

BOOK REVIEW

Denise BRICE (ed.), 2016. **Stratotype Givétien**. Muséum national d'Histoire naturelle, Paris; Biotope, Mèze; Patrimoine géologique, 7, 272 p. + 1 CD-ROM. ISBN 978-2-85653-791-6. 35.00 €.

'Stratotype Givétien' is the seventh volume of the 'Patrimoine géologique' collection dedicated to the French stratotypes following the recently published Lutetian, Albian, Hettangian, Stampian, Aquitanian and Cenomanian. It is indeed the first volume dedicated to a Palaeozoic stage. The coordinator, Denise Brice, Devonian specialist and defender of the geological heritage accomplished a consequent work by gathering many authors around Givet and its stratotype, one of the rare that France has in the Palaeozoic. The book is 272 page-long and form an abundantly illustrated work with a pleasant look.

As in the previous volumes of the series, the introductive part concerns the definition of a stratotype and a discussion of its importance geologically and historically and of course, why it matters for science and mankind. This introduction, by P. De Wever and A. Cornée, proposes a global view of the geological times and their chronostratigraphic division since the pioneer works of Cuvier, Brongniart, Smith and others, up to the most recent ideas of our stratigrapher colleagues.

The second chapter exposes the history of the Givetian stage since its introduction by d'Omalius d'Halloy in 1828 ('*Calcaire de Givet*'), through the numerous modifications by subsequent authors up to the modern definition of the Givetian and its Global Stratotype Section and Point (GSSP) in the late 1990's.

The next chapter focuses on the history of the research led in the Givetian type area (Givet and Belgian Ardenne), including stratigraphic, palaeontological and tectonic works on the stratotypic sections. Brief biographies of the classical authors of the Givetian – and more broadly of the Palaeozoic of the Ardenne – are given: d'Omalius d'Halloy, Dumont, Dewalque, Gosselet, Mailleux, Fourmarier, Asselbergs, Lecompte, Waterlot, Bonte, Beugnies and Ricour. What is nowadays the 'basic' knowledge of all geological aspects of Givet and the Givetian results of the explorations and works of these Belgian and French geologists during two centuries. Their pioneer and expert works are cited for historical reasons but could have been more exploited in the following chapters.

The following section forms the heart of the book as it describes the geological aspects of the Givetian of the type area. The stratotype sections and points are then presented: the historical stratotype proposed by Gosselet in 1879 in the cliff crowned by the Fort de Charlemont in Givet, the Trois-Fontaines quarry, the Mont d'Haus cliffs, the Flohimont and Cul d'Houille sections in Fromellennes, the Moulin Boreux and Fort Hulobiet rocks. Moreover, the stratotypes of the Hanonet Formation (Eifelian-Givetian transition) in Couvin is described, as well as the Nismes Formation (Givetian-Frasnian transition) in Nismes. For each lithostratigraphic unit, the lithological succession, palaeontological content and age are provided. An additional chapter describes other remarkable sites exposing the Givetian succession, namely the Resteigne, Marenne and Hotton quarries in Southern Belgium, the Glageon quarry in the Avesnois area and the Ferques quarries in the Bas-Bouonnais in Northern France.

The chapter entitled '*Le phénomène récifal givétien de l'Ardenne*' is a short synopsis of the geological history of the Belgian and French carbonate platform during the Givetian. It is followed by a very short description of Givetian strata in France: from the Avesnois, Artois and Bouonnais of Northern France, the Vosges in the East, the Armorica and Aquitaine in the West, the Pyrenees, Montagne Noire and Corsica in the South. To end the geological part of the book, the Givetian is regarded under a broader angle with a brief summary of the palaeogeography of the world during the Devonian. Concepts such as diversity dynamics

and events, eustacy or climate change as well as a global perspective are however missing.

The next chapter is dedicated to the palaeontological content of the Givetian strata. Rather old-fashion faunal lists are provided (*in extenso* in the CD-ROM attached to the book) with some illustrated fossils. The figured fossils are either from the type area or from other localities but more detailed explanations could have been added, notably on their stratigraphic value or their geographic distribution. The stromatoporoids, corals, algae, bryozoan, brachiopods, some crinoids, trilobites, (many) ostracods, few gastropods, conodonts and vertebrates are figured. A regret is that the flora has not been mentioned.

The following chapter is dedicated to the use of Givetian stones: '*Le Givétien et l'Homme*' abundantly exposes the heritage of Givet and Givetian together with the history of Givet and its forts, castles, bridge and towers, all illustrated with many pictures. After a couple of pages on Givetian minerals, a new section describes the quarrying and carving techniques used in the Avesnois area. This technical compilation is an original contribution and reflects the importance of Givetian rocks in the area but it somewhat digress from the geological base of the book.

The last part of the book comes back to the geological heritage with a new definition of the stratotypes and geological sites and asks some difficult questions: why and how to protect the geological heritage? The book ends with a list of French and Belgian institutions where Givetian fossils are stored and for each museum, a list of locality and taxa is provided.

'Stratotype Givétien' aims at a broad professional and non-professional audience and covers the whole range of geological heritage related to the Givetian type area. With 37 authors and contributors, the editorial work was huge even if consistency could have been improved in some parts and the implication of the coordinator Denise Brice is acknowledged.

In conclusion, this Givetian synopsis – part of a series of book dedicated to the French stratotypes – is a good starting point to understand the Givetian stratotype and will be very helpful for people interested in learning its history.

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