  
What are you doing?  
What is this?  
My son for years  
has been doing nothing.  
Now, in the army, he's found a purpose.  
He's transformed.  
It's a good feeling to be able  
to call oneself German again.  
Did you know he was  
going to be here?  
Your membership of the Academy  
of Sciences has a consequence.  
You have become  
an official of the state,



which makes your nationality German.

I gave it up.

The Kaiser himself has personally  
decreed your return to German citizenship.

Then the Kaiser himself should have  
thought to ask me first.

Show him.

This is a list of the greatest names  
in German cultural life -  
the inheritors of Beethoven,  
Schubert, Goethe.

Yes, but what is it?

A manifesto to be sent all over the world,  
even to England -

a statement of solidarity

with the German army,

signed by just 93

of the highest names.

It will be your honour

to be the 94th signatory.

Is Goethe going to

fight Shakespeare?

We could have a Swiss jury

and decide the outcome

without any more bloodshed.

I won't sign.

You are an expensive addition  
to the university.

Are you threatening me?

He's reminding you

of your love of God...

...and your duty to your country.

What do you give him, Max?

Hm?

I work on artillery trajectories.

I have a contract,

and my part of it

is the work that I do.

I do not belong to anyone.

You cannot have my name.

The Einstein paper.

I've been told it's unavailable

until further notice.

You've been told? What does that mean?

All German scientific journals  
have been taken out of circulation.

Eddington?

Are you all right?

- I was looking for something.

- What?

The Einstein paper.

Why? You made clear your views.

A very good job you did.

Whatever you might think about

German military ambition,

it has nothing to do with German science.

Really?

"A manifesto to the civilised world.

"The German people are one."

Max Planck - scientist.

Wilhelm Rntgen - scientist.

Fritz Haber - scientist.

I think this makes it clear that we cannot

distinguish between the German military

and German scientists,

wouldn't you say, old chap?

He's not there.

Einstein's not on the list.

But it just so happens

that, at this moment in history,

he has moved himself to Berlin.

I think that shows us

where his allegiances lie.

Consorting with the enemy

is a treasonable offence, Eddington.

Arthur!

Come with me.

Agnes, the sun.

Die Sonne.

Die Sonne, yes.

Uranus.

Uranus.

Neptune.

Neptun.

- Saturn.

- Saturn.

The planets make their orbits

around the sun.

We can measure their orbits  
very, very precisely.  
Newton's theory of gravity tells us  
where they'll be  
when they pass closest to the sun.  
He's always right, but...  
...with Mercury, he's out.  
No-one likes to admit it, but  
the reality is a tiny fraction different  
from that which  
Newton predicts it should be.  
But by how much?  
The length of a fingertip  
in millions of miles, but still out.  
- Agnes, um... Mercury?  
- Merkur.  
- Merkur.  
- What are you doing?  
I'm going to write to Albert Einstein.  
Every theory must make predictions  
about the real world.  
I want to ask Einstein  
what his theory predicts for Mercury.  
Handel.  
Technically good,  
but essentially shallow.  
Wagner?  
Indescribably offensive.  
I feel only a deep disgust for Wagner.  
Mozart?  
Mozart...  
In Mozart, I see a reflection  
of the inner beauty of the universe.  
We've been talking about music.  
Yes.  
All day.  
When I should have been working.  
Is it because you are stuck?  
You said  
you knew nothing about physics.  
Let's keep it that way.  
This is the senior common room.  
She's a woman.  
Do you know, Haber,

I think you could be right.  
Quick! What shall we do?  
God knows!  
Anything might happen.  
You should eat more.  
You're too thin.  
This is like the potato salad my mother  
made me when I was a child, only...  
What?  
Not as good.  
Ah, I bought you a present.  
Albert?  
This Englishman  
has asked me a question.  
One tiny part of the universe  
is behaving badly.  
The orbit of Mercury  
is outside the law. Why?  
If I could make my thinking on gravity  
fit with Mercury's bad behaviour...  
...then it would take me  
a long way... towards...  
Towards what?  
The first step  
towards a new way of thinking.  
A whole new way.  
Are you unstuck?  
I have a lot of work to do.  
Are you asking me to go?  
Have you seen Planck?  
Max! Max! Max!  
My son...  
I am more sorry than I can say.  
Do you miss your boys?  
But you will see them again.  
You know, Max,  
I love science twice as much  
in times such as these.  
It takes one away from all the confusions  
and stupidities and horrors...  
...and their emotional consequences.  
You've been very kind.  
Now I must go home.  
No.

- No?

- No.

I need your help.

- With what?

- Mercury and mathematics.

If we get this result...

where will we publish?

lf?

What's the matter with you?

If we get the result

May I ask you

a very serious question?

What if God were to say

you were mistaken?

If he said, "Stop, Newton is right."

Then I would thank God

for his point of view

and we would agree to differ

and I would be left

feeling very sorry for God.

So you DO believe in God?

I cannot conceive of a God who has a will  
of the kind we experience in ourselves.

And life after death?

Neither can I conceive of an individual  
who survives his own physical death.

There's our answer

for Mercury's orbit.

And perhaps the first step

to disproving Newton.

Eddington. England...

Arthur? What is it?

It fits.

Einstein's thinking and the real orbit  
of Mercury - it's the same.

You know what this could mean,

Winnie?

Einstein's beginning

to close in on gravity.

I need to talk to you.

Where's Sir Oliver?

Not now.

Chlorine gas, made in Berlin.

What?

The Cambridgeshires -  
obliterated at the Battle of Ypres.  
All of them?  
Major Colin Foster...  
Captain Raymond Lodge.

**EDDINGTON:**

William Marston.  
Eddington!  
I wanted you to know how sorry I am.  
William was a good friend, wasn't he?  
Yes, he was, yes.  
What's going on? What's going on?  
Give me your pass, please.  
This is ridiculous.  
What are you talking about?  
Are the great men of science discussing  
the great scientific issues of the day  
or is the talk of poison gas  
and how many dead at Ypres  
and how many more,  
if only we could have judged  
the wind conditions better? More tea?  
Einstein! This is the common room.  
Yes, yes. There must be no noise.  
Noise is bad! Noise is unforgivable.  
This university  
is the heart of German science.  
Please, no shouting!  
Thousands of young men killed  
by chlorine gas from this university.  
What are we doing?  
What is this madness?  
I can't tell anyone.  
You can tell me.  
I loved him.  
I know.  
I loved him so much.  
Yes.  
I can't find an answer, Winnie.  
No.  
There's no reason for his death.  
There's no comfort to be found.  
No.

Where was God at Ypres?  
We have a proposal  
from the president.  
The proposal is that we expel all Germans  
from membership  
of the Royal Astronomical Society  
and that all contact  
between any of our membership  
and any German scientist cease now.  
Gassed, every one.  
Who did this?  
Who killed my son?  
I'll tell you.  
German science.  
Perhaps we should do this another day.  
- No, we'll go on.  
- Sir Oliver...  
We go on.  
Can I assume that no-one wishes  
to speak against the motion?  
Who killed Raymond Lodge?  
All of us.  
That's enough, Eddington.  
This stupid and futile war killed him.  
Expelling German scientists won't bring  
any one of the Cambridgeshires back.  
Eddington!  
The pursuit of truth in science  
transcends national boundaries.  
It takes us beyond hatred  
and anger and fear.  
It is the best of us.  
What truth?  
That there are no rules, no standards,  
no moral absolutes?  
That you break all the rules of science  
and replace them with nothing?  
What does your Einstein want?  
He wants what I want -  
a new theory of gravity.  
I think we should move to a vote.  
All those in favour of the motion.  
Against?  
My son is dead.

He died fighting this evil.  
I tell you this now.  
I will not allow his death  
to have been in vain.  
Mercury.  
We've had this before.  
What?  
The orbit of a planet that Newton  
couldn't account for - Uranus.  
And what happened?  
Neptune was discovered.  
And where was Neptune? Exactly  
where Newton predicted it must be.  
And what did that mean?  
The orbit of Uranus made sense  
with Newton after all.  
When will you learn?  
Everything happens for a reason!  
Ypres.  
How dare you mention that name.  
What do you know of Ypres?  
What do you know of grief?  
I have lost my son.  
But there is order in the universe.  
Can I see your pass, please?  
Excuse me, sir.  
- What? What?  
- No.  
Why?  
We've been instructed  
not to let you enter.  
I need to get my post.  
I need my letters, all right? Please.  
Max!  
They won't let me collect my post.  
You've been cut off...  
for your anti-German outburst.  
But all my letters  
come through the university.  
Yes.  
Max...  
You look terrible.  
I am sick,  
but I just wanted to see you.



Because you are lonely?  
Yes.  
Why haven't you come before?  
I've been working.  
You look beautiful.  
I love you.  
Charm isn't enough, Albert.  
Elsa...  
So don't come here  
telling me I'm beautiful  
and you love me  
and expect me  
to open my arms to you.  
Elsa...  
I will make up my mind about you...  
...in my own time.  
Are you asking me to go?  
Pass, please.  
Would you see  
that this gets to Cambridge?  
They won't allow me to post it.  
But you... you are...  
They would allow you to. Please.  
You brought me here to Berlin.  
Please, Max.  
I have done what you asked.  
My work on gravity is finished.  
What are you reading?  
You look overcome.  
Come to supper.  
For what we are about to receive,  
may the Lord make us truly thankful.  
Amen.  
It's called general relativity.  
It's a theory of gravity and... everything.  
He's done it.  
Let me just... Sorry.  
Let me just show you.  
What are you doing?  
Have you gone mad?  
Dyson, the other end.  
Pick it up.  
Pick up the tablecloth.  
Space. The tablecloth is space.

The sun.  
What's happening?  
What?  
What's happening  
with the sun and space?  
Well, the bread is  
sinking into the table cloth.  
The sun makes a shape around it in space.  
Yes.  
Now, what happens if I do this?  
It wants to travel in a straight line,  
but it can't. Why not?  
Because the bread's making a shape.  
The apple follows the curves  
made in space.  
Yes! Yes. Space is shaped.  
And that is how gravity works.  
Space tells objects how to move,  
objects tell space what shape to be.  
And there's a way to prove it.  
When starlight comes near to the sun,  
what will happen to it?  
It'll bend.  
Yes.  
That's what he says.  
That's what Einstein says.  
Starlight will bend.  
Every theory needs proof.  
I'm the man to prove it.  
The English observer  
and the German theorist.  
Hand in glove.  
We're at war, Eddington.  
Germany is our enemy.  
I love my country very deeply,  
but my country is my country, and this...  
This is so much more.  
Will you help me?  
You can't point your telescope  
straight at the sun.  
I know, too bright.  
But May 29th, 1919.  
What?  
Total solar eclipse.

A chance to look at the sun.

- Where?

- Africa.

The island of Principe.

It's the best place to view the eclipse.

So all we need is

a profoundly large amount of money.

Mmm.

So who do we ask?

As we look at the eclipsed sun

through the giant telescope,

it will be directly in the middle

of the Hyades star cluster.

We'll take photographs of these stars

during the five minutes of eclipse,

and then compare them to photographs

taken of the same stars at night.

One photographic plate

on top of another.

Are the stars in the same place

or different?

If they are different,

then we will know

that starlight is bent by the sun.

This is an English expedition.

Yes.

To prove a German scientist right.

Or wrong.

If Einstein is right,

then an English expedition

will have proved it.

If he isn't, then an English expedition

will have proved a German scientist wrong

and Sir Isaac Newton right.

I don't believe you.

I'm sorry?

I don't believe your mind is open.

I was made for this.

I'm the best measuring man

in England.

This is my moment.

This is what my whole life

in science has been for.

I would never, never

allow bias or prejudice in.  
I swear to you, on all that I hold dear,  
my mind is open.  
What about yours?  
Mine?  
Is your mind open?  
Of course.  
Then may we have our money?  
Principe!  
He's agreed.  
We're going to Africa.  
It's over.  
How could God allow so many to die?  
Germany's blockaded.  
No food is getting into Berlin.  
They have no water, no medicine.  
Great Britain has won the war  
and now she wants her revenge.  
I'm leaving for Berlin  
with the Friends.  
I hope we Quakers can help.  
With you in Africa...  
...we will be a long way apart.  
Winnie.  
Winnie!  
Say goodbye to me.  
I'm afraid for you.  
- What are you talking about?  
- I'm...  
I'm worried you're... losing something  
you used to be sure of.  
Your faith.  
You must listen for God.  
Do you hear me?  
What time is it?  
It's noon. Two hours to go.  
The rain has stopped.  
The cloud?  
It's full cloud cover.  
Everything's ready.  
It's all down to whether the cloud lifts,  
and if God is with us.  
It's time.  
We'll get into position.

We'll do what we've come here to do.  
Eddington! Quick, look!  
Five minutes to go.  
Totality. We have five minutes  
to take photographs.  
- The rain stopped.  
- Yes, it did.  
And the cloud cleared.  
Yes, it did.  
Six of the plates are poor quality.  
Two are good.  
We have two photographs to compare  
with the original plate back in England.  
Will it be Einstein or Newton?  
It's time to go home.  
Our divorce has taken longer than the war.  
Your work has made you ill.  
I hope what you've been doing  
is worth all this sacrifice.  
We have to do the best  
that we are capable of.  
That is our sacred  
human responsibility.  
Anything less is unforgivable.  
I had to do the work.  
My theory is too beautiful to be wrong.  
Somebody will prove it.  
Why are you here?  
I... have a promise to keep.  
Space... is shaped.  
Space is full of...  
...curves...  
...and dents...  
...and wonderful shapes.  
Are you leaving again?  
Are you going back to Berlin?  
He's not staying.  
This is it.  
The comparison plate is in position.  
No. We should do this in public.  
We should share this  
with anyone who wants to witness it.  
Right or wrong,  
this moment is for all of science.

If the stars on this photographic plate  
of the eclipse  
overlap with the comparison plate,  
Einstein is wrong  
and Newton's theory holds.

If there is a gap  
between the two images,  
then the sun's gravitational field  
has shifted the stars' position  
and we have a new theory of gravity.

- A gap.

- Einstein.

I call upon Arthur Eddington.

None of us can know what the world is  
in the way that we used to know it.

Einstein says...

Sorry.

Einstein says that time  
is not the same for all of us...  
...but different for each one of us.

It's very hard to conceive of  
such separate views...

...of such relative ways of seeing.

Today is the first day of a new world  
that is much harder to live in,  
less certain,  
more lonely.

But which has, at its heart...

...human endeavour.

One man has shown us how.

Look at what one man can do.

In this man's work,  
in the beautiful complexity  
of the new universe he has shown us,  
I for one have no doubt.

I can hear God thinking.

Is that him?

Professor Einstein?

Who... are all those men outside?

Reporters.

Word has reached us from London  
of your anointing.

You're famous.

You're here.

Will you have me?

On one condition.

You can't go outside and meet  
all those people looking like that.

They'll think you are a lunatic.

What kind of genius looks like you do?

- No!

- Yes! Yes.

- No!

- Yes.

- Einstein.

- Professor Einstein!

Hello. Yes.

Hello.

Oh, yes. Yes.

Eddington.

Einstein.