

*Andes Foundry Company,  
Maker of Paper Caps  
and Toy Pistols:  
1919-1929*

By William D. Andes

*T*he glorious 4th was more often than not a noisy 4th during this period. Variety stores and street corner stands sold fireworks of all kinds to be “set-off” by celebrants at home, day and night. Contributing to the noise were paper caps exploded in toy pistols, toy cannons and cap shooting canes.

The origin of paper caps is obscure but it is thought to be related to the strips of caps used in another historic period to fire rifles, military and sporting. There were single shot toy paper caps at first followed some time later by “repeaters” or strips of 50 caps rolled to fit the receivers in single action repeating toy pistols.

This paper is concerned with the operations of the Andes Foundry Company of Lancaster, Pennsylvania an important manufacturer of paper caps and toy pistols though not alone in the field. To mention a few, many gone from the field, there were Kilgore, Federal, Arcade, Grey Iron, National, and others not known to the writer.

Eugene B. Andes, machine designer and master mechanic, met Joseph Kilgore of Westerville, Ohio in 1918. Mr. Kilgore was founder and president of Kilgore Manufacturing Co., which company was already manufacturing and distributing cast iron toys and cap pistols but had no facility to make paper caps.

After some negotiating it was agreed that Mr. Andes embark into paper cap manufacture as sole supplier to Kilgore Mfg. Co. so that paper caps could be sold by Kilgore in connection with their toy pistol sales. The usual sales ratio at the time was five gross of caps to one gross of pistols. Toy pistols were already competitive and showed little profit whereas, with ingenuity in their manufacture, paper caps could be highly profitable.

Mr. Andes set out on February 22, 1919 (payroll records) in a rented corrugated iron shed on E. Marion St. in Lancaster, Pennsylvania to set up a "cap factory". Armed with only the formula for the explosive charge, no machinery and no backing except the assurance from Kilgore that "we can take as many caps as you can make", he started with two employees.

There was no machinery on the market for this rather specialized industry so Andes had to invent and build what he was coming to need.

#### *About the cap manufacturing process:*

**P**aper caps are small, evenly shaped deposits of percussion explosive sealed between two pieces of paper. The only difference between single shot and repeater caps is the way they are cut after having been sealed between the two pieces of paper.

The explosive charge consisted of a mixture of potassium chloride, black needle antimony and amorphous phosphorous. These chemicals were mixed wet in a jelly of gum tragacanth which held the chemical mixture in suspension. Even deposits of this mixture accurately spaced, were deposited on a piece of manilla paper. To accomplish this a "printer" had to be devised. This finally evolved as a piece of metal into which were secured metal pins approximately 1/8" diameter by 1-1/2" long. The explosive mixture was poured out into a flat pan to a depth of about 3/8". The printer was dipped into this pan and the pins received a small deposit of the explosive mixture. The printer was then placed on the sheet of manilla paper where the pins left a deposit of the explosive mixture. The size of the charge was regulated by the depth and viscosity of the chemical mixture.

The sheets contained rows of caps 50 shots long and 20 rows across. The explosive charge now had to be dried before the protective sheet of tissue paper (usually red) could be applied. Gas heated ovens were built for this purpose. They were continuous belts running through a gas heated oven. The length of the oven was calculated to deliver dried manilla sheets to two "pasters". Two pasters were supplied by one printer. The pasters applied wallpaper paste to the manilla sheet and placed it on a piece of red tissue, smoothing it by hand. Each was laid between two "blankets" and a stack of about 30 sheets in blankets was placed in a hand press to obtain a complete seal between the manilla and the tissue. After about 5-7 minutes the stack was removed from the press and the

wet sheets of caps removed. The sheets then had to be dried again and for this purpose a drum-type gas heated drier with a continuous belt was developed. After one revolution of the drum the sheets were dry enough to be placed under weights for tempering for which a day was allowed. The sheets had to be absolutely flat before going through the cutters and slitters.

The cutters for single shot caps, which usually were round in shape, were punched properly spaced. The slitter for repeating caps consisted of two brass rollers much like a wash ringer the lower one smooth and the upper one containing circular knives spaced to run between the rows of 50. The outer knives and the center knife were solid so as to completely slit the selvage edge on the outside of each sheet and between row 10 and 11. The necessity for flatness of the sheet can be seen since any curled sheet would not follow the guides on the slitter and the caps were apt to be exploded by the knives. The intermediate knives were notched so that the individual rolls did not separate and the final product of the slitter was two sheets of 10 rows each. These sheets were rolled on hand-operated rollers and the end secured with wallpaper paste. This work was done "at home" by families in the neighborhood at a set price per 100 rolls of 10 individual rolls. These rolls of 10 were then broken into rolls of 5 and each 5 roll unit was packed in tuck-end cardboard boxes ready for shipping.

#### *About the pistol manufacturing process:*

Andes shortly needed larger factory space so he moved to a two story brick building at the N.W. corner of Ann and Chestnut Streets in Lancaster. The supply of Andes caps was rapidly catching up to Kilgore's demand and Andes Foundry Co. ventured into the cap pistol business. Mr. Andes owned several patents on cap pistols and the first Andes pistol called the "Oh! Boy" employed one of these patents, i.e. a hammer with a cup shape to throw the explosive flash forward away from the user's face. Another early Andes pistol was a repeater called the "Master" which incorporated another of Mr. Andes' patents. One weakness of repeating cap pistols until then was that they did not consistently feed the caps to the hammer from the roll and the feed mechanism often jammed the hammer. The patent mentioned here covered a positive star-wheel feed for the caps and was the feature which accounted for the considerable success of the "Master."

The "Oh! Boy" and the "Master" were sales successes, and to make the cast iron components a foundry at 40 East Fulton Street, Ephrata, was rented. The foundry plant was said to have been the oldest industrial structure in Ephrata. On 5 May 1922 the foundry was destroyed by fire, ruining many expensive patterns including ones owned by the D. W. Kemp Company of Baltimore, Fidelity Electric Company and the Pritchard Manufacturing Company,

both of Lancaster. The foundry had been working at a feverish pace to meet the approaching Fourth of July demand. Flames also destroyed the nearby home of Harry Mellinger, foreman of the Ephrata foundry operation.

The Hubley Manufacturing Company agreed to supply the necessary castings after the fire wiped out Andes' source. This helped Andes get back "on an even keel" and to anticipate "smooth sailing." Unfortunately, every time Andes ordered castings the price rose drastically. This intolerable condition forced Andes back into the foundry business again. Accordingly, he built a modern foundry and assembly plant in 1922-1923 at 239 North Ann Street, Lancaster. Both plants together employed about 120 persons at peak operations. The product line grew to include six single shot pistols and three repeating pistols as well as paper cap "ammunition."

Cap pistols (and toys) were made of thin-walled grey iron castings. After a prototype was made of the part duplicates were made and these were arranged in multiples on a metal plate called a match plate. The match plate was impressed in sand leaving a cavity into which molten iron was poured. After cooling the castings were tumbled in barrels to remove the scale and imperfections and were ready for assembling. The internal parts of cap pistols were cast to fairly close tolerances and needed machining only at bearing points. Pistols were nickel plated and toys were finished with baked enamel. Each unit was packed in an individual cardboard carton.

Sales were made by direct factory representatives (which included Kilgore's salesmen) to jobber-distributors. By this time Andes was making some of the line of Kilgore cap shooting devices as well as supplying Kilgore with paper caps.

In 1927 Kilgore approached Andes with a merger proposition. It would merge Kilgore (cast-iron toys, cap pistols and Andes-made paper caps), Federal Mfg. Co. (cap pistols and paper kits) and Andes, (cap pistols and paper caps). The merger was effected and some interchange of lines occurred. Andes was to make the cast-iron toys, Federal would produce the cap pistols and its own established lines.

The cast-iron toy business was large at the time and soon was occupying much of Andes' production capacity. However, two things were happening that were to spell the end of the Kilgore-Andes- Federal merger. First, more and more cities were banning the use of home fireworks and that included paper caps. Andes saw carload orders from key jobbers shrink to 10, 15, and 25 gross orders. The second thing happening was the introduction and sales of die-cast and pressed metal toys. Die-cast toys were easier to produce, had more detail, and were to price small cast-iron toys out of the market.

With the disturbing change in the market it was decided in 1929 to dissolve the merger. That marked the end of "American Toys," as the Kilgore, Federal and Andes merger was known. Andes retained the foundry and factory

(Andes Foundry Co.) and formed a new corporation, Andes, Incorporated. In addition to Eugene B. Andes, the firm's board included David S. Warfel, Ralph W. Coho, and B. Grant Stauffer. The firm did job work in small castings. In the spring of 1931 Mr. Andes died in an accident. William D. Andes, the writer, became liquidating officer in the wake of the corporation's board of directors' decision to close down the business. The economy was depressed, and the writer, then 25 years old, was deemed too inexperienced to manage the operation successfully when long-established foundries were closing daily.

Paper caps and pistols are still being manufactured by a few American factories while others are being imported. But the heyday of 1919-1929 is gone. □

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By Salinda M. Matt

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Alberts, Robert C. *Benjamin West* (book) 1978.

Andrews, George W. *Schaublin (Shively) Families from the District of Waldenburg, Baselland, Switzerland*. (typescript) 1978.

Beers, J. H. *Biographical Annals of Lancaster Co.* (book) 1903.

Blatt, Luella E. and Milton K. *Salem Belleman's Union Church, Mohrsville, Pa., 1746-1976*. (book) 1976.

Blatt, Luella E. and Milton K. *Supplementary Histories of Salem Belleman's Union Church*. (books) 1976, 1977, & 1978.

Bowman, H. B. *Manuscript Account Book of H. B. Bowman, Neffsville, Pa. General Store, 1863-1866*. (manuscript) 1866.

Bridgeman, Harriet and Elizabeth Drury. *Encyclopedia of Victoriana*. (book) 1975.