and New Crimp, however, the best patterns are obtained and leading and confetti are almost eliminated.

The ballistic basis for Piston Plus has been firmly established by means of many pressure, velocity, pattern, X-ray, and spark photograph tests. By means of a special corrugated high skirt basewad, the storage stability of Piston Plus shot shells has been established as definitely superior to any previous Remington or Peters paper shot shell.

This Quarter's Work:

A presentation of the Piston Plus possibilities was made to Management. On the basis of informal reactions to this presentation a Part IV for $37,500 to complete all Piston Plus research work on 12, 16 and 20 gauge, up through the field test stage, has been submitted.

Proposed Next Quarter's Work:

Upon authorization of Part IV, a 12 gauge trap and skeet and a 12 gauge Remington Express field test will be conducted. In addition, a number of processing variables will be evaluated to establish permissible operating ranges.

Project: Improved High-Velocity .22 Cartridges - TM-3317
Personnel: R. T. Catlin, H. T. Clark, G. R. Eckstein
Authorized Amount: $41,000 Total Expended to Date: $33,195

Nature of Problem:

The objective of this work is to improve the high speed rim fire case, i.e., to decrease the casualties, particularly body splits and head bursts, and to increase the sensitivity, so that higher velocities can eventually be made available to the shooter. The work is limited to non-ferrous materials since Project B-63 covers ferrous materials for rim fire cases.

Summary of Progress from Inception:

A number of test procedures has been developed for control in processing and for rapid determination of strength characteristics of the finished case.

From the initial high-spot work in the field two tentative processes have been developed:

1. A one-draw process employing .020" brass; and
2. A "one-shot" process (i.e. blank-cup-and-final-draw in a single revolution of a double action crank press) using .022" metal.

The one-draw process is being expedited for prompt development into production; the one-shot process is considered a longer-term possibility.

Work under this project, as well as on steel rim fire cases under Project B-63, established the important fact that