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Past and present: raw material identification approaches at Umhlatuzana rockshelter, South Africa

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Past and Present

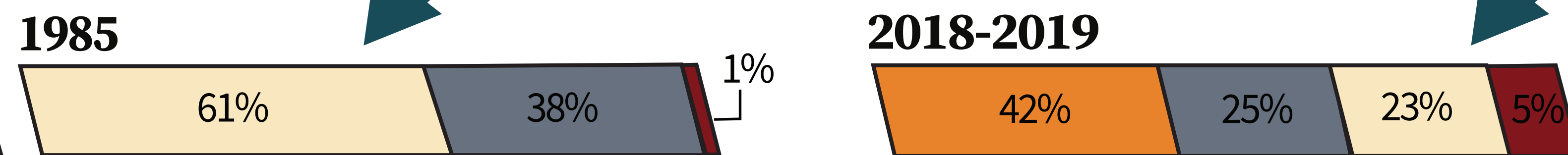


Fig. 1 Raw material distribution according to the 1985 (Kaplan 1995) and 2018-2019 (current study, Sifogeorgaki et al. 2020) excavation reports (legend idem Fig. 4)

Raw material identification approaches at Umhlatuzana rockshelter, South Africa

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Fig. 2. Map highlighting the location of Umhlatuzana rockshelter at KwaZulu Natal, South Africa

INTRODUCTION

Umhlatuzana is an important site documenting technological development over the past 70.000 years. This period is associated with the appearance of sophisticated lithic industries and 'modern behaviour' (Fig. 3). The site was first excavated by Jonathan Kaplan (1990) and is currently re-excavated by a team from Leiden. Kaplan suggested that the lithic assemblage of the Pleistocene deposits consisted mainly of quartz, hornfels, and quartzite (Kaplan 1990, Fig. 1). Renewed excavations were conducted during 2018 and 2019 (Reidsma et al. 2021, Sifogeorgaki et al. 2020). The raw material types and proportion of the renewed excavations are not in agreement with Kaplan's estimations. Here we present our first results on qualifying and quantifying raw material used at Umhlatuzana rockshelter.

METHODS

We conducted petrographic analysis on 18 micromorphological thin sections and distinguished the raw material types present. We conducted pXRF analysis of the thin section raw material and c. 100 artefacts. This revealed the elemental composition of the different types and allowed linkage of micromorphological and archaeological materials. Micromorphological and pXRF sample preparations are described in Reidsma et al. (2021) and Huisman et al. (2017).

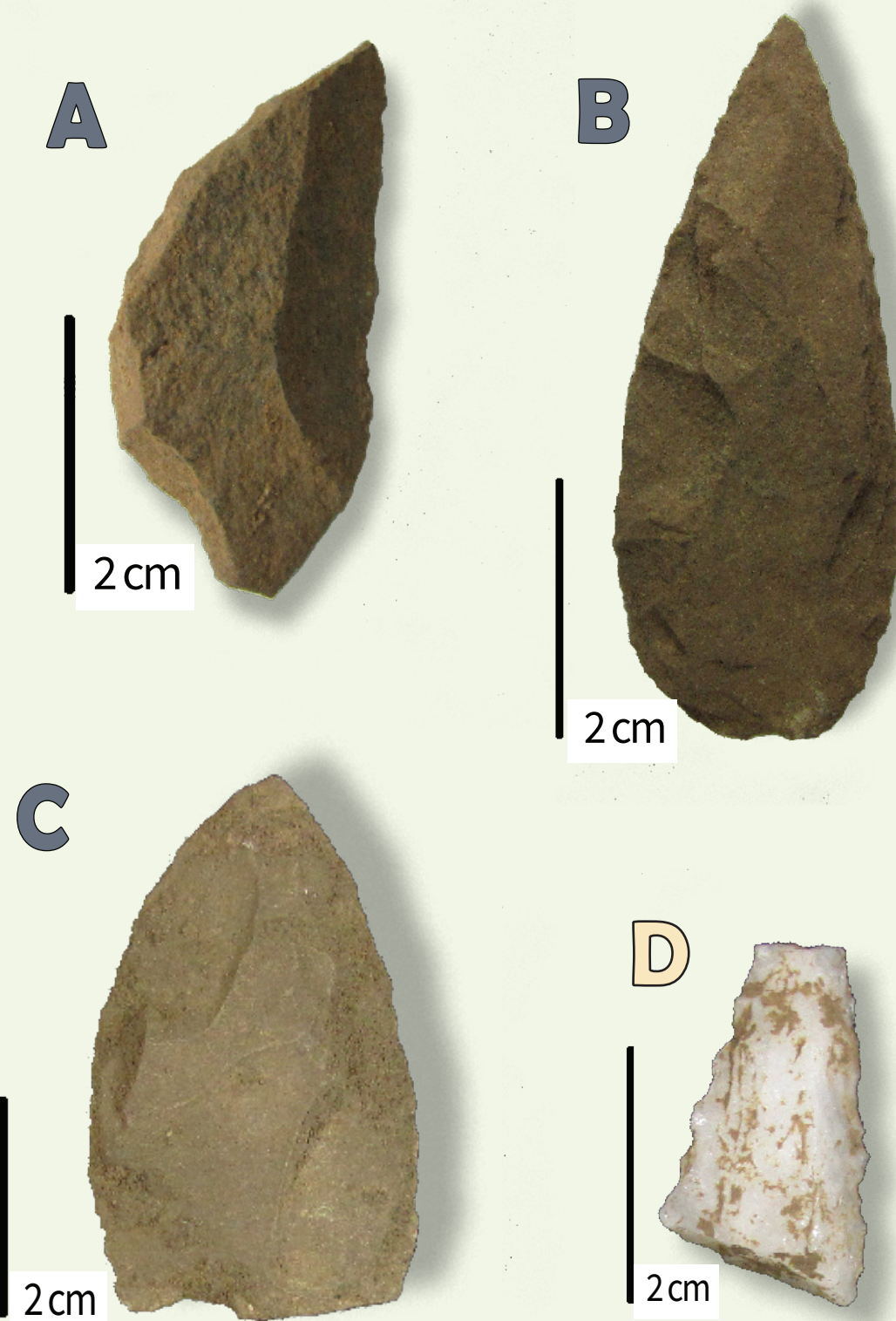


Fig. 3. Raw material distribution according to the 1985 and 2018-2019 excavations KLSJ-FLD SSDFJ SDLKF SKSJWERKJW KFJS D

RESULTS

Thin section analysis reveals **sandstone** (Fig.5 A-B), **quartz** (Fig.5. C), **hornfels** (Fig.5. D-G), **chert** (Fig.5. H-I), and **diorite** (Fig.5. J-K) raw materials.

There are pronounced **differences** on the raw material distribution between Kaplan and the current study (Fig. 1). **Quartzite** fragments were not detected.

The pXRF results indicate that we can **differentiate** between different types of raw materials of Umhlatuzana rockshelter based on the **signal** of specific elements (Fig. 4).

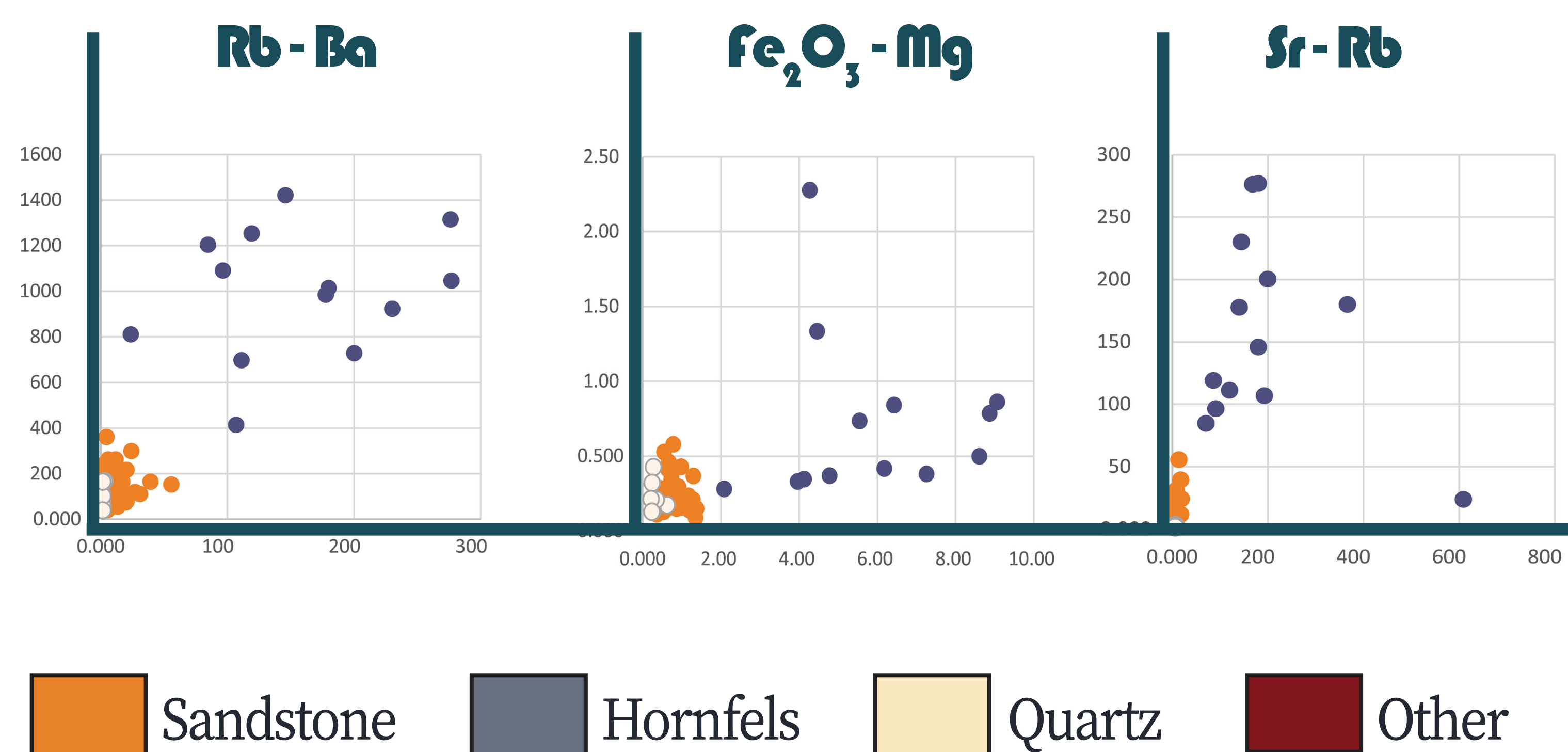


Fig. 4 Raw material distribution according to the 1985 and 2018-2019 excavations

CONCLUSION

The visual determination reliability of archaeological raw materials is increased greatly by applying ge archaeological techniques. This represents a necessary first step before behavioural questions on raw material selection and sourcing can be reliably addressed.

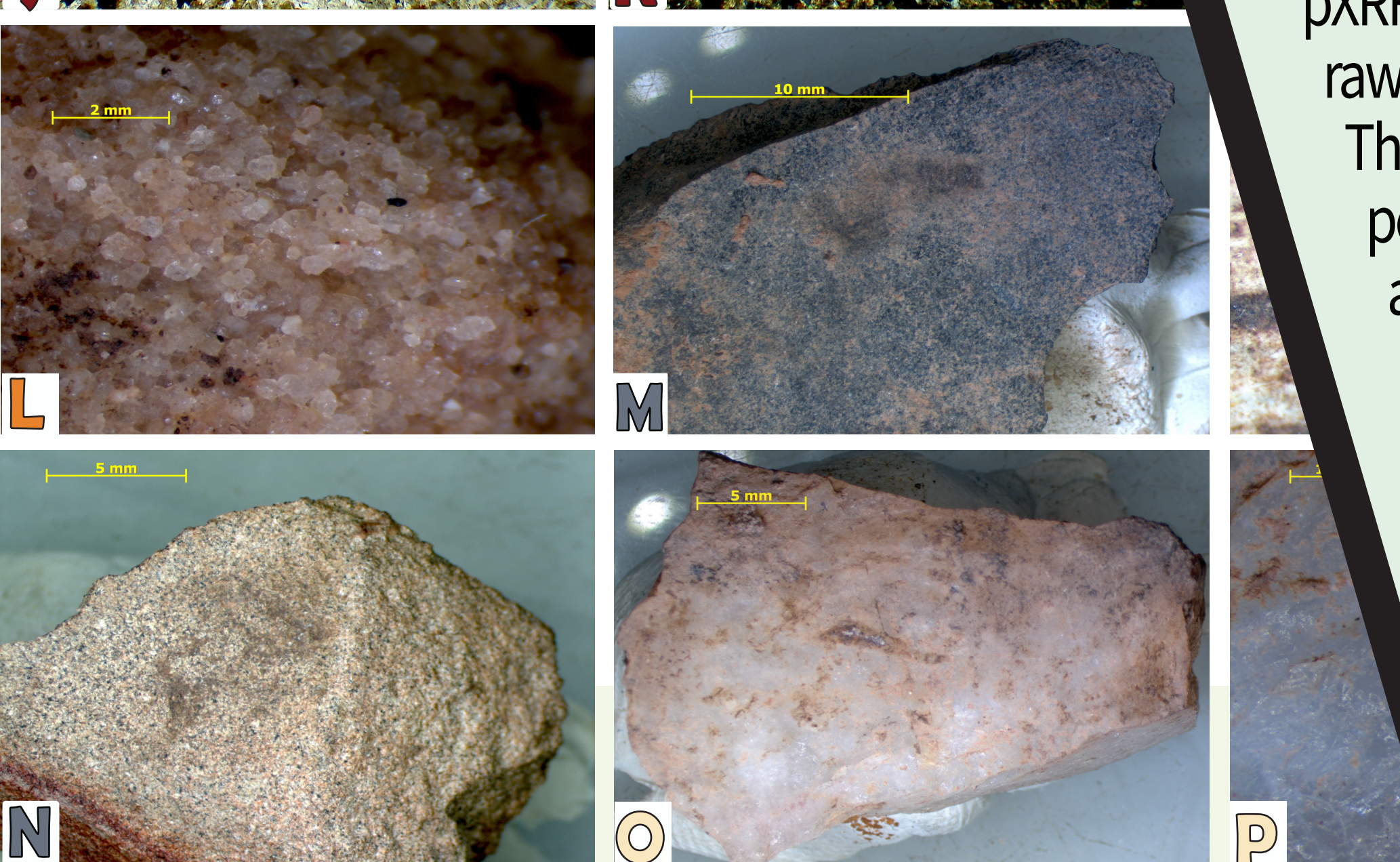


Fig. 5: A-K: Micrographs of the main raw material types: A, B. Sandstone (PPL, XPL); C. Quartz (XPL); D, E, F, G. Hornfels (PPL, XPL, PPL, XPL); H, I. Chert (PPL, XPL); J, K. Diorite (PPL, XPL)
L-P: Textural view of the main materials by stereo microscope: L. Sandstone; M, N. Hornfels; O, P. Quartz

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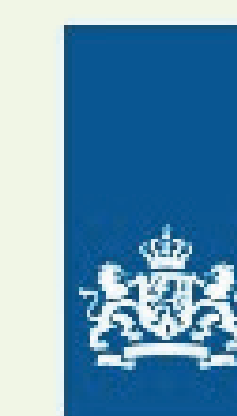
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