



## BALLISTICS

# New Fast Bullet is Shaped Like a Baby Bottle's Nipple

## Special Grooves in Gun Barrel Re-Form Cup Shaped Tail Into Fins to Stabilize the Missile's Flight

A NEW type of rifle bullet which is roughly similar in shape to the nipple on a baby's nursing bottle has been invented by Capt. Wiley T. Moore, Springfield Arsenal, it is revealed by a U. S. patent (No. 2,036,292).

Calculations indicate that because of its unusual shape the bullet should have about four times the acceleration of a normal .30 caliber projectile. Moreover, stabilizing fins are formed on the bullet during its passage down the rifle barrel so that it may be expected to fly straighter to its mark.

Captain Moore provides that the Federal government may use his invention without payment of royalty.

The body part of the new style bullet would correspond (to use the nursing nipple analogy) to the part of the nipple which the baby takes in his mouth. Integral with this is an enlarged hollow base part forming a cup-shaped tail whose diameter is about twice the size of the body part. The base would correspond to the part of the nipple which fits over the top of a nursing bottle.

The cup-shaped base is partly hollow and gives the exploding gases greater surface area on which to act. For equivalent gas pressures such an enlarged area means that there is more "kick" when the charge is fired; and that the bullet accelerates quicker and leaves the gun with a higher muzzle velocity.

As the bullet travels down the barrel of the rifle, special grooves act as a die to re-form the cup-shaped tail structure into fins. Much as the fins on a dirigible

stabilize its flight in the air, so, envisions Captain Moore, the fins formed on the bullet will steady its flight toward the target.

Tests indicate that the friction losses due to spin produced in the rifle barrel are no greater with the new type bullet than with the ordinary shape. Only a quarter or half twist is given to Captain Moore's bullet, while the ordinary type turns more than one complete revolution during the time it is in the barrel.

Captain Moore's invention seeks a new solution for the problem which ballistics experts have been studying for a long time. What is really desired is a bullet "which would act like a cork while inside the gun and like a needle when in the air," as one expert once expressed it.

Bullets which have a muzzle velocity of between 5,000 and 6,000 feet a second have been made experimentally. In 1933 H. Gerlich, a German-American, then resident in England, developed a rifle giving a bullet such muzzle velocities. Gerlich's bullet was 35 caliber when placed in the rifle and, by compression during its course down the barrel, left the rifle at only 25 caliber.

In smallarms ballistics an equally ever-present problem is to retain sufficient velocity at long range to insure accuracy. Small-caliber bullets may travel swiftly enough to kill a man at a sizable distance, but their velocity may not be sufficient to keep them on their course to the target. If they strike they can kill, but they have to hit the mark before they can injure.

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### HIGHEST SPEEDS

The following are high speeds, man-made and in nature, contrasted with the new bullet speed. Figures are miles per hour.

Boat .....	84.07
Auto .....	301.473
Seaplane .....	423.822
Sound .....	720
Earth .....	1,110
<i>New Bullet</i> ....	3,600
Comet .....	20,520
Light .....	669,600,000

## ARCHAEOLOGY

## Clay Figure May be Link To Mound-Builder History

A GAP between historic Indians and the vanished Moundbuilders may be closed by a clay figure in human form found in east central Louisiana. The hollow figure, decorated with animal patterns and a feathered robe, was found by Mrs. U. B. Evans of Alexandria, La., an enthusiastic student of local archaeology, and sent to Frank M. Setzler, curator of anthropology at the Smithsonian Institution. The image had been broken into several pieces, which however can be fitted together.

The Indians inhabiting this region when the Spaniards under de Soto first entered the land were of the Caddo tribe. The new-found effigy appears to be a link between a prehistoric Caddo culture and a Moundbuilder culture known as Southern Hopewell, discovered in the same region. This in turn links with other Moundbuilder cultures in the South and with the highly developed Northern Hopewell culture of the Ohio valley.

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There were 19,000 houses of refuge for lepers in Europe in the thirteenth century.