

operate the unlocking means by primer setback but that the carbine was the only cartridge which would blow back consistently to operate the bolt.

This Quarter's Work:

Ilion's experience with the blow back action of the Model 550 indicated that some advantages might be obtained from enlarged chambers. These were tried and found to be unsuccessful although lubricating the cartridges permitted them to work consistently even in standard size chambers.

Proposed Next Quarter's Work:

Several schemes for reducing the friction between the cartridge case and the chamber will be evaluated in the next Quarter.

Project: Commercial Sabot Cartridge - TP-3436

Personnel: T. Stewart, L. G. Stier

Authorized Amount: \$1,000 Total Expended to Date: \$950

Nature of Problem:

To explore the possibility of propelling the .22 Hornet bullet in a .30 caliber barrel using a .30/06 case and a lightweight detachable heel cap and sleeve to support the bullet.

This Quarter's Work:

A velocity of 4,200 ft/sec. has been obtained for the composite projectile, but the major problem appears to be accuracy.

Proposed Next Quarter's Work:

An additional part to this project is being circulated to investigate thoroughly the accuracy difficulties. A tentative objective of 2" mean radius at 100 yards has been set.

Project: Photographic Examination of Oblique Ballistic Shock Waves - TM-3359

Personnel: L. G. Stier, P. F. Darby

Authorized Amount: \$2,700 Total Expended to Date: \$2,394

Nature of Problem:

In view of the fact that the Bureau of Naval Ordnance is interested in the nature of the phenomena occurring in shock waves, they have asked us to give them at various times both spark and Schlieren photographs of shock waves.

Summary of Progress from Inception:

We have supplied spark and Schlieren pictures of various shocks and discussed the results. This work has been largely exploratory.