Your second question is difficult to answer. I cannot give an overall picture because I am not familiar with biochemistry and molecular biology. I can list at best 4 or 5 crucial events since the 1920s.

1. Recently I have translated the preliminary report on the chemical transmission of inductive stimuli by 4 investigators of the Spemann school. I am sending the manuscript under separate cover. Undoubtedly, H. Holtfreter played the decisive role in this transition. One has to realize that this is the most important turning point in exp. embryology, the transition from Spemann's and Harrison's organismic to a reductionist conceptualization.

2. Undoubtedly, H. Holtfreter played the decisive role in this transition. One has to realize that he was not familiar with biochemistry, and he did not follow up on his discovery. But he had a very independent mind, much imagination, and he was not bound by Spemann's or any other "Weltanschauung." I have written a book about him in an issue of "Developmental Dynamics" vol. 205, March 1996, that is dedicated to his memory. The most important biochemists that took up the issue were Joseph Needham and C.H. Dodgington in England, J. Bruck in Belgium, and E. Fischer in Germany. (See chapter 1.)


4. The recognition of the role of genes in development. Pioneers were: 
   a) R. Goldschmidt, 1927, Physiologische Theorie der Vererbung; I. Schmalhausen, 1949,

5. The final step in reductionist conceptualization to the molecular level.