J. Woyke : Re: Sex of Cape brood (Allsopp) : 28 June

From: woyke@alpha.sggw.waw.pl
Subject: Re: Sex of Cape brood (Allsopp)
Date: Wed, 28 Jun 1995 13:38:03 EDT

COMMENTS ON SEX OF CAPE BROOD

In my report of 22 June 1995 concerning the Sex of brood originating from Cape queens and laying workers, I have written, as was correctly summarised by M. Allsoop in his message of of 26 June 1995:
The results from Prof Woyke's latest post are very interesting. To summarise:

‘- 2-15% of brood from uninseminated *capensis* queens is female

- drone brood from uninseminated *capensis* queens survives as normal in drone cells, but not in worker cells

- 3-9% of eggs laid by *capensis* laying workers gave rise to drones

Prof Woyke concludes:

> ‘ **Thus, results presented above show that except arrhenotoky, also thelytoky occurs in offspring of unineseminated Cape queens. The results show also, that except thelytoky also arrhenotoky occurs in offspring of Cape laying workers.**‘

M. Allsopp suggests that drones found in CLW colonies within brood in drone cells might have origin from LW of other bee subspecies.

He writes as follows:

‘As a brief response to the question, and based on 4 years of continuous records of bees at Cape Point - as true *capensis* as exist in the world - the following:

It might be so that true *capensis* laying workers produce eggs of both sexes, as indicated by Prof Woyke, but drone brood is NEVER reared in these colonies. If there are drone eggs, they are removed. It is possible that the drone eggs that are being seen are a result of hybridization (with *scutellata* or a European race). In hybrid colonies

(as indicated by the data of Hepburn & Crewe) you can get both sexes of brood being produced by the laying workers. Typically, a colony has to be at least 75% *scutellata* before any drone brood is seen. But a colony that is only (perhaps) 25% *scutellata* will probably have a few laying workers producing haploid eggs - which will not be reared to drones. [A reason for Prof Woyke's reported low viability of CLW eggs, perhaps?].

When drone brood is produced by these hybrid colonies (and by *scutellata* colonies) the brood is typically produced in worker cells. The drones from these cells are smaller than normal, but appear to be viable in all other respects. They certainly go on mating flights, but I don't know with what success.'

This is an important observation and argument in the discussion. No drone brood is found in worker cells in CLW colonies. However, drone brood is found in worker cells when laying workers of other subspecies are present.

I did not see drone brood in worker cells in CLW colonies. This means there were no present laying workers of other bee subspecies. This is why I started to investigate the sex of brood in drone cells. After I supplied drone cells to CLW colonies, and after the eggs were laid, the combs were moved to *Apis mellifera melifera* queenless colonies, which reared queen cells.

There were no laying workers in the *mellifera* colonies. This means, that drones found in the drone cells originated from Cape laying workers.