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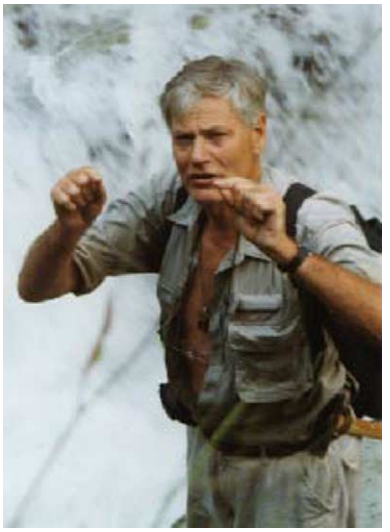
Editorial

A tribute to Jean Clair Duchesne



Jean Clair Duchesne during fieldwork in Romania.

Jean Clair Duchesne, geochemist and petrologist, has retired in September 2002 from his chair as Professor of Petrology and Geochemistry at the University of Liège (Belgium). Jean Clair Duchesne received his education at the Liège University as a Mining Engineer in 1960 and a Geological Engineer in 1962. He went on to obtain his PhD in 1969 under the guidance of the late Professor Paul Michot. His thesis was devoted to the geochemical study of oxide associations (ilmenite and magnetite) in the Bjerkreim-Sokndal layered intrusion of southern Norway. He then joined the Department of Mineralogy of Cambridge University in Great Britain as a postdoctoral fellow of the Royal Society of London. At the Liège University, he has been successively Assistant, "Chef de travaux" and then "Professeur ordinaire" (full professor) in 1981. He has obtained several scientific distinctions and he has been member of numerous scientific national and international committees. Among others, he has been member of the "Lithos" editorial board since 1981 and of the advisory editorial board of "Journal of African Earth Sciences" (1994–1999). He is now the Editor in Chief of Geologica Belgica.

During his scientific career, Jean Clair has developed his research in the understanding of magmatic processes, mainly magmatic differentiation, using the observed abundances of major and trace elements and quantitative modelling of their behavior. He applied this approach to several types of magmatic series but his favorite one was certainly the anorthositic complex of Rogaland in southern Norway. The scientific results he and his colleagues gathered in this region have enabled a better understanding of the origin of AMC suites. The Rogaland Province is now a well-known example of these peculiar rocks. The interest of Jean Clair Duchesne for the anorthositic suites started with his PhD thesis devoted to the Fe–Ti oxides of the Bjerkreim-Sokndal layered intrusion. He observed and studied in great detail the complex textures shown by these minerals in polished sections and his original paper of 1972 in Journal of Petrology is still cited as a reference for those who work in this topic. His interest for the Fe–Ti oxides lasted through his entire scientific career: in July 2001, he organized a field workshop on ilmenite deposits funded by the GEODE association of the ESF. He has also stimulated several scientific studies of the Tellnes deposit in

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Rogaland; Ragnar Hagen and Kari Berge who manage the exploitation of the mineral resources of the Rogaland are grateful for his constructive scientific cooperation. In 2001, Jean Clair Duchesne has also been contacted by the Mining Company Rio Tinto for his expertise in this type of deposits.

In the anorthositic complex of the Rogaland Province, Jean Clair Duchesne rapidly understood the importance of magmatic rocks of intermediate compositions, the so-called jotunites, in the petrogenesis of the AMC suites and proposed that they could be the parent magmas of andesine anorthosites. Moreover, by deciphering and modelling the details of the Sr, Ca, Rb and K behavior in the Bjerkreim-Sokndal layered intrusions, he was able to constrain the composition of the bulk cumulates substracted during the differentiation of these magmas. Later, he studied the relationships between the charnockitic rocks frequently associated with anorthosites and was among those who proposed that there is a continuum from jotunites to mangerites and then charnockites.

Professor Jean Clair Duchesne has also devoted his time in the organization of several international field workshops in the Rogaland. More particularly, in July 1991, he convened a post graduate intensive course on "Petrology, geochemistry and geophysics of magma chambers" (SCIENCE program of the EU) where several young scientists were able to directly interact with senior scientists about major topics in igneous petrogenesis. This very stimulating initiative was followed in 1993 by another euroconference on magma chambers, which happened in Corsica. In 1996, he led the excursion "Eurogranite" during 2 days in Rogaland, tracing the link between anorthosite and alkali granite.

Another facet of Jean Clair is his will to develop new generations of geologists and scientists. This was of course the case during his career as professor at the University of Liège, but not only. He spent a lot of time and energy in cooperation with Central Africa, particularly in Burundi where he contributed to revitalize the Geological department in Bujumbura. There, he studied magmatic rocks such as the layered ultramafic to mafic intrusions of the Kibaran belt of Burundi. He acted for several years as the President of the Cecodel, the unit in the University of Liège in charge of the cooperation with developing countries. When the Berlin wall felt, he rejuvenated a link with a Romanian friend, Tudor Berza, and through several Belgian and European projects, studied the Pan-African granitoids emplaced in the Alpine Danubian nappes of the southern Carpathian belt. All these researches focusing on magmatic series were aimed not only to better understand magmatic processes but also as indicators of the evolution of the continental crust as a whole. Particularly during these last years, he integrated geodynamical considerations within his geochemical-oriented publications.

Jean Clair has also made "excursions" outside the field of magmatic petrology as he studied the geothermobarometry of metamorphic rocks surrounding the Rogaland anorthositic complex and also applied his skills in studying the geochemistry of sediments from southern Belgium.

All these researches have led to a large number of publications in international journals and a selection of them is given below:

Bolle et al., 2002
Demaiffe et al., 1986
Duchesne, 1972
Duchesne, 1978
Duchesne, 1999
Duchesne and Wilmart, 1997
Duchesne et al., 1974
Duchesne et al., 1998
Duchesne et al., 1999
Duchesne et al., 2004
Liûgeois et al., 1996
Longhi et al., 1999
Sondag and Duchesne, 1978
Tack et al., 1994
Vander Auwera et al., 1998
Wilmart et al., 1989

These scientific researches have of course involved a lot of field and analytical work. In this respect, Jean Clair Duchesne and his collaborators have developed a high-quality geochemical laboratory. Initially based on mineral separation and established with a UV spectrometer, this lab was further equipped with a X-ray fluorescence spectrometer and then with an ICP-MS. This lab is dedicated to the quantitative measurements of major and trace elements in mineral and rock samples.

By developing this laboratory and by introducing the quantitative geochemical approach, I can say that

Jean Clair brought the geological Belgian community within a new geochemical era. He formed several young colleagues who are now the leaders in the geochemistry of hard rocks in the country.

The present volume is a collection of papers on magmatic processes. Their breadth, from modelling of magmatic differentiation to quantification of partition coefficients, reflects the research topics covered by Jean Clair Duchesne during his career.

As a guest editor, I want to thank both the authors of the papers in this special issue for the efforts they have made and those of my colleagues who have acted as referees.

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Duchesne, J.C., Liégeois, J.-P., Vander Auwera, J., Longhi, J., 1999. The crustal tongue melting model and the origin of massive anorthosites. Terra Nova 11 (2–3), 100–105.

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