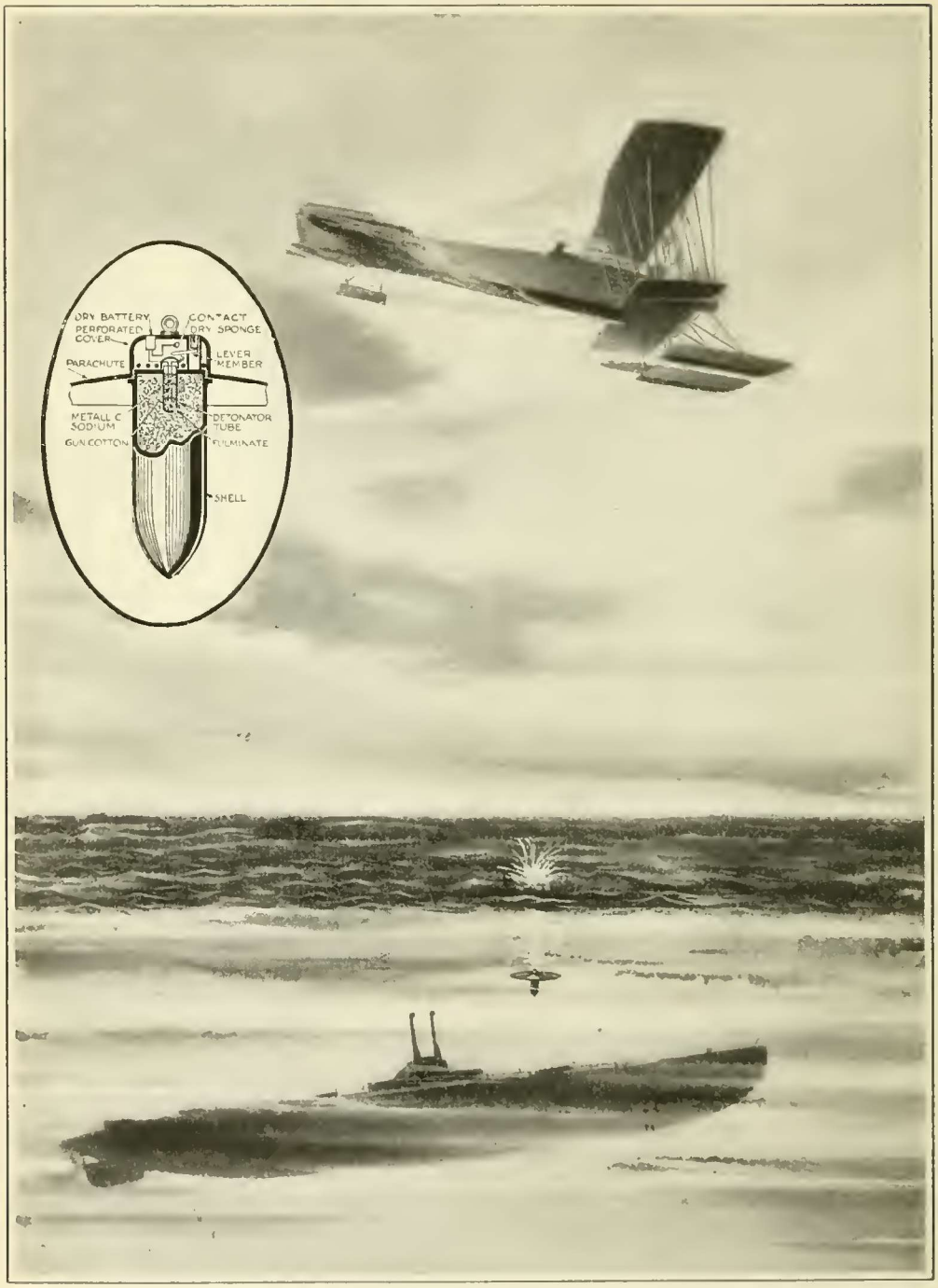

The airman is monarch of all he surveys—including the enemy submarine submerged thirty to forty feet under the water which is perfectly visible to him. He releases a bomb which is guided in its descent to the water and its speed under the water by the parachute, which is a dished circular plate. Two means are used to explode the bomb. Water flowing in through perforations either fires a quantity of sodium which in turn discharges the fulminate, or it completes the circuit of an electrical igniting apparatus setting off the bomb

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Torpedoing a Submarine from an Aeroplane

BECAUSE an airman flying above the water can sight an underwater craft and detect its approximate depth with the naked eye, inventors have devised a number of bomb-dropping contrivances in an endeavor to make the most of this strategic advantage and place the submarine at the mercy of the aeroplane. One of the most recent of these devices is an aerial torpedo or bomb containing high explosive which when dropped from the aeroplane makes a rapid and straight descent beneath the water and explodes at the proper depth and proximity to wreck a submarine.

The bomb consists of a shell filled with high explosive and into its closed end is fixed a detonator which consists of a tube containing a layer of metallic sodium, a layer of gun cotton and a layer of ordinary fulminate. Attached to the shell is a parachute, which is nothing but a dished circular plate. This acts as a guide in the descent of the bomb from the aeroplane to the water and also regulates the speed of the bomb once it is under water, allowing it to sink slowly.

The cover of the bomb as well as the cap of the detonator-tube are perforated. When the bomb has sunk to a certain distance, water flowing in through these perforations ignites the sodium (a property of sodium), which fires the gun cotton, which discharges the fulminate, which sets off the bomb. These different stages leading up to the actual explosion occur nearly simultaneously, but should they fail—that is, should the unforeseen happen and the sodium not ignite, an electrical igniting mechanism is provided which will discharge the fulminate.

Within the shell there is a dry battery connected to a contact point and to one end of a platinum glow wire embedded in the fulminate. The other end of the glow wire is connected to an insulating lever carrying a contact point. This lever member is a closed hollow tube containing a little mercury, which, flowing to the lower end, tends to keep the lever down. A tube in the perforated cover contains a bucket filled with a dry sponge.

When once the bomb has struck the water and the sponge has sufficiently absorbed it, its weight bearing on the end of the lever member raises this lever into contact with the terminal, thus completing the circuit and discharging the fulminate.

There are several very obvious objections to a bomb of the type described. It is very difficult to hit an object on the ground when the aeroplane is very high. Indeed, no satisfactory instrument has thus far been invented to drop bombs from great heights with anything like the precision that marks the firing of projectiles from great guns. If the aeroplane is to destroy a submarine in the manner proposed, the bomb-dropper must be very near its target—so near that it would itself be in danger from gun fire.

Some of the difficulties of dropping bombs accurately spring from the fact that an aeroplane moves through the air at a rate of at least forty-five miles an hour. Allowance must be made not only for that forward movement, but also for the movement of the submarine as well as for the wind. A hit would therefore be almost a matter of luck.