17. Closing Remarks

This book is an attempt to concisely summarize the development of firearms up to the end of the 19th century. Although an abundance of data from specialized literature, collections from private owners and museums was collected, evaluated and recorded in words, drawings and sketches, this document covers only a small part of this extensive subject.

The history of the development of iron mining, refining, forging, welding and casting was touched on only superficially, even though these techniques were a deciding factor in the development of firearms, as well as other objects of utility. The same is true of bronze and brass casting.

Many interesting questions in reference to the manufacturing of firearms remain to be answered, such as:

- What did the first files look like and how were they made?
- How long could they be used until they were dull?
- When and where, were the first drills used?
- When and how were the first threads made?
- When were the first metal saws used?
- How was the hard or soft soldering done to bond metal parts?
- How were the high quality chisels, gravers and embossing tools made, so that engravings and reliefs of masterful beauty could be created?

The history of the development of metal surface treatments such as bluing, gold plating and the hardening would also be of major interest.

As well, task which today are taken for granted like drying wood free of cracks, its handling, the sanding, staining and finishing had first to be developed.

Today, we have no concept how the effort, the sorrow, the fears, the suffering and the oppression relating to the development and availability of firearms and their actions, influenced and affected previous generations. We can only respectfully remember those individuals involved and attempt to do our part, so that the world will hold a better future.
Fig. 16 – 3

Ca. 1600: Musketeer
Jaque De Gheyn, Manuskript «Le Maniement d’Armes»;           Photo: PehaL, page 38
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### Museums, Collections, Foundations

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Additions to Pictures and Object References

**Museum, Altes Zeughaus, Solothurn, Switzerland:**
The author is thankful for the permission he received to take pictures of the following depictions:
Fig. 2-44, 2-46, 2-47, 2-52, 2-57, 2-63, 2-64, 2-76, 7-49, 7-51, 7-55, 7-56, 7-58, 7-59, 7-88, 7-93, 7-94 14-11, 14-13

**Historical Museum Bern, Switzerland:**
The following depictions were made available to be photographed by the Historical Museum in Bern for which I am sincerely thankful.
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**Author’s Photographs:**
The author was permitted to photograph various firearms collections, but for privacy reasons, owners of the collections preferred not to be identified. These photographs are identified with the abbreviation ‘KuPe’.

**Photographs from Literary Material:**
The pictures from literary material that are identified with abbreviations were taken by the author from technical books. The goal of the author was to improve the image and picture quality, as well as to achieve consistency in the presentation of the images throughout the book.
About the Author

Peter Kunz was born 1937 and lives in Schaffhausen, Switzerland. As an engineer, he worked for many years in the United States and Switzerland for renowned companies. There he functioned as head of departments such as research development and testing.

In his spare time, he was involved in the study, restoration and reconstruction of historical firearms as well as the evaluation of this knowledge and information. It is important for him to understand the relevance of historical periods, their style, sciences, handcrafts, materials and propellants. He considers the implications of the theories, the construction, and manufacturing and decoration methods in the production of firearms of those times to be of great importance. His extensive knowledge comes from contacts with esteemed weapon experts, the study of historical weapons in collections and museums as well as from specialized literature.

Peter Kunz obtained a considerable part of his experience by studying the construction of weapons, their manufacturing process and functions. At technical colleges, he acquired the knowledge and skills needed for decorating weapons, wood carving and engraving. Additional comprehension came from the precise transfer of the various ignition constructions and their parts into the computer and through subsequent simulation. Often, he uses computer photo montages for the reconstruction of the missing part of a weapon. For this he takes a photograph of the part as well as of a complete weapon from the same era. These are scanned into the computer and subsequently serve to project the missing part into the weapon to be restored. After a motion simulation, the drawing of the part becomes the pattern for the reconstruction of the missing part.

The author admires the incredible inventiveness, the rich and abundant craftsmanship and the artistic achievements of our ancestors during those difficult times with awe. He is fascinated by the multifaceted diversity of the many aspects he found while studying the history, the technical details, the construction and the methods of production as well as the artistic design of historical weapons. He enjoys the work of restoring, copying and creating the artistic decorations with diverse materials. Peter Kunz found the knowledge he gained by the handling of and shooting with historical firearms to be very informative.

This book grew from his passion and was compiled with the desire to make his knowledge accessible to others interested in this broad subject and to pass on his enthusiasm.