



Science communication takes many forms. In this issue we cover some of the latest ways by which microbiologists can keep in touch with each other and their subject. We also pay a visit to the Welsh Assembly to promote microbiology.

Podcasts

The term 'new media' can be rather vague. It is often applied to anything internet-based that isn't a static web page. One such application is a podcast: an audio file that is connected to an RSS feed, which enables subscribers to be alerted when a new (usually regular and frequent) episode is available. Perhaps unsurprisingly, the majority of the most popular podcasts are based on music and comedy (15 of today's top 25 podcasts on iTunes have comedy content; 2 are

These three podcasts cover a spectrum of understanding, aimed at everyone from the interested school student and the concerned parent to the postdoc researcher and the seasoned scientist. Just like a magazine, information can be presented in different ways, including news items, discussions and interviews. The content is convenient to the user who, perhaps, does not have time to sit and read a monthly magazine, but can easily listen to a 10-minute podcast while walking to work, driving, etc. But perhaps most importantly, by making audio available,

Microbiology and

factual) but there is certainly a place for science. *The Naked Scientists'* podcast and *The Guardian's Science Weekly* are both popular in the 'Science and Medicine' category, and microbiology is not neglected. A handful of podcasts is available by (free) subscription, including the ASM's *Microbeworld*, University of Leicester's (Dr Alan Cann) *MicrobiologyBytes*, and *Micropod online*, the product of a recent collaboration between SGM and the Society for Applied Microbiology (SfAM) (www.micropodonline.com/podcast.html).

For the ASM, University of Leicester, SGM and SfAM, podcasts are a new way to make information available to the public. (*MicrobiologyBytes* has attracted 100,000 downloads in the last year and there are approximately 1,500 regular weekly subscribers.)

the producers are better connected to the users, making them feel more involved with the subject matter and therefore likely to return for more. And hearing a scientist speak about their research makes it real, accessible, understandable and relevant.

Video

Around 9% of *BBC Online* content is video. People are watching less television, preferring to find relevant video content to view online. Videos access yet another audience, which may otherwise remain out of reach. For example, *YouTube* attracts around 20 million views each month and is popular with a younger audience. The number one viewed microbiology video on *YouTube* is called *We are not alone* (<http://tinyurl.com/5xyqu6>). It has had 257,451 views and been awarded a 5-star rating by the viewers.

It is a short video with some basic information about creepy crawlies that live on us humans, including microbes. Other popular videos include *Bacterial conjugation* (<http://tinyurl.com/yvehqs>) with 28,296 views and *Great microbiologists*, as told by Lego men (<http://tinyurl.com/6akanj>).

Many of the microbiology videos on *YouTube* are aimed at students. It is possible to learn all sorts of things, from the history of microbiology to plate-streaking methods. Videos come from a multitude of different sources, including universities, labs and people's living rooms. The benefit? According to *YouTube.com*: 'Everyone can watch videos on *YouTube*. People can see first-hand accounts of current events, find videos about their hobbies and interests, and discover the quirky and unusual. As more people capture special moments on video, *YouTube*

is empowering them to become the broadcasters of tomorrow' (*YouTube.com*, May 2008).

Blogs

New media has brought along with it a cascade of new words, which can make it seem even more difficult to decode. One of these is blog. Blog comes from the term web log, which refers to a web page or website content that is written and maintained regularly, often consisting of opinions and descriptions of events – a sort of online diary. The word can also be used as a verb, meaning to write or maintain a blog. Blogs can be (and are) written on just about everything imaginable, including microbiology. According to Google, *MicrobiologyBytes* is the most popular microbiology blog: with over 250,000 page views in the last year. ASM also has a blog, *Small Things Considered*.

Our own blog (www.micropodonline.com/blog) covers diverse topics, including the effect of TV adverts on the public opinion of microbes and the increase in STIs at Christmas. For blog authors, a major advantage is the facility that enables readers to comment and provide feedback.

Social networks

Social networks are beginning to grow out of the blogging world. *Twitter.com* is a fledgling network that is based on 'real-time micro-blogging': people interact via short (140 character) blogs. Twitterers can reply to each other's 'tweets', creating a dialogue in a network. Yesterday, I asked for opinions. Googler martyjn said 'I think *Twitter's* great for serendipitous discovery of complimentary ideas/techs.' AJcann said 'Benefits to microbiology = community of practice, especially for professionally isolated folks.'

Social networks are often in the spotlight. An estimated 200 million people are registered on *MySpace* and at least 170 million people are on *Facebook*. In the UK, *Bebo* ranks second in the social network ranks and was purchased in March 2008 by AOL for \$850 million (<http://tinyurl.com/3ac2c8>). *Bebo*, *YouTube*, *Facebook* and *MySpace* are in the top 10 most searched for items in 2007 (<http://tinyurl.com/5vf6vc>) and 1 in 50 UK network visits are to *Facebook* (<http://tinyurl.com/yt6ax5>).

Social networks provide facilities for like-minded people to gather virtually and share links, videos, podcasts, pictures and ideas. People group themselves in all sorts of ways, by profession (e.g. microbiologists), by hobby (e.g. brewing), by interest (e.g. microbiology) and even by campaign (e.g. 'I support the HPV vaccine!'). The group *Micropodonline* is made up of all sorts of people, each with an interest in topical microbiology. Some social networks are tailored to science and scientists. *Nature Network* enables

new media



If I wanted to, in the next 5 minutes I could download a podcast about astrophysics, comment on a blog discussing the pros and cons of mandatory vaccination, watch an instructional video teaching me how to streak an agar plate and join a group of sexy microbiologists just by clicking my computer mouse a few times. Such are the benefits of new media and web 2.0 technology. The advantages to me as a consumer are clear: I have a wealth of information, in a variety of formats, at my fingertips. I can even interact with the information, offering feedback and opinions. But what's in it for microbiology?

▲ Photos.com / Jupiter Images

A few useful URLs

What?	Who for?	Where?
<i>Nature Network</i>	Professional scientists	http://network.nature.com/
<i>Biomed Experts</i>	Professional scientists	www.biomedexperts.com
<i>Facebook</i>	Everyone	www.facebook.com
<i>MySpace</i>	Everyone (micropod online group)	www.myspace.com http://tinyurl.com/5lqhgf
<i>Twitter</i>	Bloggers	www.twitter.com
<i>Plurk</i>	Bloggers	www.plurk.com
<i>Second Life</i>	People with some spare time	www.secondlife.com
<i>YouTube</i>	Video lovers	www.youtube.com
<i>UStream</i>	Video lovers	www.ustream.tv

scientists to create a professional profile, including their areas of expertise, interests and publications. Members can discuss scientific issues and methodology, or just discuss last night's episode of a TV soap. *BiomedExperts*, 'your scientific match point' is similar to *Nature Network*; and is created around professional collaborations; members are connected by publication, becoming part of a huge group of associated researchers.

Virtual worlds

Taking this one step further, you reach virtual worlds, where your online profile is given a 3-dimensional presence, or avatar. As Mellifera Slade in *Second Life*, I can talk to my virtual friends using my real voice. I can attend lectures (a recent event on the *Nature Island* was a talk on bluetongue virus), peruse the literature at the *Second Life Centers for Disease Control and Prevention* building or sit under a parasol and listen to the latest episode of the *Nature* podcast. Virtual worlds give institutions the opportunity to create virtual areas that are accessible to anybody with a computer. More than 100 universities have campuses in *Second Life*, on which courses are run and lectures given. According to Peter Armstrong, founder of OneWorld.net, it won't be possible for people to fly to conferences in the future, due to the pressures of climate change. *Second Life* is an opportunity for people to meet without having to travel. 'We tested it last December against the

UN CCC meeting in Indonesia, to see whether we could add value to that event, open a window for extra participation for people over that fortnight.' The virtual event was a huge success, becoming a model for similar events in the future.

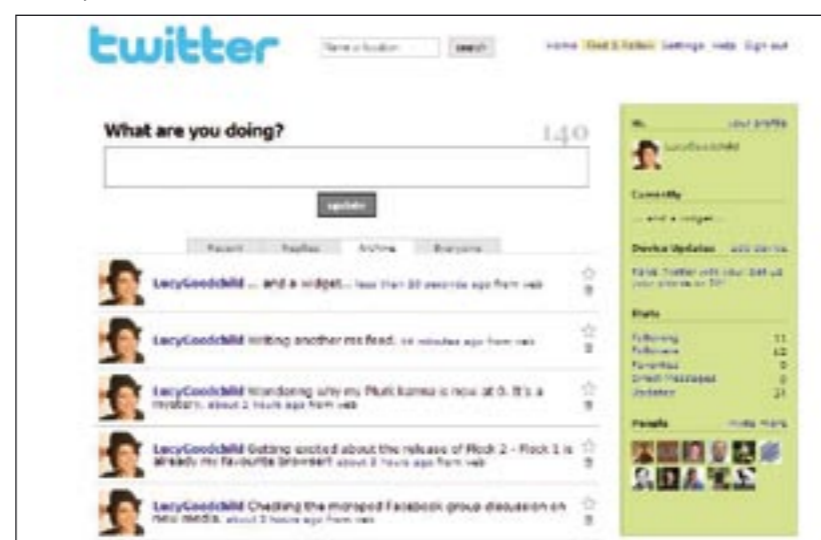
What next?

So what does the future hold? Gone are the days when it was sufficient to put something interesting on a website and let people find it. Alan Cann thinks there will be a 'growth in participatory media and user-generated content. Much of this will be driven by social networks such as Facebook and Twitter. There will also be a lot more user-generated video chat through sites such as Ustream.tv and Seesmic.' To hear Alan's response in true web 2.0 style, see <http://seesmic.com/v/x12PBvDIco>

It is projected that by 2012, 80% of online interaction will be via virtual worlds. Does this mean we should throw away our pens and paper? I don't think so. Whatever happens, there will still be a place for traditional media. People enjoy flicking through a magazine, reading a newspaper, watching TV and listening to the radio. As the horizon changes, plain information will still be needed to form the basis of new content, be it a podcast, blog or discussion forum. Microbiology can certainly benefit from new media by making itself accessible to users, therefore more readily consumed. Microbiologists themselves will benefit from being part of online networks, but this does not spell the end for traditional conferences. To make the most of new media, we first have to be willing to dip our toes into web 2.0.

SGM has done just this. www.micropodonline.com is proving to be a success, followed by the recent launch of the SGM journals podcast (see p. 113). We have a Facebook group, a MySpace page, Wikipedia entries and RSS feeds in development – watch this (virtual) space! To find out more or how to contact me via web 2.0, email l.goodchild@sgm.ac.uk

Lucy Goodchild, SGM External Relations Administrator



MicrobiologyBytes videos

The widespread availability of broadband internet makes it highly feasible to distribute short video clips online. As Lucy Goodchild describes on p. 150, the most obvious manifestation of this potential is the rapid growth in popularity of YouTube and similar video-sharing services. A recent report indicates that YouTube looks set to overtake BBC.co.uk in its share of UK website visits (<http://tinyurl.com/34gndf>). Although the penetration of this technology into the student population is very high, teachers and academic staff are lagging seriously behind in the take-up of this new form of communication. Online video has a high acceptability to young learners. In addition to ongoing investment by educational institutions, online video provides enormous flexibility to learners via computers, game consoles and mobile devices such as phones and video players.

In a past issue of *Microbiology Today*, I have described the great and still increasing success of my blog and podcasts on microbiologybytes.wordpress.com. This site has achieved its aim of engaging with the public about topical aspects of microbiology. I have also conducted pilot experiments with video formats in the podcast and blog, and these have been very popular. With the support of an award from the

Society, I am currently producing at least one video podcast per month (<http://tinyurl.com/5zbgmw>). The production of video is more time-demanding than the production of an audio podcast, but the new audience and publication channels the video format makes possible means that this is worthwhile. The videos are 'branded' with the SGM identity and a link to the Society website.

The aims of *MicrobiologyBytes* are to:

- Promote understanding and awareness of current issues in microbiology in the general public, potential students of microbiology and the media
- Promote awareness of SGM, benefits of membership, and resources available on the Society's website
- Promote awareness of career possibilities in microbiology and microbiology-related fields.

Based on the success of the last year, I believe these aims have been realized, but extension of the project into the highly attractive online video field will further increase the audience.

Alan Cann

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Science and the Welsh Assembly

On Tuesday 20th May, the Royal Society of Chemistry held its annual *Science and the Assembly* event in Cardiff, split between the fabulous Wales Millennium Centre and the stylish Senedd.

This event aims to bring together scientists and the Welsh Assembly to discuss topical science issues, and began with a keynote speech from Jane Davidson AM, Minister for Environment, Sustainability and Housing. High profile researchers from around Wales then delivered scientific presentations. Afterwards, a buffet and exhibition in the Senedd, specifically timed to follow the Assembly's plenary session that afternoon, allowed the delegates to mingle and chat, as well as explore the displays.

The SGM participated in the exhibition. With the ongoing public inquiry into

the 2005 outbreak of *Escherichia coli* O157, the largest ever outbreak in Wales, it seemed appropriate to present information on the food-poisoning agent verocytotoxin-producing *E. coli* (VTEC). This included a short movie showing the interaction of *E. coli* O157 with the epithelia of the gastrointestinal tract.

The Senedd is a space open to the public and throughout the day there was significant interest in the SGM display. The hand soaps (there to promote good hand hygiene, which is key in helping to prevent food poisoning) were especially popular with visiting school children.

However, the undisputed talking point of the day at the Senedd, which divided opinions of visitors and politicians alike, was the huge tinplate portrait of Baroness Margaret Thatcher

that had been hung against the glass windows at the front of the building. Visible from both inside and out, this temporary artwork, which was due to be unveiled the next day, was one of a pair. The other portrait was of NHS founder and Welsh hero, Aneurin Bevan.

Faye Stokes

Public Affairs Administrator

Further reading

- www.rsc.org/ScienceAndTechnology/Parliament/Events/ScienceandtheAssembly2008.asp
- <http://new.wales.gov.uk/ecoliinquiry/?lang=en>
- www.sgm.ac.uk/news/hot_topics.cfm
- www.vet.ed.ac.uk/zap/research/highlights_movie.htm
- <http://news.bbc.co.uk/1/hi/wales/7411199.stm>