

Historical, sampling and gender bias in palaeontological collections: Stylophora (Echinodermata) as a case study

Pauline Guenser, Bertrand Lefebvre

▶ To cite this version:

Pauline Guenser, Bertrand Lefebvre. Historical, sampling and gender bias in palaeontological collections: Stylophora (Echinodermata) as a case study. 11th European Conference on Echinoderms, Bertrand Lefebvre; Thomas Saucède, Oct 2023, Villeurbanne, France. hal-04271133

HAL Id: hal-04271133

https://hal.science/hal-04271133

Submitted on 5 Nov 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.





ABSTRACT BOOK

11th European Conference on Echinoderms (ECE11)

October 16–20, 2023 Lyon, France

Historical, sampling and gender bias in palaeontological collections: Stylophora (Echinodermata) as a case study

Pauline GUENSER¹ & Bertrand LEFEBVRE¹

¹ UMR CNRS 5276 LGLTPE, Université Lyon 1, Villeurbanne, France. pauline.guenser@univ-lyon1.fr, bertrand.lefebvre@univ-lyon1.fr

The class Stylophora corresponds to a relatively small clade of extinct echinoderms (around 130 species and 70 genera) known from the middle Cambrian (Wuliuan) to the Late Carboniferous (Bashkirian). From their first descriptions in the 1850s (Billings, 1858; Hall, 1859) to the 1950s, stylophorans were almost exclusively described from Europe and North America.

We analysed an extensive data set that includes all stylophoran species, the publication year and the location of the holotypes, the nationality and the gender of the taxonomists who described them. Based on multivariate statistics analyses, we assessed two main biases. First, although stylophoran occurrences have been documented from all continents except Antarctica for the last 75 years, our knowledge of this class remains strongly biased historically. Indeed, about 75% of all described taxa are from only four countries (France, Czech Republic, USA, and UK). Moreover, prolific countries (e.g., Morocco) do not have holotypes registered in their public collections, although the material was discovered in their territory. Second, although female geologists sometimes contributed extensively to fieldwork and the discovery of new taxa (the most famous example being Mrs Elizabeth Gray, after whom *Cothurnocystis elizae* Bather, 1913 was named), only a single species was described by a female palaeontologist, "*Phyllocystis*" *salairica* by Yulia Dubatulova (*in* Rozova *et al.*, 1985).

We might explain this pattern with parachute palaeontology (or scientific colonialism). The impact of colonialism on biodiversity study in deep time has been recently approached in the litterature (Monarrez et al., 2022, Raja et al., 2022, Chacon-Baca et al., 2023). Women in paleontology is an older topic (e.g., Aldrich, 1982, Berta and Turner, 2020), even if gender parity has not been reached yet (Warnock et al., 2020). We rely on these studies to propose perspectives in order to foster diversity and inclusion in the stylophorans research community such as: supporting women and local collaborators in fieldwork and the description of the material; keeping the material in its country of origin after primary study; maintaining strong scientific collaborations with foreign universities that hold the material to diversify author nationalities in publications and generate fundings.

References

Aldrich, M. (1982). Women in paleontology in the United States 1840-1960. *Earth Sciences History*, **1**(1), 14–22. Berta, A., & Turner, S. (2020). *Rebels, Scholars, Explorers: Women in Vertebrate Paleontology*. Johns Hopkins University Press.

Billings, E. 1858. On the Cystidae of the Lower Silurian rocks of Canada. *Canadian Organic Remains, Geological Survey of Canada*, **3**, 9–74.

Chacon-Baca, E., Moreno, K., Sterli, J., Buldrini, K.E., Chacaltana Budiel, C.A., Echevarría, J., de Araújo Júnior, H.I., Ghilardi, R.P., Tejada-Medina, L.-M., & Zurita-Altamirano, D. 2023. Perspective on the role of academic journals on scientific colonialism in paleontology. *PaleoAmerica*, **9**(1), 1–6.

Hall, J. 1859. Natural History of New York, Paleontology. Vol. III, containing descriptions and figures of the organic remains of the Lower Helderburg Group and the Oriskany Sandstone. (part I, text). Van Benthuysen, Albany, 532 pp.

- Monarrez, P.M., Zimmt, J.B., Clement, A.M., Gearty, W., Jacisin, J.J., Jenkins, K.M., Kusnerik, K.M., Poust, A.W., Robson, S.V., Sclafani, J.A., Stilson, K.T., Tennakoon, S.D., & Thompson, C.M. 2022. Our past creates our present: a brief overview of racism and colonialism in Western paleontology. *Paleobiology*, **48**(2), 173–185.
- Raja, N.B., Dunne, E.M., Matiwane, A., Khan, T.M., Nätscher, P.S., Ghilardi, A.M., & Chattopadhyay D. 2022. Colonial history and global economics distort our understanding of deep-time biodiversity. *Nature Ecology & Evolution*, **6**(2), 145–154.
- Rozova, A.K., Rozov, S.N. & Dubatulova, Y.A. 1985. Stratigraphy and fauna of the Ordovician of the north western Salair region. Nauka, Moscow, 176 pp.
- Warnock, R., Dunne, E. M., Giles, S., Saupe, E., Soul, L. & Lloyd, G. 2020. Are we reaching gender parity among *Palaeontology* authors? *Pal'Ass Newsletter*, **103**, 40–48.