



The Lost Art of Bacteriology

Martin Adams and Pattie Hendry reveal the artistic side of Science

MUCH is often made of a supposed antithesis between the Arts and Sciences. While this may be true when perceived from the viewpoint of the arts, where many with a strong artistic sensibility seem to rejoice in their complete ignorance of science, it is certainly not the case with scientists. Many have shown considerable artistic abilities in addition to their scientific achievements. The composer Borodin was a professor of chemistry, Einstein was an accomplished violinist, and Sir Humphrey Davy an enthusiastic poet, indeed one of the present authors had a week's recorder lessons while at Junior school.



In microbiology, Alexander Fleming has achieved immortality through his discovery of penicillin but his artistic side is perhaps less well known. He was a lifelong member of the Chelsea Arts Club, a private club for artists of all genres, founded in 1891 at the suggestion of the painter Whistler. In fact Fleming joined the Club

principally for the congenial company it offered and the opportunity to play snooker there. To become a member however he had to demonstrate professional engagement in the visual arts and to this end was forced to paint a picture for exhibition and sale. This he duly did, although there is some dispute over the subject of his painting. Macfarlane in his biography cites one source describing a 'view of the Children's Ward at St Mary's' while another asserts it was a picture of a cow (Macfarlane 1985). It may be that his talents were such that both interpretations of the painting were



equally plausible, but in any event it served its purpose.

Fleming's artistic reputation however lies less in any remarkable artistic (in)ability he possessed rather than in his innovative approach to painting. As far as we can determine, he was the first to use pigmented bacteria as an alternative to more conventional media such as water colours or oils. Some of the beautiful pigments produced by bacteria are described in the preceding article by **Maurice Moss** (page 10). They serve a

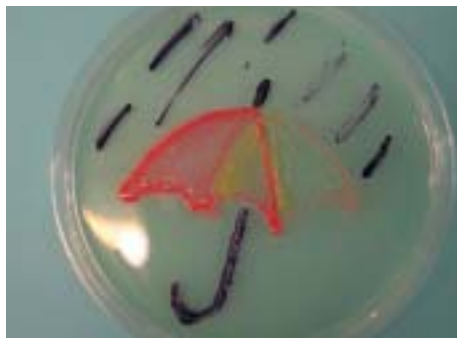




of the Union Jack in bacteria (Maurois, 1959). For those interested in seeing examples of Fleming's efforts some are reproduced on the endpapers of the Maurois biography.

At the

University of Surrey we have recently revisited this technique, though viewing the results some may feel it wasn't worth the trip. The various productions of the 'Surrey School' have thus far restricted themselves to a *naïve* or *primitif* approach using simply a loop and a limited palette (see below) on nutrient agar. The exciting possibilities of coloured media and chromogenic substrates not available to Fleming are yet to be explored. To some extent bacterial painting can be used as a teaching tool to enliven practical classes as the successful practitioner needs to develop a light but accurate touch to ensure strength of line is achieved without ploughing great troughs in the agar. It may also illustrate aspects of microbial ecology such as antagonism. Though Macfarlane suggests that the technique we have used is essentially the same as Fleming's, Maurois describes a more refined approach that we have yet to try: 'On a sheet of blotting paper he drew his



motif - a dancer, a mandarin, a Grenadier Guardsman or a flag. Then he laid the blotting paper on the agar so that it might become nutritive, after which he coloured his design with broths of the appropriate cultures. All that remained was to put the blotting paper into the incubator. As soon as the microbes developed, the picture showed up in colour.'

Some of the results of this technique were apparently demonstrated by Fleming at the Second Congress of Microbiology in 1936. As the illustrations show, our early

efforts suggest considerable personal talent and some scope for further improvement. The attractions of pointillism in bacterial painting are immediately apparent. We are therefore pursuing our artistic development with some vigour since we feel it is but a short journey from Guildford to the Tate Modern and untold wealth and fame! □

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■ A Simple Palette

Serratia marcescens - red ■

Chromobacterium violaceum - purple ■

Micrococcus luteus - yellow ■

Micrococcus roseus - pink ■

Micrococcus varians - white □

Bacillus sp. - orange ■



References

- Macfarlane, G. (1985) **Alexander Fleming the Man and the Myth**. Oxford University Press, Oxford, 304pp.
- Maurois, A. (1959) **The Life of Sir Alexander Fleming**. (G. Hopkins trans.) Jonathan Cape, London, 293pp.

Think you can do better? Then send us pictures of your microbial-art masterpieces and we'll enter them into the SfAM gallery. When we have sufficient artwork for an exhibition we can have our own SfAM version of the Turner Prize!