achieved and adds further to the awareness of the radicalisation of the Third Reich in the closing stages of the war. The investigation into this period after 20 July revealed that while many of the families connected to the German Resistance were punished, within the military in general, despite the widespread and open threat, Sippenhaft was not practically applied. Similarly, threats made against the German public were seldom followed up with actual arrests. In other words, within these two domains in Nazi Germany, Sippenhaft was never practically applied with any regularity. Consequently, this thesis offers a deeper comprehension of the potency of fear over practice, as a means of social coercion and how this was practically achieved. Rather than being used as an unconstrained device of terror, Sippenhaft was largely restricted in its extent and capacity. How effectively these fears were created and sustained are the main focus of this thesis.

Dr Robert Loeffel
School of History
University of New South Wales
Kensington NSW 2052
email: r.loeffel@unsw.edu.au

(Manuscript received 06.05.2004)

**Thesis Abstract: Mast Cells and Microflora in the Possum cul-de-sac**

**PATRICIA MARY MAHONEY**

Abstract of a thesis submitted for the Degree of Doctor of Philosophy, University of Otago, New Zealand, 2004

Keywords: possum, reproduction, mast cells, cul-de-sac, stereology

Mast cells are a common feature of the vaginal cul-de-sac of female brushtail possums. In the reproductive organs of other mammals empirical studies have found that mast cell numbers change at different stages of the reproductive cycle. The reason for the presence of mast cells in the cul-de-sac is unknown but may reflect microbial presence as mast cells are typically associated with biological responses to parasitic and/or bacterial invasion in gut and pulmonary tissues. Alternatively, it may indicate a role for mast cells in marsupial reproduction.

This study will attempt to address the significance of mast cells in the cul-de-sac of the brushtail possum with the hypothesis: *That mast cells in the vaginal cul-de-sac of the brushtail possum undergo numerical, spatial and morphological changes during different reproductive states.* This investigation will assess whether the changes are due to microbial invasion or reproductive processes.

Cul-de-sac tissues were collected aseptically for microbiological, stereological and TEM analyses, from female adult possums (n = 6/group) that were lactationally anoestrous or in the follicular or luteal phases of the oestrous cycle, where oestrous cyclicity was induced by the removal of pouch young and reproductive status confirmed by laparoscopy. A similar analysis was undertaken on untreated seasonally anoestrous animals and those treated with subcutaneous implants of oestradiol 17β (n = 6/group) as well as juvenile animals (n = 5). Microbial populations were quantified and bacteria identified by media-culture and gram staining. The fractionator and optical disector stereological methods were used to quantify mast cell populations in both the epithelial and connective tissue components of the cul-de-sac.

Microflora were present at very low levels (< 5 x 10^5 organisms g^-1) in the culs-des-sacs from all reproductive groups and were undetectable in 15/41 animals. The total number
of mast cells present was significantly greater in adult than in juvenile animals. Amongst adult groups, mast cell numbers were greater in follicular and luteal phase animals than in oestradiol-treated animals. Changes in total mast cell number amongst adult animals were not reflected in changes to the number of epithelial mast cells. Mast cell populations displayed two aspects of anisotropy irrespective of reproductive status, where (i) cells were predominantly located in the epithelial tissue and/or in that region of connective tissue adjacent to the basement membrane and (ii) cells often appeared as aggregations of three or more cells per disector volume.

Mast cell density was significantly lower in those animals exposed to endogenous and exogenous oestradiol than in lactationally and seasonally anoestrous animals. This may be attributed to increases in total cul-de-sac volume.

Electron microscope studies showed that the volume fraction ($V_v$) of granules in mast cells was greater in lactationally and seasonally anoestrous animals than in luteal phase animals.

In conclusion, the density of mast cells in the cul-de-sac of the female brushtail possum shows changes after exposure to oestradiol. This was not related to microbial invasion, but may be due to changes in tissue volume, or to some unidentified stimulus.

Patricia Mary Mahoney
Department of Anatomy and Structural Biology, School of Medical Sciences, University of Otago
PO Box 913 Dunedin, New Zealand
email: trish.mahoney@stonebow.otago.ac.nz

(Manuscript received 06.09.2004)


DR MARCELA CÁRDENAS MÖLLER

Abstract of a thesis submitted for the Degree Doctor of Philosophy, University of New South Wales, New South Wales, 2004

This research examines the connection between the implementation of strategies addressing the environmental, social, economic and governance aspects of mining (what the author recognises as the quadruple bottom line of sustainable development) and the sustainability of the South American quarrying industry.

The project included the analysis of the quarrying industry of the capital cities of Colombia, Chile and Ecuador, as representative case studies of South America. Fieldwork in these cities involved interviewing stakeholders, visiting quarries, observing behaviour, and testing knowledge and understanding about sustainable quarry development. The information gathered was then combined with the information provided by national mining registers to identify the issues that inhibit the sustainability of quarrying in Colombia, Chile and Ecuador.

In parallel to the fieldwork, an analysis was conducted of specific environmental, social, economic and governance aspects of the minerals industries of various countries. These countries included Canada, the United States, Panama, Dominican Republic, Cuba, Brazil, Spain, England, South Africa, Australia, China and the Philippines. This investigation confirmed the connection between the implementation of strategies addressing the quadruple bottom line of sustainable development and the

**View This Item Online:** https://www.biodiversitylibrary.org/item/176179  
**DOI:** https://doi.org/10.5962/p.361547  
**Permalink:** https://www.biodiversitylibrary.org/partpdf/361547

**Holding Institution**  
Smithsonian Libraries and Archives

**Sponsored by**  
Biodiversity Heritage Library

**Copyright & Reuse**  
Copyright Status: In Copyright. Digitized with the permission of the rights holder  
Rights Holder: Royal Society of New South Wales  
License: http://creativecommons.org/licenses/by-nc-sa/3.0/  
Rights: https://www.biodiversitylibrary.org/permissions/

This document was created from content at the Biodiversity Heritage Library, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at https://www.biodiversitylibrary.org.