TELEVISION 'ROUND THE CORNER

By W. E. Hill

Television broadcast from the floor show. In the foreground a suburban husband who said, "Honey, I'm staying in town tonight on account of the accumulation of work at the office." But Honey will know better when she turns on her image attachment and sees husband toasting the chorus babies from a ringside table at the Dipsiedoodle Club.

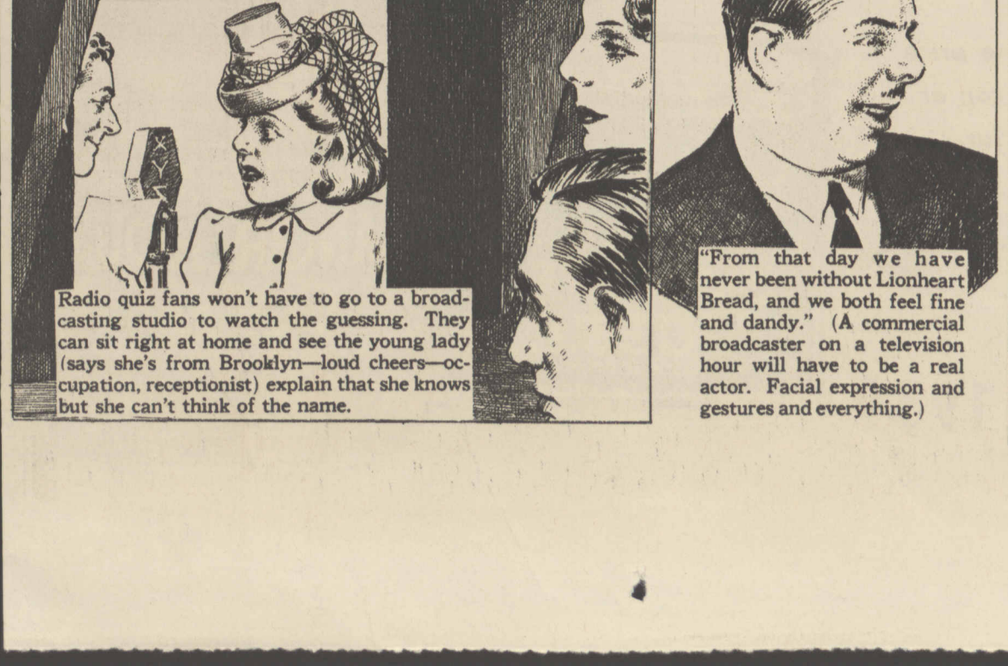
With television in the offing, something will have to be done to dress up those political speeches, and this is our idea about what to do.

Popular news commentator, with the perfect voice but not such a perfect face, being prettied up by the makeup man for a television broadcast.

The horror broadcast with television added will be scarier than ever when the Mad Menace becomes visible. Mumsie will have an awful time with Babe around bedtime.

Mrs. S. Z. of Garske, N. D., writes: "For years my husband and I were so run down we could hardly drag ourselves around the house—

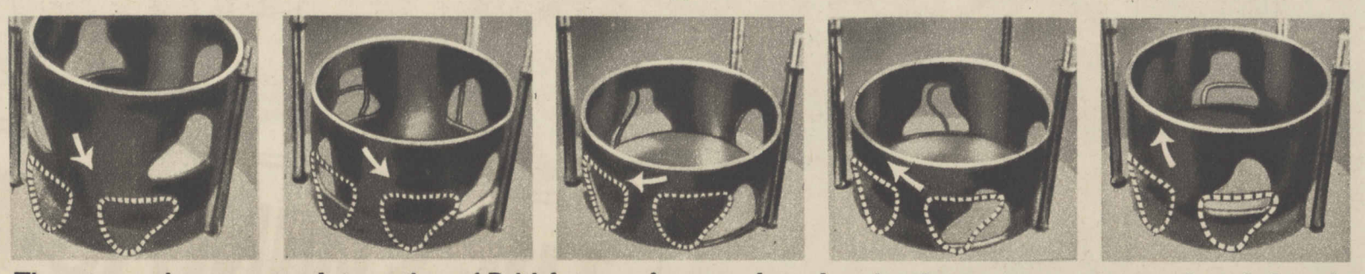
"Till one day we heard about Lionheart Bread, the bread that is so rich in vitamins A, B, C, D and E—



Radio quiz fans won't have to go to a broadcasting studio to watch the guessing. They can sit right at home and see the young lady (says she's from Brooklyn—loud cheers—occupation, receptionist) explain that she knows but she can't think of the name.

"From that day we have never been without Lionheart Bread, and we both feel fine and dandy." (A commercial broadcaster on a television hour will have to be a real actor. Facial expression and gestures and everything.)

Aviation Rings in the Old



Five stages in one complete action of British type sleeve valve, showing how ports are opened and closed.

1 Start of firing stroke; sleeve at top, every port closed.

2 Exhaust stroke; piston up, sleeve moving down and to right.

3 Opening of inlet ports; sleeve moving to left and starting up.

4 Start of induction stroke; sleeve and piston moving upward.

5 Near end of induction stroke; ports closing in readiness for firing.

Sleeve Valve Engine Gets New Lease on Life

By WAYNE THOMIS

REFINEMENT of an old device sometimes provides a great step in aviation progress. Recently in England the perfection of the sleeve valve has brought new reliability and new economies to high-horsepower motors.

The valves in any engine are the gates through which fresh mixtures of fuel and air enter the firing chambers before each explosion. They also are the ports through which the exhaust gases flow out of the firing chamber after the firing of the cylinder. In general practice American motors have two valves, one intake and one exhaust valve, to each cylinder.

To understand the benefits of the new sleeve valves it is necessary to know something about the valves more generally used—the poppet type valve. This valve consists of a stem and a tulip top that opens or closes a port in the cylinder head. These valves are operated by cams and push rods actuated by the turning of the motor crankshaft.

The disadvantages of the poppet type valve are numerous. First, the exhaust valve tends to become extremely hot as the fiery, still-burning exhaust gases flow over it. This tends to warp the stem and to twist and burn the tulip head. It also burns and warps the inserted steel valve seat. The effects are such that no exhaust valve gives good service over long periods.

Poppet valves a few years ago gained an extension of useful life when American motor experts designed the salt-filled exhaust valve of the poppet type. This valve has a hollow stem. The stem is partly filled with sodium crystals. Under the operating temperatures of the motor the salts become molten and shake from end to end of the hollow stem as the valve pops open and then shut.

The heat carried by the molten salt is transferred thus from the tulip head and the valve seat to surrounding metal of the head and thence dissipated through the cooling fins on the outside of the head.

But even these valves are subject to failure in their many working parts, and they tend to break down under the pounding of continuous operation at high speeds. They are expensive, and they have limitations in operating speeds that are being approached in the crankshaft speeds of the larger motors.

The British never adopted the salt-filled valve, and consequently they began looking around years ago for some other mechanism to open and close the ports in an engine cylinder. About 1925 the Bristol Aeroplane company began an investigation of the possibilities of the old sleeve valve. The principle of this valve is as follows: The ports in the cylinder are opened and closed by a slotted steel sleeve that moves both vertically and horizontally within the cylinder.

The piston works up and down inside the sleeve. The movements of the sleeve are so adjusted that it opens ports at the beginning of the compression stroke and closes them as the piston approaches top dead center. After the charge is fired the exhaust ports are opened by a sinking and twisting motion of the sleeve. These close after the exhaust stroke, and the cycle is repeated.

The sleeve valve cylinder has three main parts, the barrel, the head, and the sleeve. The valve apertures are in the barrel, and the only small parts are nuts, bolts, and washers to hold on the head, and a small reciprocating driving ball assembly to give the sleeve the twisting motion it has in addition to the perpendicular rise and fall. There is virtually no wear on any parts.

Compare this simplicity with the poppet valves. They have more than 200 parts, all of which are subject to great wear. All these parts demand constant adjustment, while the sleeve valve needs no maintenance whatever.

The Bristol company has tested single-cylinder motors of identical size, one fitted with the sleeve valve and the other with poppet valves. Both engines were run at 2,000 revolutions a minute. The poppet valve cylinder developed 60 horsepower, while the sleeve valve developed 62 h.p. At 3,000 r.p.m. the poppet valve developed 82.8 brake horsepower, while the sleeve valve produced 91 brake horsepower. The brake mean effective pressure (a measure of compression ratio) of the poppet valve was 130 pounds to the square inch, while the sleeve valve pressure mounted to 142 pounds to the square inch.

American engines with the latest devices for maintaining a perfect fuel-air ratio in the carburetors use at their most economical setting .44 pounds of fuel for each horsepower developed each hour of operation. The British sleeve valve motors burn only .40 pounds. The Diesel motor is capable of burning .36 pounds per horsepower hour.

British commercial airliners for Imperial and trans-Atlantic operations will have sleeve valve motors, as will the newest British military planes.

American aircraft motor manufacturers are busy developing sleeve valve motors based on the same principles used in the British engines.

The Drama of Poland

(Continued from page nine.)

land." But well into the middle of the war most people, even Poles, regarded Pilsudski as a quixotic crackpot.

When the German armies captured Warsaw in 1916 they saw value in Pilsudski and offered to let the Polish legion continue fighting the Russians as an auxiliary force. Uncompromising Pilsudski said he would be satisfied with nothing less than Polish independence, and the Germans imprisoned him at Magdeburg along with others whom they termed trouble makers and radicals. Pilsudski was able, however, to transform the legion into a secret organization before going behind the bars—and his men carried on his work underground.

General Edward Smigly-Rydz

When Germany collapsed in 1918 Pilsudski returned in triumph to Warsaw to become head of the Polish state that his followers had prepared the people to expect. The legion became new Poland's first armed force. And the treaty of Versailles gave the new state official recognition as a nation. Paderewski, the internationally famous pianist, became Poland's first premier, Pilsudski remaining "head of the state," and both confirmed in their offices by a vote of confidence of the constituent legislature.

During 1919 and 1920 the conflict between the patriots of reincarnated Poland and the bolsheviks of revolutionary Russia caused a war between the two new-hatched, unsettled nations. At first the Russians drove the Poles back to the gates of Warsaw, but France came to the rescue of Poland and soon the Russians were put to rout by a French-Polish army. The treaty that was signed at Riga in 1921 added appreciably to Poland's territory.

Since that time Poland has steadily made herself into a strong, modern nation. Her present government is headed by Gen. Edward Smigly-Rydz, once commander of the 1st brigade of Pilsudski's Polish legion. Most of the important men of the administration, such as Col. Josef Beck, are former followers of Pilsudski from the earliest days of the World war.

Some idea of the strength of the intensely nationalist Poland of today as compared with Poland before it disappeared from the map can be gleaned from the fact that there were only eight million Poles at the time of Poland's disappearance. When Poland reappeared there were twenty million Poles. Today there are about thirty-three million people in Poland, including some eight million Germans, Ukrainian, White Russians, Galicians, Ruthenes, and Lithuanians, and the population is increasing by half a million a year. In area—at the time of writing—Poland is the sixth state in Europe.