

Guild

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY
HARVARD UNIVERSITY
7 Divinity Avenue
Cambridge, Massachusetts 02138

November 14, 1983

Dr. John Maddox
Editor
Nature
4 Little Essex Street
London, WC2R 3LF

Dear Sir,

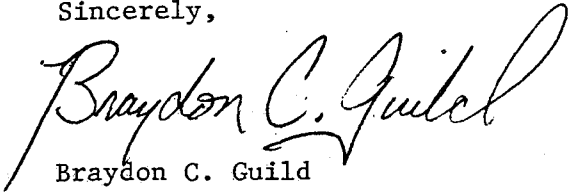
I have followed the correspondence in Nature on the subject of 'yellow rain' and am writing to you to point out an observation that was made by Charles Darwin which may be of historical interest to your readers. The observation of a 'yellow rain' was noted more than a century ago in the Gardeners' Chronicle and Agricultural Gazette, no.29, 18 July 1863, p.675. Paraphrased below are the contents of this paper and a letter by Darwin which was incorporated into the article. This information was gathered from volume II of The Collected Papers of Charles Darwin, edited by Paul H. Barrett.

Mr. Charles Darwin forwarded a letter regarding the occurrence of a very slight shower lasting hardly more than a minute on the morning of July 2 about 10 o'clock. Emma Darwin gathered flowers shortly after the shower and noticed that the drops of water appeared yellowish and the white roses were all spotted and stained. Microscopic examination revealed brown spherical bodies 1/1000 of an inch in diameter and covered with short, conical transparent spines, and other smaller smooth colorless sacs about 4/7000 of an inch in diameter. The water swarmed with elongated moving atoms only just visible. The petals on drying seemed to contain an impalpable matter the colour of rust of iron. Mr. Darwin suggests that perhaps the Rev. M.J. Berkeley might tell us what the larger spherical bodies are which fell this day by myriads from the sky carried by some distant whirlwind.

Some days after the event another individual examined a leaf spotted with yellow dusty patches finding grains of Fir pollen and a few spores of Fungi along with spots from another unidentified plant but the principal constituent consisted of a slightly ferruginous apparently siliceous dust. This observer states that Fir pollen is often carried by the wind and deposited by rain on leaves. The pollen observed bore a strong resemblance to the grains of some

Malvaceous plant but *Malva sylvestris* is the only species which could supply sufficient quantities of pollen to tinge the rain with a yellow tint; however, that species of pollen is smaller than the particles Darwin observed. The conclusion drawn was that it is quite astonishing what a multitude of bodies are carried about by the wind in the form of dust.

Sincerely,

A handwritten signature in cursive script that reads "Braydon C. Guild". The signature is fluid and elegant, with a prominent loop at the end of the last name.

Braydon C. Guild