

‘Autophotographs’ noted in 1939

Mahadeva Subra Mani (1908–2003) is a well-known name in Indian biology, more specifically, in entomology. In the inaugural issue of the *Indian Journal of Entomology*, Mani¹ has written a short note referring to ‘autophotographs’. Details of the production of autophotographs are available in his note (Box 1). Unfortunately, Mani does not explain whether the autophotographs were made by him. From the statement, ‘In discussion it was pointed out ...’, at the end of the note (see Box 1), one could infer that he made and presented these in a forum, where the science behind this photographic method was evidently discussed.

I shared Mani’s note with entomologists Keith Harris (formerly at the International Institute of Entomology, London, UK) and Laurence Mound (CSIRO, Canberra, Australia), and historians of photography Douglas Nickel (Brown University, Providence, RI, USA) and Luke Gartlan (University of St Andrews, Scotland). Douglas and Luke offered helpful remarks, which I reproduce below.

Douglas Nickel (e-mail, 7 September 2018): ‘I’ve never heard about a technique like this specific to images of butterflies. But as the text speculates, there are ways to create photographic images by means of direct contact of objects with photographic films or papers in the dark, where chemical interactions between the object and the silver halides leave a transfer. A modern artist named Adam Fuss, for example, made works in the 1990s in which he placed slaughtered rabbits (from a butcher’s shop) on top of color Cibachrome paper for a length of time, and they traced their outlines chemically on the surface. It would be interesting to know if butterflies do indeed give off sulfurous gases, or in general are acidic or basic, and how silver emulsions react to pH change over time.’

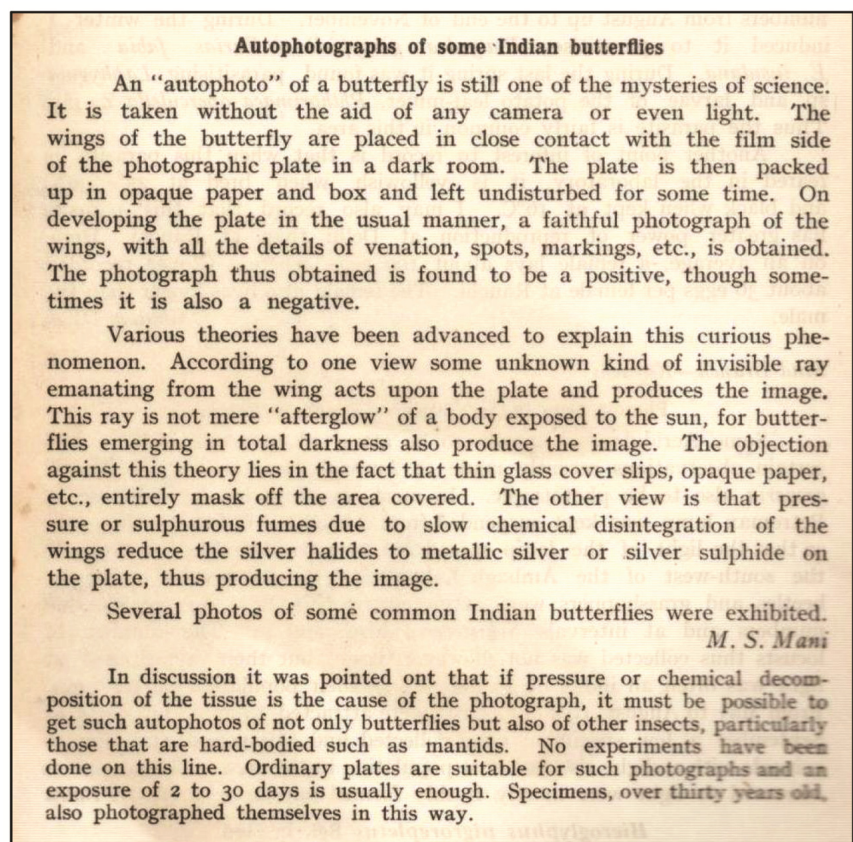
Luke Gartlan (e-mail, 7 September 2018): ‘The idea of “rays” emanating from a body and leaving a photographic trace does have a history going back into the nineteenth cen-

ture. The precise case of butterflies may be new, but the idea at least is not.’

I have known Mani as an avid photographer from the 1980s. He used a Leica™ SLR and took fascinating colour photographs of diverse arthropods, plants and Himalayan landscapes in the 1980s. But I am not sure whether he made photomicrographs, since his papers mostly include hand-drawn India-ink sketches.

A search into the history of photography offered some hints on what Mani describes as autophotographs. William Henry Fox Talbot (1800–1877), the British inventor, who made significant contributions to the science of photography (e.g. talbotype = calotype), revolutionized photography by inventing photoglyphic engraving process², which he patented in 1858. This technique was improved as the photogravure process by Karel Václav Klič in 1878 (ref. 3). During early days Talbot created ‘photo-

grams’ and called them ‘photogenic drawings’, by placing materials such as leaves onto sensitive paper and leaving them outside on a bright day. This resulted in a dark outline in a white silhouette of the object used⁴. Talbot’s photoglyphic process essentially involved photomechanical reproduction, with two objects in focus: mass reproduction of photographs and avoiding the problem of fading with time. (For an imprinted image of a plant by Talbot as a ‘photoglyphic gravure’, see <http://www.photography-news.com/2013/02/henry-fox-talbot-and-invention-of.html>.) Before Talbot, Thomas Wedgwood (1771–1805) made photographs of leaves and similar objects, but were faint and faded quickly. By mid 20th century, photographs came to be referred as ‘cameraless photography’ (<http://www.vam.ac.uk/content/articles/c/cameraless-photography-techniques/>) and that is what surfaces in the artistic creations of Man Ray⁵ and Adam Fuss (see <https://www.artsy.net/artist/adam-fuss>).



Box 1. Mani’s note in the *Indian Journal of Entomology*¹.

CORRESPONDENCE

Did Mani himself make the photograms using insect materials such as the wings of Lepidoptera? Unfortunately, he has not included a sample autophotograph in his note¹ and this complicates matters. Nevertheless, the note by Mani¹ illustrates that a set of photograms ('autophotographs') of insect materials was on public display somewhere in India. This provoked my curiosity, which turned mysterious, because Luke Gartlan suggested that I consult Chéroux⁶, since in the late 19th century an occult belief prevailed that bodies emanated rays that could be transferred onto photographic plates. Indeed Mani's note refers to a

vague radiation from the 'photographed' wings of Lepidoptera.

1. Mani, M. S., *Indian J. Entomol.*, 1939, **1**, 111.
2. Gill, A., *Hist. Photogr.*, 1978, **2**, 134.
3. Denison, H., *A Treatise on Photogravure in Intaglio by the Talbot-Klič Process*, Ilife & Son, London, UK, 1895, p. 140.
4. Talbot, W. H. F., *A Pencil of Nature*, Longman, Brown, Green & Longman, London, UK, 1844, p. 48.
5. Naumann, F., *Conversion to Modernism: The Early Work of Man Ray*, Rutgers University Press, New Brunswick, 2003, p. 261.

6. Chéroux, C., *The Perfect Medium: Photography and the Occult*, Yale University Press, New Haven, 2005, p. 288.

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ANANTANARAYANAN RAMAN

Charles Sturt University and Graham Centre for Agricultural Innovation, PO Box 883, Orange, NSW 2800, Australia
e-mail: araman@csu.edu.au

Quality of Ph D degree holders in India

The editorial by Dalal¹ 'on the quality of Ph D students in India' is thought-provoking. I fully agree that students mostly rely on rote learning rather than problem-solving. They get readymade notes and depend on the internet for solving problems. This system has contributed students who have not learnt to think for themselves, which is a problem if you want to take up a research career. We need to change our system of instruction, which needs to be thought-provoking. For example, each student in the beginning is taught 'A for apple', so thinking is restricted to apple alone. However, if an option is given to the students to write 10 names beginning with A, they will be forced to explore other options and apply their minds. The effort needs to begin with teaching the teachers, way starting from the primary-school level to ensure that we provide the coming generations with the best possible education.

I fully agree with Dalal¹ that we do not get the best students in Ph D programmes.

Due to financial crunch in most of the educational institutions, self-sustaining programmes are conducted and the intake capacity of students has increased. Thus teacher has to guide more number of students, while the students are asked to do a particular set of predefined experiments with little chance to explore new areas of research. Thus they have no chance to make mistakes and learn from them. Most of the universities have NRI quota where merit has no meaning.

The examination system is poor. The names of thesis examiners are suggested by the guide of the student and sometimes the external examiners get the thesis evaluated by their own students. The examiners must be selected from a pool of 10–15 persons, and there must be evaluation by at least one foreign expert to improve the quality of the thesis.

Earlier, students had to do a lot of literature survey during the course of their Ph D programme². This helped them to learn and remember well. Also, students

had to write their thesis a number of times till it was finally approved. Now cut-and-paste system due to internet has further deteriorated the learning process and resulted in very low-quality thesis. As of the universities have no plagiarism software, it has further aggravated the problem.

1. Dalal, S. N., *Curr. Sci.*, 2018, **115**(7), 1231–1232.
2. Abrol, D. P., *Curr. Sci.*, 2014, **107**(6), 940.

D. P. ABROL

*Faculty of Agriculture,
Sher-e-Kashmir University of
Agricultural Sciences and
Technology,
Chatha,
Jammu 180 009, India*
e-mail: dharam_abrol@rediffmail.com