Introduction
Research on the use of history of science (HOS) in science education often deals with case studies, offering additional history and therefore additional statements about the nature of science (NOS) to be integrated into secondary school science curricula. Much less attention is given to the HOS that actually is present in these courses and especially inside their central medium: the science textbook. This textbook ‘history’ is the most influential form of historical representation in science education and for that reason in educated (post-)industrial societies as a whole.

In my PhD thesis I analyze the manifold historical representations in contemporary German biology textbooks from the perspective of the academic discipline of the history of science. This analysis reveals a striking uniformity of the formal and didactic structure of textbook history. This structure results in a peculiar form of historical representation that counteracts NOS learning goals. Thus I argue, that the history of science as a discipline as well as science education are in need of a far-ranging understanding of popular representations of HOS, its causes and effects.

Materials & Methods
A sample of 15 contemporary German biology textbooks from grade 7 to senior as well as their supporting materials for teachers and students was selected. 1. Every appearance of HOS was recorded, drawing on the distinction between a ‘narrative of nature’ (e.g., plant or animal is subject) and a ‘narrative of science’ (i.e., (historical) scientific activity is subject) [6]. 2. These appearances were then analyzed for their didactical features, especially NOS-criteria [cf. 4; 8]. 3. Finally, this sample of textbook HOS was evaluated from the perspective of the academic discipline of the history of science.

Results
a) Biology textbooks for secondary school are full of historical descriptions with an average of one every fifth page (see Fig. 1a). b) In the context of this study four types of historical representations in textbooks were differentiated (see legend to Fig. 1b). Fifty to eighty percent of them (Type 1 and 2) simply refer to the existence of historical events, sometimes even without giving temporal information or names of scientists. In contrast, the short historical references -- ‘In 19XX, 1/2 of X was found/made/described’ -- often show up unexpected in paragraphs composed of hard scientific facts, appearing like a mere ‘Add-on’ [9]. c) Even discrete and internally structured representations with a length between one paragraph and several pages (especially on the history of evolution) lack any characteristics of historiographical writing such as reference, structure, discourse, or method. They simply state historical events and actors in a serial way, not mentioning disciplinary, social, political or cultural contexts.

Discussion
The ‘consensual’ character of textbook HOS in form and content is an effect of its conception and production. The rhetorical and structural features indicate that school textbook HOS follows the paradigmatic [3] HOS of global, standardized science education at universities. The main function of this educational structure is the production of future scientists, not educated general publics. Thus, school textbook HOS addresses a wrong public (i.e. students of natural sciences) and therefore fails to fulfill the goals of NOS education for general publics [Fig. 2]. An enduring improvement of textbook HOS would be dependent upon an extensive understanding of its conditions and effects. For this purpose and to produce didactically more appropriate representations of HOS in an adequate language, NOS education is in need of historiographical expertise. In return, the history of science as a discipline will benefit from the demonstration of its societal impact. Furthermore, the reflection of popular forms of HOS could result in more readable historical representations. To this end, novel forms of interaction between historians of science and science educators are necessary [see Fig. 3].

Literature cited

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Information on the Research Group: Didactics of Biology can be obtained at: www.uni-jena.de/AG_Biologiedidaktik.html
A PDF-version of this poster can be found at www.tinyurl.com/textbookHOS.