

90-millimeter rifle, which can reach considerably higher than the three-inch piece in current use, and throw a shell weighing twice as much at nearly the same rate in shots per minute.

At the same program, Col. H. H. Zornig of the Aberdeen Proving Ground described steps that have been taken to

produce artillery ammunition more rapidly yet with less waste of material and hence at lower cost. Col. J. K. Christmas, also of the Aberdeen Proving Ground, told of advances in speed, armament and armor that have been achieved with tanks.

*Science News Letter, November 16, 1940*

## AERONAUTICS

## Captured German Planes Give No Sign of Rubber Shortage

GERMAN airplanes brought down in Britain thus far give little indication of the shortages in natural rubber and high-octane fuel hopefully talked of for months, editorial comment states in *The Aeroplane*, British aviation journal. (Oct. 11.)

Tires, the editorial article declares, are excellent, and liberal use of rubber has been made elsewhere in the planes, especially around the many-coated fuel tanks, to prevent loss after bullet or shell-fragment puncture. There is far more rubber in each of the German planes than in any British machine, says the writer, who sharply criticizes the Minister of Economic Warfare for having given out assurances to the contrary.

"Similarly," the article continues, "the fuel and oil position, as shown by the evidence of these German machines, cannot be as bad in enemy territories as we had believed. Although all the fuel tanks are marked with the sign of 87-octane fuel they were invariably found to contain 92-octane petrol on analysis. The oil in the German aero-motors showed signs of being used longer than is normal practice here, but not to the extent of harming the motors."

The article praises the quality of workmanship shown in German planes, but finds considerable fault with their basic design, especially in the case of the bombers. German bombers apparently had too easy a time in the "laboratory" of the Spanish Civil War, and carried their faults with them into the present conflict. Efforts to correct some of these (for instance, shortage of defensive armament) have resulted in patchwork improvisations "stuck on", rather than far-reaching improvements built into the fundamental design, the writer claims.

Germany's Messerschmidt fighter planes, however, fare somewhat better at the hands of this editorial critic. While

he has a low opinion of the Me 109, with which the Nazis entered the present war, he gives considerably better rating to the Me 110.

Some discount may have to be applied to the opinions editorially expressed in *The Aeroplane*, for this journal has consistently followed the policy of "knocking" practically all non-British airplane designs, especially the American. In another part of the same issue, the editor finds fault with the Lockheed, which, renamed the Hudson, has been doing re-

## RADIO

Dr. Edward Kasner and James Newman, mathematicians, will speak on "Mathematics of Pretzels, Googols and the Game of Craps" as guest scientists on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, Nov. 21, 3:45 p.m. EST, 2:45 CST, 1:45 MST, 12:45 PST.

Listen in on your local station. Listen in each Thursday.

markably well in the present Battle of Britain, and expresses a doubtful opinion of the Aircobra type as "unorthodox."

*Science News Letter, November 16, 1940*

## INVENTION

### Sealing Machine Now Opens Letters, Too

LETTERS can be both opened and sealed with a new combination machine. It handles commercial-sized envelopes at speeds up to 250 per minute. (*Multipost Co., Rochester.*)

*Science News Letter, November 16, 1940*

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