

Preface

This book is an updated, reviewed and shortened English version of *Cent'anni di radar* (Aracne, 2012—Roma) whose motivation and content are discussed in the pertaining Introduction that follows. After the success in Italy of that book, it became clear that it would be useful to present most of its material (with some needed updates) to a wider public through an English edition. Of course, because of its international, rather than Italian, target, as well as of the need to limit the dimension of the book, *100 Years of Radar* is not a mere translation into English of *Cent'anni di radar* but, rather, a new book made up of ten chapters versus twelve in *Cent'anni di radar*. In addition to the classical footnotes, a number of endnotes (labeled ^[...]) constitute an “eleventh chapter” containing many elements that can be skipped at a first reading. An extensive list of references for further reading and an alphabetic index of the names of the cited persons complete this book. The general structure of the book is the following Chap. 1 describes the birth of radar (1904), both as a concept and as a demonstrating prototype, due to the young Christian Hülsmeyer, an “unlucky inventor” whose life is compared with the one of his contemporary “lucky inventor” Guglielmo Marconi. Research and radar developments in Italy (1935–1943) are described in Chap. 2, in a discussion including the main principles for the benefit of “non-specialists”, while the simultaneous and independent developments done, under strict secrecy, in the other nations are synthesized in Chap. 3. The ensuing Chap. 4 analyzes the Air Defense, a powerful drive to the development of effective, long range radar sets, starting with the British “Chain Home”; as described in Chap. 5, the drive became very strong with the uprise of the Second World War, leading to the microwave era by the invention of the cavity magnetron, and to the development of a huge number of land, sea and airborne radars. Chapter 6 is fully devoted to the airborne radars, needed for night bombing and night fighting. The post-war Italian radar situation is narrated in Chap. 7 with the help of the memoirs of some key persons, while the very relevant space-based, synthetic aperture radar (SAR) is treated in Chap. 8. The most impressive recent radar developments are treated in Chap. 9, and Chap. 10 is devoted to the system integration of the radar, which in some future could disappear as an autonomous entity.

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