Microbiology Poems

by IBBS members

introduced by a commentary by Sam Illingworth
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We have
a map of the universe
for microbes,
we have
a map of a microbe
for the universe.

Miroslav Holub – ‘Wings’

Poetry is perhaps not the most obvious medium through which to describe the biodegradation and biodeterioration of commercially important materials. However, as evidenced by this short extract from a poem by the Czech immunologist and poet Miroslav Holub, poetry provides an investigatory lens through which we can analyse, re-consider, and crucially poke fun at science.

Ever since the notion of a ‘scientist’ was first formalised by William Whewell in the early nineteenth century (and indeed long before then), scientists have written poetry alongside their scientific research. Whether this is the experiments in poetic aesthetics conducted by Humphry Davy in his investigations into the medical powers of nitrous oxide, or the verses that Ronald Ross wrote to first capture his observations that mosquitos were a vector for malaria. Poetry affords us an opportunity to think about our research in abstract terms; it also provides fresh eyes to help us devise new solutions to old problems.

Science and poetry are not mutually exclusive entities, rather they offer a complementary way of trying to understand the world and our impact upon it. In reading the poems that feature in this newsletter, consider the ways in which they interrogate and cause you to reflect on your own research and fields of expertise. And then challenge yourself to write your own, you might be surprised to find where they lead…

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Coronavirus cracker
Jimmy Walker

The planes are evident by their absence
Long ago noticeable by their contrails
That for now are consigned to history
Vast volumes of cars no longer troll the roads
Death and destruction devastated at the stroke of time.
The noise of the odd vehicle is now interspersed
By natural sounds once drummed out by the engine and tyre noise.
Now the birds sing and their songs can be heard.
Calling, mating, a tune in the background.
Now listened to by so many.
Who before were unable to hear the lullabyes.
Even the pigeons roosting in the trees
Appear to have a loud cooing, a cooing that
Not so long ago could not be heard
Due to the constant noise instead of which there is now a stillness,
A peacefulness that is a result of lock down due to coronavirus.
But stuck at home many are listless.
Their feet are itchy, they are anxious and champing at the bit.
Wanting to be let off the leash.
To run free and give someone a cuddle
But for now they must remain.
Relaxing the lock down will risk lives,
Will introduce others to the virus and spread it wide.
Leading to further deaths.
So for now my friend.
Remain still and calm your itchy feet.
Be patient, behave, breath in and out.
Maintain your social distancing and wash your hands.

It's in the Air
Jimmy Walker

It’s in the droplets, it’s in the air,
A droplet is a droplet is a droplet.
How long will that droplet hang around?
A second, a minute, an hour?
If that droplet is an aerosol then it may
Hang around for much longer,
Maybe even for hours and hours.
Waiting around, moving in the current.
Waiting to come into contact with someone.
Perhaps just as they breathe in,
Taking that small aerosol particle way down
Deep into their lungs.
That aerosol does not know if it is smaller or larger than 5µm.
A scientific differentiation that no one has told the virus about.
And these larger aerosols, or are they droplets?
They will drop out, all at different rates.
Dropping or settling on surfaces in a gradation of time.
Surviving and still being infectious for days.
Landing on you and the surfaces all around you,
Including your face, your hands, your clothes, your hair and your beard.
You use those hands for all sorts of things.
You touch, hold and contaminate things with those hands.
You have thoughts and you bring your fingers to your lips.
A natural gesture, in thought as you touch your lips,
Pick your nose, rub your eye and run your hand through your beard.
Inadvertently the virus in those droplets on your fingers or hands
Are given a way round and passed your defences
And your impenetrable skin.
In through your mouth, your nose, your eyes into your body.
Invading your cells and attacking your immune system.
Waiting to take away your sense of taste and smell.
You should have washed your hands.
Simple soap and water, how simple can it be.
You should have followed government advice.
It might not yet be too late, your body may be strong.
The virus knows no borders, nor whose country it invades.
You may be rich, you may be powerful.
The virus does not discriminate.
Does not know rich from poor, medic from patient,
Royalty from homeless.
No one tells the virus whom it can or cannot infect.
The cunning culling coronavirus, curtailing our freedom
And taking away our loved one.
Taking away our last chance to say goodbye.
**Life will never be the same**  
*Jimmy Walker*

Life will never be the same  
70, you can't be 70,  
Well 70 I am  
Now on my own I am  
Socially isolated, a social outcast  
Sent to Coventry  
But I don't know if I need to go today  
Or at the weekend  
What do they mean from the weekend  
The guidance is not clear  
The guidance is vague  
Is that Friday, Saturday or Sunday?  
Is it noon, is it midnight?  
I will have to walk on my own  
I will have to cycle on my own  
Stay back, stay away, get back 2m  
Yes 2m get right back, don't come close  
Life will never be the same.

**The Virus**  
*Jimmy Walker*

A quiet street  
There is no one there  
No one shopping  
No one on the bus  
Businesses are empty  
The phones are busy  
Whats app is in meltdown  
Twitter is screaming red hot  
Skype is on its limits  
The kids are at home  
Cos the schools are all closed  
Ocada is unbookable  
Deliveroo is not delivering  
The pub landlord is pulling a pint  
But that is only for them  
Everyone is at home  
Too scared to go out.

**Panic, Panic, Panic**  
*Jimmy Walker*

We have no bog roll  
The sanitiser shelves are bare  
Run, run, the virus is coming  
Empty shelves, everyone stockpiling  
My shelves are full, so stuff you lot  
I am the bog roll king  
Yet this is a virus that gives you a cold  
Not a virus that gives you diarrhoea  
Panic, Panic, Panic  
I must get to the shops before the shelves are empty  
I just might need to self isolate for a whole 14 days  
Now where did I put all that bog roll  
Empty shelves, panic buying  
Bullies exerting their strengths in different ways  
Run, run, the virus is coming  
Panic, Panic, Panic  
Panic, Panic, Panic  
The virus is coming  
I need all my soaps  
I need all my bog rolls  
I am well kitted out  
Me, I am okay,  
You, who are you  
I don't care about you.

**Those pesky bugs**  
*Jimmy Walker*

We are so big and so powerful but so often we are not in control  
The little things in life come back to haunt us.  
When we let our guard down those pesky little bacteria surprise us with their ferocity.  
Small preterm babies, ill patients, not feeling well, being immunocompromised are the ones at risk.  
Just when we thought the water was safe to use the bacterial biofilm grows in silence  
Releasing their bombs in the form of sessile free floating microorganisms.  
Ready to come into contact with the most vulnerable in the ward.  
Flowing out the taps at maximum velocity contaminating the sink and surrounding area,  
Into the drain they set up an unlimited recontamination stream.  
Trained cleaners with cloths, fastidiously trying to remove the bacterial contamination and biofilm,  
Are not equipped to deal with these little terrors.  
The biofilm hanging like stalactites from the outlet fitting is persistent beyond our wildest imagination.  
Our patients are at the mercy of those pesky little bugs for in more ways than one we are defenceless and outnumbered.
Were you depending on someone?
*Jimmy Walker*

The peak has passed
But the mountain is still to be conquered.
Hospitals full of covid patients.
Seriously ill and facing death like 759 others yesterday.
Without the touch and closeness of loved ones,
Kept at a distance so far away that social distancing
Does not apply
For those that live there is the loving care by healthcare
Professionals stressed, pressurised with their backs against the wall
Dealing with the never, never situation
Which this time is not to do with harm to patients
But playing Russian Roulette with their PPE
Is this situation high enough risk that
I want to wear my FFP3 mask if there is
An aerosol generating procedure.
Or will we contravene all your training
And instead of discarding your single use PPE
Retaining it and reprocessing it for another day.
Someone has let the side down
Someone should have looked ahead
Someone should have been planning
Someone should have been doing their job
With NHS staff putting their life on the line
They are depending on someone.

This time
*Antonio Portugal*

In this time of pandemic and lockdown
Our souls are feeling very down
But thinking of Biodeterioration
is giving us a strong motivation.

Guess who? (with apologies to
*John Masefield*)
*Chris Gaylarde*

Dirty, black and smelly,
With an iron-caked membrane,
Butting through the steel stacks in the benthic slime,
With an enzyme for breathing,
sulfurizing, rusting,
Eating through the metal of the oil pipeline.

This is me
*Chris Gaylarde*

I float, I fly
As free as air.
I can gain entry anywhere.
You don’t see me.

I cross borders;
I break barriers.
Me and mine, you carry us.
No stopping me.

Pick me up,
Or pass me instead.
No matter, I’m already dead.
I’m waiting for you.

You’ll make me live.
I’ll keep you to myself.
"But what" you ask, "what if.. when I bring friends, you tire us?"
Smiling, I say "No problem, host, I’m virus".

Wonderment
*Chris Gaylarde*

The sinuous curves, winding, twisting,
I look, I marvel,
my pupils lock.

And now by twirling a string appears, the green pearl chain of a pure Nostoc.

And winding more until a ball forms ‘neath my eyes.
What have I seen?

An alga? No!
The helix’s bare.
The cell’s aware it’s just, just simply, a blue-green.
Biodeteriogen life
Maria Iasmina Moza

We struggle a lot to be
Whatever the substrate affords
No one believe us how much effort
And struggling that could be

Even if you are a fungi
A lichen, moss or bacteria
There are different survival criteria
And no one in our place could be

Sometimes is nice
When we are many
We can even watch a film
Actually forming a biofilm

I personally prefer cyanobacteria
Me being a small round bacteria
Since they are the oldest
And populate all kinds of substrate

They even allow me to stay in their EPS
And I love that so much
They kept high the humidity
So my cell can multiply

Sometimes in winter
I also love moulds
They grow so enormous
And can form snow globes

My life could be sometimes hard
When people don’t like hard work
And try to kill me with biocide
Sometimes make me form protective suicide

Bacteria spores are a good way
To keeps us safe but without energy
Till all my friends gathered again
And help me germinate in high humidity

My life is short you can affirm
But happy in a biofilm
We can even have different colours
Or moving promoters

We pose also genetics mechanism
Bacteria we will says huh?
I know that we are so small
But killers anyways!

So do not give us biocide
Is not our fault you know?
That this nonconformist covid
Decide to walk outside

I hope that you are convinced
That even if we biodeteriorate
We are somehow forced
Being our simple way to survive!

And please forgive my cousins
Yeah, those nasty pathogens
They like to form films
In human blood or lungs

And remember always my aunties
The ones that live inside you
More exactly in our intestines
And help you not to feel blue

I also wish I could be able to write
Me, an unschooled bacteria
In order to expose all my biofilm stories
To make you wish to become yourself a bacteria!

It’s only a virus
Jimmy Walker

It’s a virus, it’s a virus
Run, run it’s coming
Put on your facemask
Put on your facemask
But it’s a virus
It’s smaller than the pores in your facemask
It won’t stop you getting the virus
Put on your facemask
Put on your facemask
The BBC record is broken
It just keeps going round and round
The virus is coming
The virus is coming
We are all going to die
But it won’t feel like a cold
You might even think that you have flu
Put on your facemask
Put on your facemask
It really will make no difference
The majority will just get better
And there will be less deaths than with flu
The virus is coming
The virus is coming
And then it will all be gone
And someday life will be normal again

A rock at Skara Brae on Orkney - “ancient lichen tell their story”
(see: http://www.orkneyjar.com/history/skarabrae/)
credits: Johanna Verran
Intrusive
*Flavia Pinzari*

I am spreading
the painting is fading,
I am breathing
searching for water,
I am living
marching for fiber,
I am hoping
my enzymes go deeper
striving to reach the sugar
I miss,
I am leaching your feelings
persuading your art will not last

**Piscina 1**
*Matthew Beesley*

Double-piscina niched and canopied,
Bell finial tips spring-filigreed,
Votive offerings seep the surge,
Of diurnal tides recessed to merge.
Chlorella verdant, spirulina blue,
Blood green nucleated algal hue,
Waters brine or fresh, the stones perspire
Gilded sulphide beads, a kindled pyre.
Sea polychrome dried, now swathed,
With chalk the coccoliths displayed,
Each grain a polarising cross to bear,
Assemblages as body and soul where,
Water, oil and ash, life restored,
Vortexed through the drain-hole poured.
Abide, proceed, return: the piscina healed,
Symbiose of light and form, her refuge sealed.

**Haikus**

*Hans-Curt Flemming*

microbially influenced
corrosion:
so many researchers
barking up so wrong
trees

*Corrada Geraci*

Dark patina
lets out
a ray of light

*Chris Gaylarde*

Oceans are dying
biofilms can help us
saving the planet

**Explanation:** The poem refers to an early medieval stone piscina, manufactured from clunch stone, notorious for iron pyrites decay. It intimates at the anaerobic bacteria reducing seawater sulphates to sulphide, then reacting with iron to form pyrite, in marine sediments during a regressive sea environment. So, sulphate-reducing bacteria, decaying organic matter, anoxic conditions, permineralization replacement, re-introduction of calcite in the form initially of nano-lime solutions as treatment to consolidate, and create coccoliths as biomineralization processes, particularly the crosses on individual grains of coccoliths under PLM.

The poetic imagery shifts from decay to revival, implying the transformation of living organisms, metamorphosis to 'fools gold' pyrites, while also restoring the function of the piscina, as a vehicle to discard Holy Communion water, oil and ashes through the piscina's drain hole, for continued uses, as a symbiosis.
Dry Rot is only a Displaced Forest Fungus
Sarah Watkinson

Imagine the time when it was an unknown plague:
you’d go down into your damp cellar for wine
and the ladder would crumble, your foot in space,
wine racks draped in a duvet of fungal candyfloss,

and when you went back into your front room
you’d notice the floor would have buckled oddly
under the carpet; which itself, cotton-backed
would fall apart in dark shreds as you lifted it.

Later, you would hear of other afflicted buildings
and how the source of it all was mysterious
the outbreaks seemingly quite random across
town;
was it spread, perhaps, by workmen’s tools?

O why is wet cellulose a meal for fungi
and not for us? How we’d enjoy snacking
on moist kitchen roll, and the Sunday lunch
of an untreated whole softwood plank!

We fear rot, but it never meant us harm –
old dweller in cool northern forests of conifers
on rainy crags. Involuntary stowaway in timbers
destined for distant cities, it survived strange
times

in dockyard stacks – then found a kind of home
wherever rain got in and stayed - on dewy walls,
behind the panels of closed-up conventicles -
were feasts of pine, moist as in Fennoscandia*.

(*For explanation, see Watkinson & Eastwood,
2012, Advances in Applied Microbiology)

Doggerels and Limericks

Chewing
Chris Gaylarde

There was a young bug from Brazil,
Who said, "I'll not make you all ill.
I'll stay in this table
As long as I'm able
And pile up the frass in a hill".

Armies
Chris Gaylarde

The military might of the termite
Is a wonderful sight to behold.
While guarding the workers the whole night
They're marching, or so I am told,
In uniform files to-and-froing from piles
Or mounds, where they cultivate mould.

Corrosion
Fred Passman

We once thought that sulfate reducers
Were the only corrosion inducers.
We chose to ignore fermenters galore,
And their role as acid producers.

Fuel
Fred Passman

If you find many bugs in your fuel,
And choose to dismiss them, you're a fool.
Be mindful that dormants
Can quickly become torments
When they move from stasis to solid bases.

My favorites
Irene Davidova

Some pretty bacterial girls
Are hungry for smelly oil swirls
They would swim a great distance
And chew them in instance
Those magnificent bacterial dolls!

Leather
Pete Askew

A group of young boffins together
 Tried to stop the rotting of leather.
After decades of working
 (And a fair bit of drinking),
 They gave up and just blamed the weather.

Plastic
Robbie Coffin

We work to protect plastic
As a material it is quite fantastic,
But it's filling our oceans,
From all sorts of potions;
We must do something drastic!

Acid corrosion (SEM)