all right hi everyone uh thank you again so much for showing
up today i we're gonna have a very exciting talk today by dr david walt notoz and
i'd like to give a really interesting uh biography and background of him
uh he's a university professor emeritus in the department of population medicine at the university of guelph
he was founding president of veterinarians without borders canada and a founding member a
member of communities of practice for ecosystem approaches to health in canada
he has worked on every continent except antarctica on
ecosystem approaches to health and in 2010
in london england the international association for ecology and health presented him with the inaugural
award for contributions to ecosystem ecosystem approaches to health
in 2019 he received an award from the world small
animal veterinary association recognizing veterinarians who have exhibited
exceptional acts of valor and commitment in the face of adversity to service
the community um beyond peer-reviewed publication
he's authored or co-authored several scholarly books
including titles such as ecosystem sustainability and health a practical approach
he has also published six books of poetry a collection of recipes and dramatic monologues
an award-winning collection of short stories two murder mysteries
and various books of popular science including a book very relevant for today
called on pandemics deadly diseases from bubonic plague to coronaviruses
so without further ado i would love to

hand off
um the screen to dr walt nurtoes
for this seminar thank you
and i will try to get my
try to share something here let me do
this yes
share that does that show up
that is yes you can see that okay
um yeah this is it's
one of these things that's hard to get
your head around and
i was actually at the beginning of the
pandemic there was a publisher came to
me and
asked me to write
this book and i i was actually glad for
it because like everybody else i was
completely
overwhelmed by um
what's the right word the feces storm of
news
daily news cycles and everything going
on at the same time
and just daily details and it's ongoing
and at a certain point you just
your head begins to explode and then
trying to
focus in on how do we begin to make
sense of it and my
tendency then is to stand back and say
how what's
what's the context here what's the
bigger picture
so this is the title and i'm living on
lands that's a traditional home of the
honestoni and
neutral people that just
recognizes that there were a lot of
people here before the europeans arrived
let's see if i can get this to go
yes um we tend to think of the
pandemic or a lot of people do as as a
bad
primarily a bad thing which for most
people it is
but there are some good things about it
as well so
i just want to

look at how different ways we can look
at the same information so the some of
the most frustrating things about this
pandemic are it's caused by a zoonotic
agent so
an agent that comes from other animals
and
uh historically we haven't been able to
eradicate those once they're established
in people
things like measles and and other
diseases it's much easier to actually
find ways to eradicate them if there are
if
the agents are living in other animals
uh it becomes much more
problematic it's it's shattered
and i've used the word cartesian here
i'll come back to renee descartes later
because that's
it's a way of doing science which um
uh which has informed most of our great
accomplishments in science but it's also
created some constraints and buried in
that way of doing
science is the notion that we can
predict and control
uh things and the pandemic is lasting
long enough
that it's it's basically destroyed a
whole
economic system and i said i say it's
the most successful
and a lot of people have pushed back and
say yes but
um and i think we all see the yes but
here
um so the positive side of this
is that it's caused by a zoonotic agent
we can't eradicate it but it causes us
to
so we're pushed to rethink our
relationship with with the natural world
how if we can't eradicate it what else
can we do
it's it's shattered this notion of of
predicting control and so it's
forced us to think about how we do

science how we do sciences i would say
that in the plural
and it's lasting long enough to allow us
time to reorganize
ourselves in perhaps more sustainable
ways and address
uh issues that are happening at the same
time which
range everything from uh black lives
matter and institutional racism to
climate change and a whole range of
other things
which are all embedded in the system
which allow this
this pandemic to emerge and spread
um i'm going to give a quick review just
of zoonoses and
diseases from other animals and and
uh technically there are differences
between zoonoses
and diseases we get from other animals
zoonoses are
a subset of that i tend not to
be that picky but it's worth looking at
what's meant by this so we share uh
diseases with livestock with wildlife
uh there are diseases in humans that are
spread
just with each other and i'm not going
to go into detail on this but
anybody that's jumps in gets into this
field i mean the traditional
zoonotic disease is rabies that's one of
those
if you get into foodborne diseases
salmonella e coli if you get into
wildlife maybe lyme disease antivirus
pulmonary syndrome ebola virus and the
first
uh the first sars so we have all of
these
overlaps traditionally and in fact
when i was teaching it i mostly focus on
how
what are the species from which we get
different
um different agents so what can we get
from chickens what can we get from pigs

what can we get from
from dogs from specific kinds of
wildlife
in terms of thinking about how this
pandemic in particular has emerged
i think it's pushing us more to look at
not just the specific animals but the
context
so if we look at how they're spread
we can look at them by how they're
transmitted
okay so we have um we bite them which is
to say food-borne diseases
uh we're we're eating the animals or
they bite us
and the traditional one there is rabies
and one can expand that out to look at
other ones
we share an environment and uh the upper
i guess it's upper left-hand corner
there you see
dogs running around and animals being
slaughtered i spent about 10 years
uh working with people in kathmandu on
high data disease so it had to do with
dogs running around with slaughtering
places
contamination of the environment and we
tend to think of
environmental contamination in those
terms but if you look at the right hand
corner you have a dog in
in i think it was an icu which
is a questionable place to be but then
we also have
uh dogs and homes and so on we have
various ways of sharing uh
environments with animals if we expand
out a little bit we look at
arthropod-borne diseases and
i just have a few examples here west
nile virus lyme disease bubonic plague
i won't go into detail but you can see
that as we expand out as soon as you
have
arthropods like lyme disease like west
nile virus
we begin to look at a whole set of

relationships
among different species including the
arthropods and that relates then
the arthropods in the environment has to
do with with a lot of it has to do with
temperature when we
did studies on the northern movement of
lyme disease in canada when it started
coming in
through long point and point peeley the
southern
part of canada from adventitious tips
it was almost entirely temperature
related
the the movement north once it was there
the ticks
survived through temperature so then
then we've got climate and temperature
and land use changes those kinds of
things
all begin to be tied up together
and then of course i mean this is
hieronymus bosch it's a bit of a
this is human population right we have
uh
human to human translation trans
uh we have a transmitted between people
and to be a zoonotic agent
it's got to be transmitted technically
if you look historically we talk about
zoonosis as being
diseases that we get from animals on a
repeated basis so you have to be
exposed to a rabid animal or you have to
be exposed
to ticks that are carrying
lyme disease or mosquitoes that are
carrying west nile virus
we tend not to transmit it person to
person
once it gets into human populations
although
almost all of the diseases that we care
about
are of animal origin we don't
once they they're become transmissible
among people like
sars kobe 2 it's not technically a

zoonosis anymore then it's just
i can say just it's a human disease but
if we look at the long run
that differentiation is useful in
some control programs but if we want to
restructure things
to prevent future diseases from getting
into the human population
then looking at the broader context of
our relationship with animals becomes
important
and over the past decades
that i've been involved in some of this
work there have been different ways of
trying to integrate how do we bring
together
human health animal health and what used
to be called ecosystem health or
eco health uh and the great lakes basin
uh ecological integrity was used for the
the uh development of programs of the
the northern u.s states and the canadian
provinces
that are next to the great lakes to look
at management of the great
lakes basin so they talked about
ecological integrity of the great lakes
basin
and that involved human health animal
health environmental issues all of those
kinds of things
there was a movement out of tufts i
think it was initially conservation
medicine
which eventually actually uh the people
many of the people involved in that went
on to start
the the eco health movement the
the one that peter daschak and those
people are involved in now
the international society for ecosystem
approaches to health
those kinds of things if you look at
some other
organizations the un uh dp
the development program talked about
sustainable livelihoods so a lot of
people in development work talked about

sustainable livelihoods
the focus was on people but it was the
same kind of how do we integrate
these things and then most recently the
catchword has been one health
i'm not going to go into the differences
between these
uh different approaches there's
a lot of politics involved there are
shifts and emphasis there are shifts and
whether they're bottom up or
are top down and those differences
are important but they're not critical
to
trying to get our heads around uh how do
we integrate this
i don't think that there's one right
approach
one of the things that you if you're
involved in
one health let's use that as a as
the model right now is that when we take
these systemic
approaches they often default to fixed
boundaries so as vets we look at the
health of an animal to help a farm
i was involved for about a decade on
agro ecosystems in canada and in kenya
and other places so looking at
agricultural boundaries
one of the things that this pandemic or
any pandemic raises
is that those boundaries are shown to be
very leaky or very um
i mean we're all very leaky but then we
have all this cross boundary activity
and i know that there were uh ecologists
who argued for a long time that
ecosystems didn't exist
i think tillman was one of the people
that argued that
it was just competition of different
species on a landscape
i guess i'm somewhere in the middle
there are different ways of looking at
these
interactions but certainly in a pandemic
those boundaries

create problems because it's the the
disease doesn't stay
in the one place where it emerged
another way to look at this and and one
that i've used a few times
is is the use of narrative so looking at
historical developments developments
over time and those
you can change the boundaries on those
it's not one's writing one's wrong but
there are different ways
of of looking at how do these things
unfold over time so for instance is this
pandemic a story about
viruses people and technology we've seen
this
uh one of the the stories that has come
out
uh is that it has to do with
human viral interactions and our work on
viruses and laboratories for instance
gain a function studies
leaks into the environment this very
controversial notion that the who team
with peter dashock and others
tried to look at is could it have come
out of a laboratory
so that the story is really one of
people and viruses and what we do with
viruses
another story which and these aren't
mutually exclusive they're
different ways of looking at it is it a
story about
bats and pangolins or raccoon dogs or
snakes or cane rats
and people and if you look at some of
the the various studies that have been
reported
uh they say well the virus is a little
bit like something we found in pangolins
or raccoon dogs or snakes or cane rats
um how do these things relate to each
other
this is another way of talking about the
pandemic it's a narrative
it's systemic but it's also over time
and um is it a story about wet markets

and our desire for fresh food and
and i'm differentiating here a little
bit
from wet markets and wildlife markets
the
in southeast asia where i've done some
work and in china
you will have fresh food markets we all
want fresh food we've been sold on the
idea it's got to be fresh or it's not
worth eating
um so these are they have fresh food
markets essentially
and farmers will bring in for instance
chickens
they don't have refrigeration so if they
bring in
a dead chicken it's they what do they do
with it at the end of the day if they
don't have refrigeration
so they often will bring them in live in
this case the picture you're seeing here
is
uh it's in cambodia and they've got
they've preserved them and
these pigs in uh in different ways
but there are we have this dynamic and
then there's there are the wildlife
markets which are a subset of that
uh sometimes they're quasi-legal
sometimes they're
their black market but i think
there's a tendency to lump together wet
markets
fresh food and wildlife and i think
that's a problem because we all
want to have fresh food and we go to
farmers markets and that kind of thing
so trying to to differentiate there
and then there's another kind of story
which which intrigued me and that
it initially began because i saw reports
that at the beginning of 2018 there
was uh there were explosive outbreaks of
african swine fever
across china and we could go back uh
african swine fever
actually emerged out of uh out of africa

sub-saharan africa eritrea
killed off a lot of uh killed off a lot
of
animals there and um and actually it was
related to the italian invasion of
eritrea and ethiopia we won't go back
that far
but with regard to this particular
pandemic it spread across
china and 2018 2019
about 200 million pigs in china
died either directly from african swine
fever or from trying to stamp it out
because there was no other way to deal
with this so
we've lost half the the swine population
in china and the timing of this is
interesting and i'll come back to that
in a minute so that 2018 2019
we have this thing which uh this disease
which
human epidemiologists we're not paying
attention to i mean who cares about
african swine fever right it kills pigs
it doesn't do anything
to people let me go back here and look
at
how we developed our food system so we
have these different
narratives coming together if you want
henry iv of france about 1600
if god keeps me i will make sure that no
peasant in my realm will lack the means
to have a chicken in the pot on sunday
well god didn't keep him he was
assassinated by a fanatic catholic but
nevertheless that idea carried on
and about the same time a little bit
later we have
this cartesian idea of science
so he said that by scientific principles
i perceived it to be possible to render
ourselves
lords and possessors of nature and
his philosophy of science was
forget the textbooks go out and look at
the real world focus
look at this and if we can divide things

up into little pieces
we can understand the whole thing we'll
put it all back together again
and there are some real strengths in
that and there are some real
problems some of the strengths have come
from
for instance our food system so we've
seen since the 1970s and 80s
we wanted food we got lots of food and a
lot of this was post-world war
ii for instance with chickens we we
learned how to synthesize vitamin d so
we could put them inside we could have
mass production change them genetically
the
the created animals that thrive
under certain kinds of conditions with
certain kinds of feed and this was by
focusing in
on specific feed ingredients on vitamins
on on light on genetics and those kinds
of things
so we went from a farm system not that
long ago where
before we could have the farmer the
butcher and the animal rights activists
all in the same picture
as you see in the top over here uh to a
situation now where
you don't the animal rights activist
isn't going to be there
uh arguably is this a farmer or not or
is it just a big uh
livestock business right so essentially
you've got this
livestock business so you've got
slaughtering on the outside you've got
animal welfare issues on the outside
and it's less transparent if you want so
people don't know where their food comes
from
the other thing that that's happened and
this is a bit of an aside here is that
we went from about eight and a half
million tons of
excrement production in the 1960s
to about 14 billion tons so million

million tons of
of excrement production primarily
livestock
related and um if you see where
livestock are concentrated
that's where the feces are right so it's
and that's created a whole other set of
problems it's not related to this
pandemic but it is related to
environmental issues and those kinds of
things
what happened was we had this massive
success um
based on focusing in on very specific
uh variables if you want uh but we have
these unexpected outcomes because the
world is not
this uh finely tuned linear model this
all kinds of things interact in complex
ways and
uh you know we think we're playing with
the train down here but there's a real
train coming down the tracks and the
real train is
the pandemic of course and we might be
playing with something in the lab over
here
and not have a clear understanding uh
what's coming down the tracks if we look
at
and this is i mean you look at this that
could be a kid's drawing right but it's
actually a
a model a computer simulation model
created to look at international food
trade
networks and i can give you the
reference on this
i looked at that and i thought boy i
could my grandkids could make pictures
like that
but this is what world trade looks like
food trading
and networks look like who's trading
with whom stuff going all over the place
a lot of it's invisible to us we go to
the grocery store we don't see this
we see the end product the idea was

until 10 years ago five years ago this
was gonna
generate money for everybody and it did
generate a lot of
wealth and a lot of people got pulled
out of poverty
but it we also at the same time have
this
this uh split between the wealthy
getting wealthier and the poor getting
poorer there
so there is more wealth but we also have
this very
bad distribution and if you look at
epidemiologic studies there's
uh clear association between this
kind of differentiation between
the wealth and poverty and the emergence
of of diseases
let's come back now to china so since
the 1990s
we've paid attention to avian influenza
at the first it was h5n1 and then it was
h9n2 and various other
versions if you want of of avian
influenza viruses
um and that never became pandemic it
became
if you want panzerotic it stayed in the
poultry population partly because people
jumped on it
right away they said we can control us
we're going to manage that we know where
it's
coming from at least in an immediate
sense in
in january february of 2020 there were
outbreaks of avian influenza in hunan
province
so south of wuhan where they where we
saw the the emergence of
of sarsko v2 so we've had the
the the drop in the pig population lost
half the pig population
we have problems with avian influenza
and chickens and culling of chickens
and then we have the chinese new year so
you've got hundreds of millions of

people
going to the market and trying to get
food
often meat often chicken and pork to try
to get
uh to try to get food for celebrating
the new year so we found
if you want a kind of a perfect storm i
kind of
i mean a lot of people saw this last
year as being
devastating i kind of um i was born in
the year of the rat so i have
sort of a warm feelings toward rats in
this sense anyway
um and i was amused to see let's see how
this rat year will
work out for you when it first came in
so we had this transition between
um last the last year and this year we
had
hundreds of millions of people going to
market trying to get food and
we have this these changes in the supply
of of meat in the markets so
that's one possibility people were
looking for other sources of meat
i won't complete that story that a lot
of these stories these narratives have
missing information we just haven't
looked for them whether we can get it or
not
as a whole another question but the
point is that there are different ways
of explaining what happened
than simply uh the straightforward
narrative that we've been given
if it came from bats we can look at bats
are
20 to 25 percent of all mammal species
um so they're sure there's a possibility
there we're talking
primarily in this case about fruit bats
but
how would a virus get from bats into
people
and there are different ways let's look
at

um at some other diseases that have
probably come from bats how did they get
into people
if i can get to the next
there we go um the uh
the movie contagion was largely based on
a virus called nipah virus which emerged
in uh the late uh 1990s in malaysia
in an area of a village called nipah
we had changes in in climate and there
was
there was burning widespread burning of
forests in indonesia and sumatra and
islands adjacent to malaysia if you
looked at the satellite images there was
smoke over the whole area
at the same time we had singapore
trying to keep a clean island they uh
farmed out
literally their their pig production
they eat a lot of pork
chinese-based uh diet these
uses a lot of pork and these
interestingly i mean
the pig farms were in indonesia and in
malaysia
and the pig farmers you would think
ecologically this was good they were had
mango trees around the pig farms
but at the same time you had migrating
fruit bats and the migrating fruit bats
some of them were getting disoriented
some of them were were
changing their migrating patterns
because of the smoke haze
and they ended up around the pig farms
uh
bats are messy eaters the the partly
eaten mangoes fell into the pig pens the
pigs got sick
and people picked up the virus from
there so one of the ways that a bat
virus can get into people is mediated
through
the way we raise food animals so there's
a kind of uh and
and the way we change the environment so
so forest clearing forest fire burning

uh climate change issues all tied in
and then in an immediate sense we have
the the bats
moving into areas maybe new areas and
coming into contact with livestock
and people um another
set of viruses that have come from bats
is
are ebola viruses and if we look at
uh the history there we had political
violence
in liberia and uh republic
in the 1990s and early 2000s
so people were displaced during the war
and then that was followed by
billions of dollars of mining
investments over the next decade
and more than half of liberia's forests
were sold off to industrial loggers so
this was to bring in money and create
jobs and that's
by itself it would appear to be a good
thing but that's also massive land use
change when people
are already displaced and
some people were eating bats but some
people were also in
new areas they were had been displaced
from their their home territory
they were eating bush meat uh perhaps in
some areas
where they had not been eating bush meat
before in some cases they had been
so they were exposed to wildlife in
different ways because of land use
change so it's similar to what we saw
with nipah virus
but uh it's a little bit different
because here we're having
uh industrial development post-war
people are displaced
in malaysia the people weren't displaced
but the bats were
displaced so those are two possibilities
there are lots of others but just
looking at how can they get from
bats to people if we stand back now
uh in terms of one health and we'll look

at the stories
and we begin to ask what's if we're
talking about one health one health of
what
i mean we can say it's people animals in
the environment but
is that all people all animals all
environments or do we focus
we have to get our heads around
something and
there's a long history of systems
thinking if you want in
in these approaches but where are the
boundaries of the system
who owns it if i'm working on a farm i
have some sense
the farmer owns this territory or an
agricultural area there are owners of
that
and then whose health are we promoting
whose story is this
and i have some examples here um in the
lower
left corner you see that the two guys
with their
roosters there i was in indonesia
studying avian influenza in rural areas
and
there was one area where there were very
high levels of avian influenza
and in the middle of that there was a
village which claimed to have no avian
influenza and we so we went and
said well let's have a look at this and
we ran workshop
and talked to them and we said do you
have any uh
birds that get sick and they said well
yeah we have some well what happens to
them well they get thrown on the river
out back right so
maybe they have even influenza maybe
they don't
um could we see your chicken so we went
out
and they have competitive singing
roosters
i am i am pollung they're called and

they're worth two to three thousand u.s dollars each
they would go around to to competitions around southeast asia and compete
so if you have a bird like that which is worth at least a full year's
income for some of these farmers
and the government comes and says well we're we want to stamp out
avian influenza we'll get rid of the chickens but we'll pay you
market value of the chickens well
that's one thing if you're in a commercial chicken operation it's
another thing if you've got competitive singing roosters which are
really valuable genetically they've been bred over many generations
and they're worth a lot of a lot of money um
the upper right hand corner there
again that was working on avian influenza that's in thailand a place called
and um wh was trying to get people not to eat not to raise or eat backyard chickens free running birds
and the rationale was that these were more exposed to the environment they were more likely to be
picking up influenza viruses from wild waterfowl which is their
natural home but if you went to the market
i asked this the woman selling this chicken
about prices and the price of
a free-running village chicken was
much much higher on a per weight basis than
the price of the commercial chicken so people were the economic incentive was all to
sell backyard chickens
even as the public health pressure was in the other direction
and we sometimes forget because we we live in a certain area where

livestock are valued in certain ways but
we go to other parts of the world
and they have other values and it's not
simply a matter of saying well you need
to do this it's a matter of
they this is their culture they have
different dynamics going on there
um the upper left-hand corner i put that
in there because i was in a
workshop in argentina and it was people
we were looking at
uh ecology and health in the yungas
which is the
the eastern slopes of the of the andes
and so there were people from all the
andean countries
who had uh where there were people
settled on the
on the eastern slopes so not not the
pacific slope but the other side
and so we had physicians we had
veterinarians we had wildlife
specialists ecologists um indigenous
groups
and at one point there were clearly
different
ideas about how we think about this
physicians we're looking at well if we
have
people have clear water good water good
food to drink they're not going to
impose on wildlife
and so we can focus on that
the wildlife biologists we're focusing
on if we need
we need to focus on certain species and
preserve those species
the indigenous people were saying this
is a land issue a land rights issue
if if we have control and management of
large areas here
we're going to we're going to work with
the whole habitat so that was the idea
we're going to preserve habitats and at
some point the debate got
really heated and one of the indigenous
leaders she was shaking her head she
said you know

traditionally when we get to this part
in negotiations we would just kill the
other people
and i'm going okay this is a research
academic workshop you know maybe we can
back off a little bit
but we did continue on the workshop but
what it told me was
we're not just dealing with theoretical
issues here of biodiversity and human
health
and species we're dealing with with
issues that
matter to real people in real time in
real places and i think sometimes we
forget that i mean certainly as an
epidemiologist i can make all these
models
but until i talk to people who are
raising
you know competitive roosters who are uh
looking at
land rights in in in latin america
or this little girl from laos who's you
know that's her village chicken that
she's taken care of there
until we see real people in real places
it becomes
it becomes this abstract exercise and i
think
we're not going to get very far if we
stay at that level
the temptation is to um
this what i would call the babel
temptation you know the tower of babel
where where uh everybody wanted to build
this one tower that goes up to heaven
which is kind of uh
a uh um
a sense of there's going to be one way
to look at all of this stuff
and we know what the right way is to
look at it
and that's where this cartesian science
comes in this is a
photographic collage by a wonderful
artist called julie holcomb i can't
remember where she is in the u.s but

it's the tower of babel and it kind of
this is
this is the future right it's the the
urban future and everything else around
the sides is uh
is not the future i have to keep doing
this
trying to get the next slide another way
to do it is to do the douglas adams
hitchhiker's guide
approach whereas you have a fish which
translates across
um different cultures and different
species and i kind of
like that and it's taken me more
recently and i won't talk about that
very much here but to
people that are looking at microbiomes
and at how bacteria
and other uh microbial populations
communicate with each other
um if we understood that better we might
have a better chance
of finding our way through this so it's
not simply the
the the megafauna uh that we like to
look at
but it's the whole bacterial populations
the viral populations that go with
uh livestock with wildlife and so on
with bats with
chickens with pigs when i travel around
the world it's not just me but it's my
whole
microbiome and i'm carrying stuff from
place to place what does that do
to the ecological dynamic at that at
that level
and so one of the ways through this then
and one of my
key sort of messages if you want um
and i got this from uh oliver sacks who
uh talked about the the loss of our
peripheral vision
uh he was talking about himself because
he had lost
physically lost his peripheral vision
but i think it's

an issue for us culturally the science
we've really been good at is the science
of focusing in on things
so we could really fast we could get
the genomic sequence of the virus we
could develop
vaccines at warp speed if you want to
put it into
political terms really fast
we're very good at that kind of science
what happens though if you
focus in like that is you don't see all
of the other consequences in this
complex system so we can increase
production of food
by doing this and this and this but we
don't look at the broader consequences
we can deal with a vaccine or
identifying a virus or a bacterium or a
toxin
really good at that really fast but
we're not very good at looking at those
relationships which is an ecological way
to look at things
so we've got this tunnel vision
we can't all look at everything all the
time
you just you go your head would explode
if you're trying to do you can't sort of
keep it in there so how do we get
peripheral vision and this is where we
come back to one health so
we to get peripheral vision we have to
work collaborate across disciplines
across cultures across organizations
unless we do that we're always going to
be blindsided we can't go back to
19th century science where where
louis pasteur or darwin or these people
were natural philosophers if you will
they could look at
everything right there's just too much
of everything now
too many things that we know so i work
together with people who
do really good lab science or people
that are looking at trade issues or
economic issues or social and cultural

change
to try to understand if i see this
happening
where might that be coming from and if i
make these changes what might be
the consequences of of making those
changes
and sometimes and this is where we come
back to this
you know what what we're doing right now
we have some time
uh in the top two pictures
uh when i started working in nepal
that's what the riverbank
looked like there were people getting
their drinking water in the
left-hand corner this woman and her kids
and you can see in the background the
animals being slaughtered at the
riverside
i was working on hydata disease but
quite frankly the people lived there
they didn't care about hidata disease
that was
my scientific issue right i was zeroing
in i knew how to
follow the life cycle all of this kind
of stuff when you see the right hand
side there there's a guy
probably going to take a poop down at
the riverside there
and initially we described everything
that was going on there
looked at the life cycle and uh did
public education programs and nothing
changed
and it's partly because it was tied to
so many other things people that were
doing the animal slaughtering were
also generating money in the community
they were providing jobs
so we finally sat down with everybody
around the table
the politicians and a couple of
neighborhoods one of which was run by
a communist government the other was by
a very conservative government
they were interested in the bottom line

issues how do we have
uh work how do we have food how do we
have clean water
and within a few years of engaging
people at that level
so not just having the scientific
information
but having their own uh
local cultural and economic
understanding of the dynamics of what
they would like in their community
we ended up with those bottom pictures
so
high data disease more or less
disappeared but it wasn't because
of what we knew about identity disease
it was because we paid attention to
the total environment that people were
living in so sometimes
in order to to make the changes if we
want to get rid of
this pandemic we might need to change a
whole lot of other things
and to do that we can't simply
uh say you know here i found this i've
got the answer it's more like we need to
sit down with people
uh in other disciplines and other
communities and other cultures and say
how can we negotiate our way through
to a more sustainable future and in a
sense be our own
uh be each other's peripheral vision
and this comes back to the the quote on
the left there's from an anthropologist
who was
studying uh the
the use of insects as food and i did a
book called eat the beetles
which i was looking at people were
saying if if everybody ate insects it
was going to save the world
climate change all this kind of stuff
and i thought well i've heard some of
these kinds of solutions before if we
all eat soybeans that's going to save
the world if we only
chicken we're all going to be better off

um
and so and plus i spent most of my
professional life as a veterinarian
trying to
kill insects that were transmitting
disease so
to turn around now and say how can we
better keep these insects alive and eat
them
did a bit of a mind shift in my head
and she was looking at the way we were
approaching
the issue of eating insects i've eaten
lots of different kind of insects it's
great
but those are all culturally embedded in
different ways of doing things
and so to have a one health approach
to whatever it is eating insects
pandemics and so on
we need to pay attention to all these
different worlds whether they're
defined by our disciplines by our
backgrounds
and so on and then talk to each other
and try to find a way through to a more
sustainable future and at that point
i think yes i'll leave it open to
questions so i'll
stop the share right there and we're
back to a group picture so i think we
have a few minutes left for
answering some questions if people want
if not if i just
sort of get a mind thing on you then
anyway thank you so much uh dr waltner
toads that that was awesome and
to the group if you have questions you
can throw them in the chat i will read
them out
um or you know if there is silence you
can you know turn on your video on meet
yourself and give it a go
david to what extent has the closure of
the boundary between you and
us change the pattern of any diseases
you mean between us and canada yes
well it's changed my ability to visit my

grandchildren in pittsburgh
my daughter's a physician in pittsburgh
and so i got grand
and plus i've got grandkids in australia
which is a
that's even a bigger issue um
that's a good question i mean what it's
done is it's changed the pattern of
other respiratory diseases basically
influenza this year dropped off the map
because
people wearing masks and and keeping
distance and so on
what it's done to other diseases i'm not
sure
i mean there are trying to say canada
and the u.s
um blue tongue how about blue tongue
remember one time
i was never in canada and was very heavy
over here
yeah i thought it had snuck up into
canada in the
lower okanagan valley although the
canadians always disputed that
i don't i honestly i don't know barry
at this point i'd say i asked that
question because here in the united
states we criticize
because of the way we've been very
liberal in the handling of covert 19 and
i'm always kidding up my australian
friends and german friends and english
friends that
we'll soon be able to travel to their
countries but they won't ever be able to
come to us because they
they're having problems with controlling
government you know
i'm not sure you'll be able to get into
australia but anyway
um no and there's you know i'm
i've some people get really riled up i
mean it's been politicized and the
the particular uh political
what can i say situation in the u.s
hasn't helped in the way things have
been

uh framed um which isn't to say that
there weren't some things that were
done well it's just that they were done
in such a way that
they weren't recognized as being done
well essentially because of the language
around
i i tend to be more forgiving
of some of some of the political issues
because we
um you know with we've told politicians
they should defer to the science but
then there are
10 different scientists with different
say well we should
have a complete lockdown or should be a
targeted lockdown or it should be
this and um there are those kinds of
trade-offs
and the question is we really didn't
know at the beginning we have a better
it's easy to go back now and say well
what we should have done was this
um and so i guess i'm more forgiving and
and you're right one of the things
that's happening now is that
a system like um like the us
tends to be good at fostering
um entrepreneurial technological
responses so getting vaccines those kind
of things really good at that
so you get a quick response with
something like that
in a system like canada or germany or
australia we're where we have a public
health system which is
really good on a day-to-day basis i'm in
a car accident i've got cancer whatever
i walk into the hospital it doesn't cost
me anything
i get treatment you know there's there's
no problem with that
that sort of a system was good on a
day-to-day basis and it doesn't respond
well to emergencies
it doesn't it doesn't can't turn on a
dime because it requires this public
consensus

and we've seen that in europe uh even
more so in europe
australia is a special case in new
zealand because
two things one is uh well one of the big
things is simply their isolation from
the rest of the world they didn't have
as much traffic
and there were a few entry points
that people could come in through
melbourne or sydney
or adelaide and they could stop people
there and when they've had outbreaks
they just
they shut down the borders i mean my
son's in south australia and he said
uh you know the police were stopping
people at the state border
and some kids were trying to get through
to a party in south australia
uh they got fined a couple of thousand
bucks and sent home i mean that was
this they were serious about this you
can do that there
but in north and south america and
europe
where we have so many points of entry
that's impossible to maintain that
the question now is how do we get out of
this situation
what you know i can talk about long-term
restructuring
but how do we get what's the transition
here and i honestly
don't have a clear answer to that at
some point
some combination of vaccination
and masking and slow down we were
speeding up i mean you look at the
global traffic and i was part of that
was just
huge i mean the graphs were all going up
and up and up our food production was
going up and up the
trade was going up i i think we'll need
to slow down a little bit
some people are already um
closing borders to trade i think what's

more
likely to be helpful is just being more
cautious than looking at
quality control i mean in the 1990s
everybody was promoting trade with china
and so everybody was going
to china we all wanted to trade with
china and then suddenly
you know you want to stop i i think
maybe stopping is
the wrong way but it's a good time to
put on the brakes and say
let's look at where things are coming
from looks like that quality control
let's look at
environmental issues public health
issues and maintain
trade but at a more measured pace
maintain travel but at a more
measured pace and people get upset about
wearing masks but i mean i've worked
enough in southeast asia people have
been wearing masks for decades
earlier because of air pollution and not
because they were worried about a virus
and it's no big deal you know taxi
drivers in tokyo were wearing white
gloves and wearing masks
just what people did i to me it's you
know it's not a political issue
and i don't not going to bang people
over the head with it but you know it's
for me it's uh i think we'll get used to
those kinds of things
and so but between now and then i don't
know
anybody's guess right all right we got a
question in the chat from timothy kurt
says do you think
viral surveillance and wildlife has the
potential to identify or prevent
the next pandemic or is spillover
inevitable to some extent given viral
evolution and species interactions
i i've always been skeptical of
screening
wildlife for for viruses and so on i
think it's useful to know what's out

there
um i worry that we start
targeting certain animals given the
history of how we've
you know our bats are carrying rabies in
latin america so they were blowing up
bat caves all over latin america for a
while
um i worry about that i i'm i guess i'm
more
um i i wouldn't more identify with that
indigenous approach of saying it's more
about land use and habitat
conservation than it is about specific
species
i think it's useful to know more or less
what's out there and i
you know barry could comment at this
better than i can but
viruses are they most viruses are not
that stable and they can
evolve faster than we can ever evolve
bacteria will you know they exchange
they don't have moral qualms about
exchanging genetic information the way
people do
right they'll just exchange bodily
fluids great let's do it you know so
they spread
you know you have you know plasmids
without borders if you want
going all over the world so it's useful
um and but at that the
bigger answers are going to be how do we
interact with habitats with other
species
how do we maintain wildlife habitats in
urban areas how do we
foster certain kind of species and other
species
these are kind of larger policy
questions
and i think in the long term as a
species as homo sapiens
that's where the big answers are going
to be in the medium term
being able to identify these things
that's i mean that's where the

vaccine people come in and so on that's
great i'm all for it
and uh if i look at my grandchildren or
other people's grandchildren great
grandchildren what kind of a world do
they want to grow up in it's
not going to be just this identifying
which viruses are out there it's going
to be
how can we create living and eating
spaces that are more sustainable
i'm going to throw it in there really
quickly we have a few more minutes
um a lot of us have been discussing one
health and
how to get that collaboration going
everyone talks about collaborating and
working together but in the end people
are
i'm summarizing a lot of people are just
interested in their first author
publication
getting that nature publication and less
worried about being part of a team
are there any academic institutions that
you found have been successful in
promoting that and getting people
excited to be part of a team
yeah there i mean there are a range of
issues there i mean one of them is has
to do with the way academia rewards
publication and so on and one of the
things barry asked me why i had retired
well i retired took early retirement
party so i wouldn't have to worry about
my cv and
tenure promotion committees and all that
kind of i can just
follow up on my curiosity and look at
the best evidence and follow through on
that
in the 1990s early 1990s we had
surprise surprise we had a conservative
government that promoted
interdisciplinary work and it was it was
sort of accidental it was in the lead
up to the rio convention was at 92
and in 1992 the conventional

biodiversity
and we had a government led by brian mulroney who was a friend of ronald reagan's
and he wanted to promote something and we have something in canada called the international development research center and he
decided to make that a flagship for interdisciplinary research
and so they did a lot of
they funded a lot of interdisciplinary work
almost all internationally because that's that's been their focus
um the other thing that happened was we had a
minister of the environment uh lucian bouchard who was from quebec
was actually a separatist which is kind of weird also this is canadian politics
who was a really good minister of the environment and
he said i'm going to give a big pot of money
millions of dollars which in canada at that time was a lot of research money
and i'm going to give it jointly to the
what we then were the three granting councils
medical research council social sciences and humanities natural sciences and engineering
they will have a joint fund they will have to administer it jointly
and people will apply and
you will have to have a joint a project which is
interdisciplinary it has to be or you're not going to get the money
so it turns out we got a product money for studying something called agroecosystem health which we didn't know what it was at the time but it was basically
one health applied to agricultural areas
when the money came into the university the university wanted to distribute it

to the different departments where there
were students and faculty
and i said no we want to have a
dedicated spot
for this project a whole floor on a
building and they went back and forth i
said if you don't do that i've
looked at the research on how this kind
of research works
i'll send it back i'll send the money
back and so then
they took my bluff because the
university always wants money coming in
and we got a space so we had
veterinarians social scientists
economists
plant biologists entomologists all
the grad students were in one space they
had little carols
basically an open space office so a lot
of the interchange took place during
coffee breaks
i'm working on this part of it so
there were two lessons that i took away
from that one is that the
grad students who are working on this
and the post docs
need to be in a common space um the
second is that it works best if you're
working on a common
problem because one health in general
just goes off in all directions
if you say let's look at one health in
some part of eastern tennessee let's
look at
here's a boundary and let's bring
together all the people we need
to look at that and get the grad
students and get the postdocs and get
the faculty
working together on that space on that
applying one health there and um
to me that combination seemed to work
the best
and that's it it has been a really hard
sell in universities because
universities develop on a disciplinary
basis right

and it's not going to be everybody there
are going to be some postdocs and grad
students and faculty that are really
keen on it
and some are going to focus on the lab
work that they're doing
that's fine it's not you don't want
everybody there you just want people
that are keen
to do it so um
trying to make those institutional
changes are
it's a hard sell and they often respond
to money
being universities so you have to
convince somebody
like in canada with this minister
environment said i'm going to give you a
lot of money if you do this
find a benefactor private public gates
foundation
doesn't matter somebody who says we're
going to give you this money
if you all work together and focus on
this issue
to me that's that's the way to go
well yeah i think i think you're kind of
echoing some things we're trying to do
here at
ut so maybe we'll meet some folks i
really appreciate it and
it's one o'clock now so um we really
appreciate your time
you know any any questions um you can
throw them to the one health
email we could try to get them to dr
walton or toes or
anything like that um again that's great
thank you so much for talking this was
great
um and we hope to keep in touch so okay
keep at it
you're the future
English (auto-generated)
AllListenableWatched