



Hans Hess (1930–2017): a life-long passion for echinoderms

Walter Etter¹

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Hans Kaspar Hess died on November 10th 2017 after a long battle against Leukemia. Hans had the remarkable talent, energy, and persistence to accomplish two careers. When he retired in 1991, he was the head of the pharmaceutical development department and member of the executive board of Ciba-Geigy AG. Yet, he was also a long-time volunteer at the Natural History Museum of Basel (NMB) in the Geoscience Department. As a self-taught person, he pursued palaeontological research on echinoderms at a very high level. Furthermore, he assembled a collection of Jurassic crinoids that is housed at the NMB and is considered one of the finest in the world.

Hans Hess, citizen of Wald (Canton Zürich), was born in Basel on June 25th 1930 as the second son of his father Ernst Hess, mechanical engineer, and his mother Hedwig, born Meyerhans. He spent his school years in Basel, where he graduated from the high school “Realgymnasium” in 1949. The same year he enlisted in Pharmacology at the University of Basel. Here, he had many inspiring teachers, among them nobel laureate Tadeus Reichstein (1897–1996). In 1955, Hans graduated with the diploma and then started working on his PhD thesis, which was on a microbiological theme. He received the doctoral degree in 1958 for the thesis “Vergleichende Wertbestimmung bakterizider Mittel in gepufferten Lösungen”.

Hans married Ruth Disteli shortly before he finished his thesis. The pair would have two children: Susanne, born 1959, and Samuel, born 1962. Hans joined the chemical–pharmaceutical company CIBA in Basel in 1958, where he worked in the Pharmaceutical Development Division. He felt happy in this division and introduced novel methods, especially in the field of pharmaceutical dosage forms. He was appointed, now in the Ciba-Geigy AG, head of the

Pharmaceutical Development Division in 1980. Upon his retirement in 1991, he had authored 43 pharmaceutical publications, among them a book that was translated into several languages. In addition, five patents were issued to him.

Yet, the real passion for Hans Hess was palaeontology. He had started collecting fossils as a schoolboy, quite often with his colleague Hans Holenweg. At the age of 21, his first publication appeared: the description of a comatulid, the stemless crinoid *Paracomatula helvetica* (Hess 1951). Around that time, he also started working on his first monograph (Hess 1955a) that treated a group of sea stars. This work was supplemented by two smaller publications (Hess 1960a, b). It was by then clear to him that he would restrict himself with very few exceptions (Hess and Weiler 1955) to fossil echinoderms. In 1955, he began a fruitful collaboration with the scientific illustrator Otto Garraux, which lasted until 1981 and was financially supported by the Swiss National Science Foundation. In the late 1950s, Hans started working on fossil ophiuroids. First, he described articulated material from France, Switzerland, England, and a few other European countries (Hess 1960c, d, e, f, 1964, 1965b, c, 1970a, b, 1972b; Enay and Hess 1962, 1970; Hess and Palain 1975). Yet he soon realized that richer material could be obtained by processing large amounts of weakly consolidated sediments. Consequently, he started a research program which lasted almost 15 years and resulted in seven major publications (Hess 1962a, b, 1963, 1965a, 1966, 1975b, c). However, Hans also continued to describe crinoids, asteroids, and echinoids, mostly from the Jurassic of Switzerland (Hess 1968, 1971, 1972d, 1974, 1977). He prepared and studied this material at home, but brought it after publication to the NMB. In 1975, his book “Die fossilen Echinodermen des Schweizer Juras” appeared (Hess 1975a). It was a landmark publication and, although now decades old, is still the standard for every fossil collector for the identification of echinoderms of this region. One supplement to this book was published by Hans (Hess 1985a) and six others by Annemarie Zbinden (1986a, b, 1987a, b, 1988a, b).

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✉ Walter Etter
walter.etter@bs.ch

¹ Abteilung Geowissenschaften, Naturhistorisches Museum Basel, Augustinergasse 2, 4051 Basel, Switzerland

Apart from weakly consolidated sediments, one lithologic unit remained in Hans' focus for many years and was sampled again and again: this was the Bajocian Hauptrogenstein Formation and adjoining Klingnau Formation. In various localities, fossiliferous beds crop out that are often completely dominated by crinoids, but in some places contain a highly diverse echinoderm fauna. In fact, the material for his first publication (Hess 1951) came from such a locality. These beds also became the subject of numerous subsequent publications (Hess 1955b, 1972a, c, 1973, 2001, 2017; Hess and Holenweg 1985, 1998; Hess et al. 2012). His monograph of the highly diverse fauna including other echinoderms of Schinznach (Hess 1972c) stands out in particular as a masterly treatment. The Bajocian material alone fills 125 drawers in the NMB echinoderm collection plus another 10 drawers in his personal reference collections.

During his years at CIBA and later Ciba-Geigy AG, he also published a few popular papers in the company's journal (Hess 1960g, 1969, 1972e). Although in a very responsible position in that company after 1980, his pace of publishing did not slow down. He continued to describe new asteroids (Hess 1981, 1983, 1986a, b, 1987, 1991b, 1994, 1995; Neumann and Hess 2001), ophiuroids (Hess 1985b, 1991a; Hess and Meyer 2008; Bourseau et al. 1991), echinoids (Hess 1984b), and crinoids (Hess and Pugin 1983; Hess 1984a, 1985b). During the late 1990s, Hans decided to focus entirely on the crinoids. In 1999, the beautiful book "Fossil Crinoids" (Hess et al. 1999) appeared, which he edited with three colleagues from Ireland and the USA. Eight authors collaborated with line drawings done by René Kindlimann. From 2000 until 2017, he again authored almost two publications per year. Many of these were on stalked crinoids (Hess 2006a, b, c, 2008, 2010a, 2012, 2014b, c, d, e; Hess and Spichiger 2001; Baumiller et al. 2008; Hess and Gale 2010; Hess et al. 2011; Hess and Etter 2014; Hess et al. in press), but Hans became also increasingly interested in stalkless, pelagic crinoids (Hess 2000, 2002, 2014a, 2015a; Hess and Etter 2011; Hess and Thiel 2015; Hess et al. 2016; Hess and Thuy in press). In addition, Hans wrote a chapter on the echinoderms of the Solnhofen Plattenkalk (Hess 2015b) and co-authored a paper on the first records of the deep-sea fauna (Etter and Hess 2015). Despite the international recognition for his work, Hans stayed faithful to the Swiss palaeontological community and published almost all his work in the *Eclogae geologicae Helveticae*, the *Schweizerische Paläontologische Abhandlungen*, later the *Swiss Journal of Geosciences* and the *Swiss Journal of Palaeontology*.

An outstanding publication was the work on the crinoids from the Pliensbachian of Arzo (Hess 2006a). As with the ophiuroids, Hans had started to sieve disintegrated sediments, and the material from Arzo proved overwhelmingly rich.

From nearly 30,000 isolated ossicles, Hans reconstructed 30 crinoid species, of which 16 were new to science. Perhaps, the most important palaeontological contribution was his work on the "Treatise on Invertebrate Paleontology" (Hess 2010b; Hess and Messing 2011). The volume he authored together with Charles Messing was a revision of the Mesozoic–Cenozoic group of the Articulata. On 261 pages, all known genera are arranged in a modern classification, their characters as well as their stratigraphical and geographical distribution are described, and illustrations of at least the type species are given. Hans could only cope with that task through his enormous endurance and diligence. Charles acknowledges that Hans did the vast lion's share of the work, including assembling all of the plates and synonymies.

Hans' palaeontological activities did not only encompass research. He actively participated in exhibition projects. At the NMB, he was responsible for eight display cases of the fossil gallery that opened in 1978 (Fig. 1). Later, he designed a small permanent exhibit on pelagic crinoids. In 2000, he organized a small exhibition on fossil crinoids for the community museum of Binningen.

Hans was a person who easily socialized with peers. He was a long-term member of the Swiss Palaeontological Society, joined as a student, and presided over this society 1964–1965. He was also a member of the "Naturforschende Gesellschaft Basel". He joined the NMB as a volunteer in the 1950s and remained in contact until a week before his death. In 1992, the "Association for the Natural History Museum" was founded, not the least through the efforts of Hans Hess. He became the first president of this association, which later changed its name to "Association



Fig. 1 Hans Hess in the "Fossil Gallery" at the NMB in 2013, an exhibit that he helped to conceptualize in the late 1970s. Photo © Andreas Zimmermann

of the Friends of the Natural History Museum” (“Verein Freunde des Naturhistorischen Museums Basel”).

Not surprisingly, Hans received substantial recognition for his outstanding contributions in palaeontology. In 1988, he received the honorary doctor from the University of Basel. In addition, he was honoured with various awards from different scientific societies:

- 2001 Bloomer Award from the Linnean Society.
- 2002 Harrell L. Strimple Award from the Paleontological Society (Blake 2003).
- 2006 Amanz Gressly-Preis from the Swiss Palaeontological Society.
- 2013 Mary Anning Award of the Palaeontological Association.
- 2015 election to corresponding member of the Paläontologische Gesellschaft (Hagdorn 2016).

Several new species were named in his honour, and three genera bear his name: *Hessaster* (asteroid), *Hanshessia* (ophiuroid), and *Hessicrinus* (crinoid). In addition, the first special issue of the new Swiss Journal of Palaeontology was dedicated to Hans to honour his 80th birthday (Meyer 2011) and contained contributions of internationally renowned palaeontologists.

As a scientist, Hans was incredibly diligent, persistent, and efficient. He was also always enthusiastic about new projects, always willing to share his expertise with others and at the same time modest, warm-hearted, and generous. With his death, the scientific community will sadly miss one of the leading experts in echinoderm palaeontology who stands in the line of Swiss palaeontologists such as Louis Agassiz, Edouard Desor, Perceval de Loriol, and Alphonse Jeannot. The NMB has lost one of the most prolific and distinguished volunteers and at the same time a great personality. Hans leaves behind his wife Ruth, daughter Susanne and son Samuel, and their grandchildren. Together with them, we deeply regret the death of Hans Hess.

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