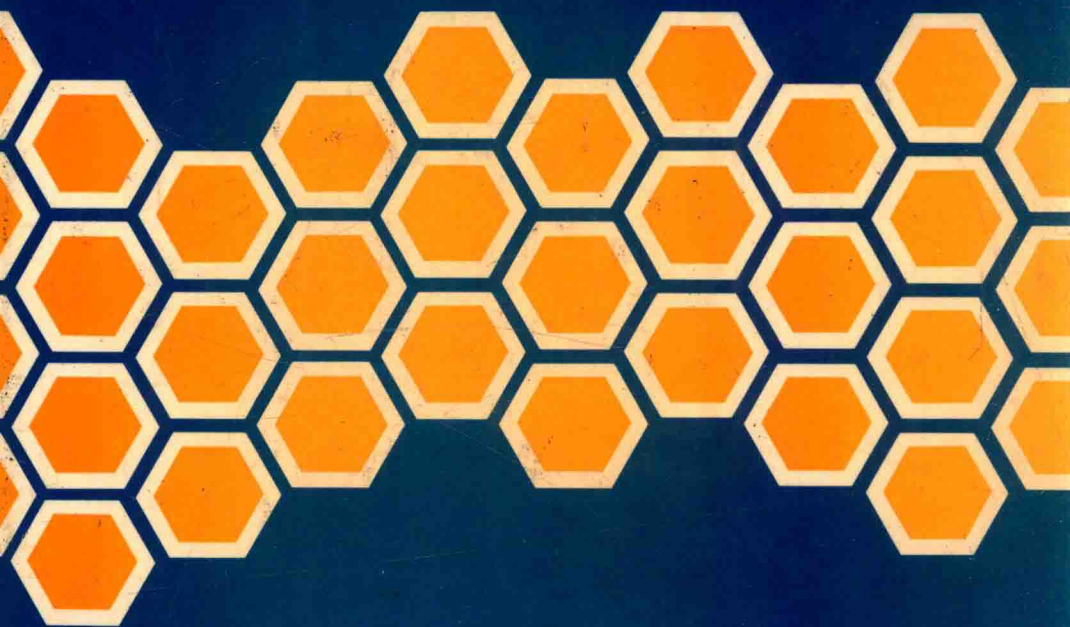


# **HONEY IDENTIFICATION**

**Rex Sawyer**



**Cardiff Academic Press**

# HONEY IDENTIFICATION

REX SAWYER

edited by  
Professor R. S. Pickard  
Bee Research Unit  
Department of Zoology  
University College Cardiff



Cardiff Academic Press

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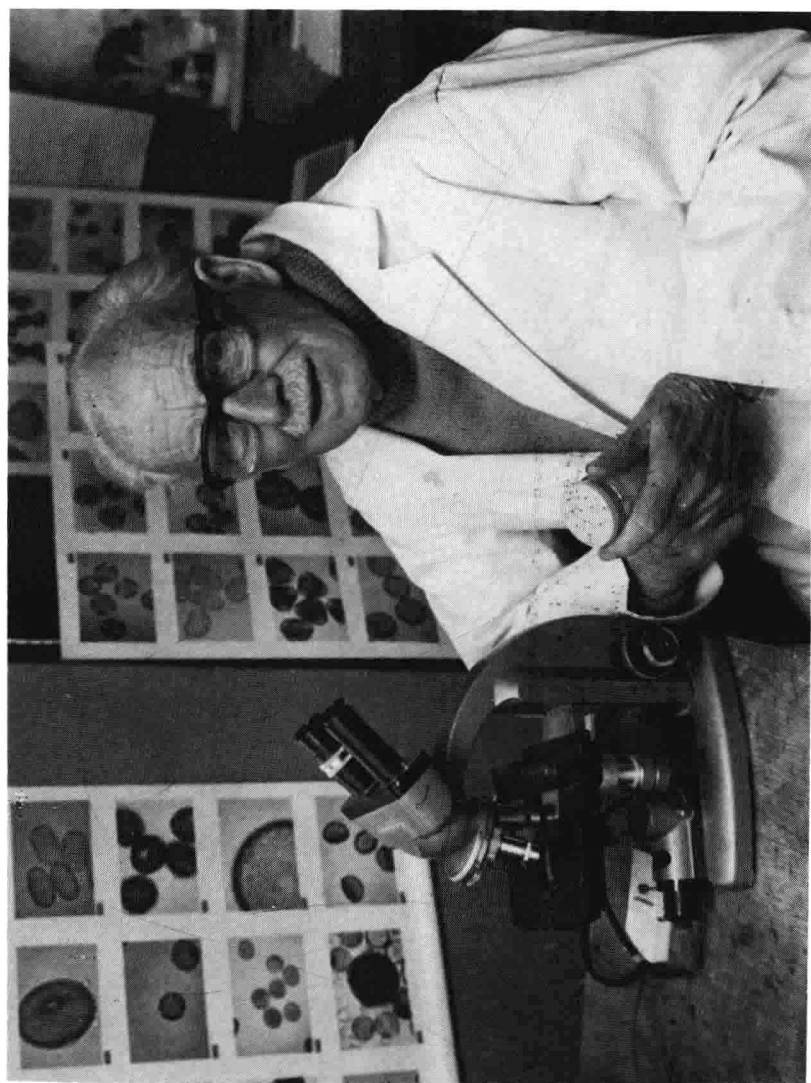
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Rex Sawyer at work in his laboratory.



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To the honey importers, packers and apiculturalists of many countries and to our own Trading Standards Departments, I am indebted for information and honey samples which have kept me in touch with the many aspects of the honey industry. The photographs were taken with Zeiss photomicroscopes in the Department of Zoology at the University of Wales, Cardiff, and the Department of Biological Sciences, Plymouth Polytechnic. I thank the Departments for these facilities and the technicians for their co-operation. Delmar Studio, Taunton, overcame many problems in preparing the final prints. Finally, the production of this volume has been in the hands of Professor R. S. Pickard of the Bee Research Unit, UWC, who has edited the script, and Mr. Bryan Turnbull of Megaron, both of whom I thank for their careful and painstaking work.

## **PREFACE**

This is a practical book, designed both for small-scale beekeepers and for those engaged in the honey industry, to explain the principles that can be applied to determine a honey's origin. Such investigations involve the microscopic examination of pollen and other particles in a honey which reveal its nectar sources, honeydew content and region of production.

In view of the vast number of recorded nectiferous plants, and beekeepers, spread over the world, the above objective might appear to be a task beyond the compass of this small book. However, the examination of the pollen in our local honeys and in the commercial, imported, honeys shows that there are surprisingly few plants acting as major nectar sources for bees. It is also found that the areas of production may be divided into a small number of broadly defined regions. It is thus possible from the identification of a few plentiful and significant types of pollen in honey to illustrate the principles of honey identification and in fact to name the nectar sources and the regions of production of most honeys found on the British market. A knowledge of 67 pollen types is employed.

This is but an introduction to the subject of melissopalynology. A subject deserving of great extension and development.





## 1. INTRODUCTION

“Par un curieux hasard, le miel porte en lui-même son certificat d’origine sous la forme des millions de grains de pollen qu’il contient en suspension dans sa masse.”: Dr. Jean Louveaux (1970).

### 1.1 THE NEED FOR HONEY IDENTIFICATION

There is a wealth of knowledge available concerning the distribution and nectar potential of the world’s honey plants (Crane, 1975; Crane *et al*, 1984), but there is little information in the English language relating honey back to its sources (Hayes, 1925; Deans, 1957). It is now almost 50 years since Professor Enoch Zander wrote his monumental series of books on the morphology of pollen and the identification of the origins of floral and forest honeys by microscopic examination (Zander, 1935). This work, in German, is long out of print and the plates were destroyed in World War II, but it remains the classic authority upon which melissopalynology is based throughout the world.

A plant which produces nectar copiously in one region may fail to do so in another. In the 5,000 or more hectares over which a stock of bees will forage, there are often major sources of nectar and honeydew unknown to the beekeeper. Only an examination of the final product of a hive can reveal the true nature of the bee forage in an area and its contribution to the honey. This examination also establishes a unique pollen spectrum for each honey to which similar samples can be positively related and thus identified. Such work has proved invaluable in planning the apicultural development of previously unexploited areas. The Yemen and many African countries have provided good examples of this. Honey samples received from these countries have shown the nectar sources available and their seasonal and local variation. Thus the honey potential can be estimated and a system of hive management and movement planned for maximum honey production.

In New Zealand, difficulty has been found in the standardisation of honey exports. The Department of Scientific and Industrial Research therefore mounted a project for the “pollen characterisation” of New Zealand honeys under the direction of Dr. Neville Moar. This has recently been completed to give an excellent survey of these honeys, their pollen content and recommendations for their assessment based on these findings (Moar, 1985). In the United States of America, the West Virginia Department of Agriculture is thinking about establishing a “honey