

Man Made Thermals

by Theodore Bellak

(EDITOR'S NOTE: Artificially produced thermals resulting from the heat rising from factory chimneys and grass fires have been known for some years, but the extraordinary stirring up of thermals by a sailplane pilot in flight is something new in the science of soaring meteorology. If the pilot in this story did actually motivate the thermals as he believes, the possibilities would seem to be worthy of further exploration. We publish this account by Mr. Bellak, who has recently returned from Germany, with an entirely open mind and invite discussions and evidence pro and con.)

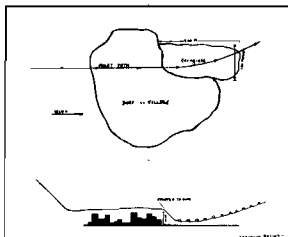
IT HAS been known for some time that when the sun has heated a certain area of ground and the temperature difference of the surrounding air was not great enough to cause the warmer air to break loose it would remain close to the ground until started upward by a wind. Peter Riedel was first to explore the possibilities of man made motivation of such thermals.

A flight was made last summer by Helmut Knopf, of Stuttgart, during which he claims to have prolonged considerably the duration and distance of his flight through the self production of thermals which enabled him to complete final requirement of his "Silver C" certificate. In August he was airplane towed to about 1300 feet over the Hornberg. This was at ten-thirty in the morning and he was flying a Grunau Baby, the performance of which is close to the Göppingen Wolf. As he was towed aloft he noticed that the air was quite rough, an indication that thermals would be plentiful. He planned to make a distance flight, as he had still to cover 50 kilometers for his "Silver C".

Immediately after releasing, he found he was climbing 8 feet per second. In twelve minutes he reached his first peak, as indicated by No. 1 on barograph diagram. Between peaks 1 and 2 he dived at 50 m.p.h. to cover as much distance as possible. Over a small village he discovered an updraft of 3 feet per second which he used to gain altitude. Soon he passed over a town of about 9,000 population and found a thermal lifting him at a rate of 2-3 feet per second. Immediately after passing over the town he found himself in a bad down-draft which dropped him at 6-9 feet per second.

Maneuvering to fly over a concrete highway, he attempted to check his descent by finding rising air over the roadway, but this proved useless. Ahead he could see a village of about 500 population and by checking his altimeter he decided that he might be able to glide over it.

Reaching the village, he found that his variometer showed zero as he flew over at not much over 100 feet altitude. Experience had taught him that at this low altitude it was necessary to look quickly for a landing place. Ahead lay a corn-field, and as he approached it he thought of the possibility of the



self-made thermal. Conditions seemed about right, so saying to himself, "I might as well try it!" he dived steeply over the edge of the field and then zoomed up in a wingover. Righting himself, he flew level momentarily to check his variometer. It registered a descent.



Helmut Knopf

Immediately he dived again and pulled up in a steep wingover. This he repeated twice. As he came out of the wingovers he went into a spiral. From a reading of 3 feet per second down the variometer went to 2, then 1, then 1/2 a foot descent, moving steadily upward until it passed the zero mark and showed a climb of 1 1/2 feet per second. He worked himself upward to 450 feet where he reached the peak of his self-made thermal.

Soon he was low over another field and repeated maneuvers as before. He dropped closer to the field, which was filled with grazing sheep, and was rewarded with an upwind. This thermal bubble was strong enough to carry him up over a thousand feet. From this altitude it was easy to pick up thermals, on which he continued until he passed the required distance for his "Silver C".

After landing, Knopf had time to think over the technique that he employed in starting his own thermals. It seemed convincing that after arriving over the first field, his variometer had registered the normal sinking speed after his wingover, and then after repeated diving and pulling up in wingovers, the thermals must have started to rise as indicated by the variometer. The second attempt and success proved to him that he had actually manufactured his own thermals.

Other soaring pilots have had similar experiences, which seem to show that it is possible to prolong distance flights by stirring up thermals. I questioned Knopf as to why he employed the dive, zoom, and wingover technique and he told me that the dive would create a small amount of vacuum behind the ship and zooming up would draw air behind it upward.

It would seem that here is evidence of meteorological possibilities that are worthy of careful study and research. However, as is obvious to most pilots, the maneuvers employed by the pilot in this account should not be attempted except by an experienced pilot who is thoroughly familiar with his ship.

