

LETTERS TO THE EDITOR

Dear Editor:

Bill Ivan's recent flight to 42,000' prompted me to look up a few references and many interesting facts came to light which the average layman may not realize—and perhaps some that the pilots should get next to if they do not already know.

The pressure at 42,000' is only 5.04" Hg vs 29.92 at sea level—or only 1/6. The density is reduced to 20% of that at sea level. The flying speed corresponding to 40mph at sea level becomes 90 mph. The temperature at this altitude is normally —67°F. At this altitude water boils at 134°F. Incidentally, water boils at 98°F (body temperature) at a pressure corresponding to 63,500' so that a human being would make a modest steam explosion if his pressurized cabin should burst much above that altitude—what a pleasant thought! Which would be a nicer way to die—to quick-freeze or to constitute a human boiler explosion? This high altitude stuff is for the carefree type—that's for sure.

To get back down to a modest 42,000' — I dug out a copy of "Physiology of Flight" put out by the AAF in 1945. It is AAF Manual No. 25-2 and is not classified. It has a lot of good dope that soaring people should know (and since Bill quit at 42,000 I'm sure he's in on the know)—I quote:

"Over San Diego at the 40,000' level, atmospheric temperatures in the range of —40°F to —112° have been observed . . . —112° is not uncommon."

" . . . in the range of 35,000 to 45,000 . . . the physiological response of the human body changes rapidly with slight changes in altitude."

"It should be noted that partial pressure of oxygen in the alveoli (the lungs) at 34,000 feet, when a man is breathing pure oxygen, is the same as that at sea level when he is breathing air. At an altitude of 40,000 feet the partial pressure of oxygen decreases rapidly and falls below the limit which permits enough oxygen to be absorbed by the blood to maintain the body in a physiologically safe condition. . . . a point is finally reached at which it is impossible, even breathing 100 per cent oxygen (eliminating nitrogen), to maintain a molecular concentration of oxygen in the lungs adequate to sustain consciousness, or even life. (The absolute limit is 44,800). At 50,000 feet, for example, where the total atmospheric pressure is 87 mm Hg, alveolar carbon dioxide and water vapor tension actually represent the total pressure.

"In order for an individual to get along at altitudes in excess of 40,000 feet, therefore, he must resort to pressure breathing or remain confined in a pressurized cabin. The effect of either of these methods, each in its own way, is to increase the total pressure in the lungs, thereby permitting the maintenance of an adequate alveolar oxygen tension."

The Manual goes into the details in a fairly complete way but that should be enough of a warning for the uninformed not to go off half-cocked on this high-altitude flying. Likewise, those of us who are sitting back while our buddies are going about this wonderful pioneering should gain some appreciation of what these fellows are really up against. More power to them—we're sure they know what it's all about—but we like them and hope they'll be careful!

Sincerely,
ARTHUR B. SCHULTZ

Dear Eugart: Sanford, Fla.

We have been working on a survey of Sailplanes in Florida, and it has occurred to us that it might be well to make a similar survey of Tow Planes—where they are located and if tow pilots are available most of the time.

A lot of fellows might have occasional free week-ends or longer periods, when they could take their Sailplanes and make a try for new records, or for Silver or Golden C legs, if they knew they could get the use of a tow plane at a place where the weather seemed favorable.

Personally, if Beaumont Cooley had not assured me that a tow plane was available at Odessa, Texas, and that the weather was frequently favorable for long cross-country flights, I would not have gone there, after the 17th Nationals were completed. With this information I did go and I did get the distance leg needed to make the final requirement on my Golden C.

You all know that weather often becomes extremely temperamental during a Soaring Contest; usually becoming very favorable after the close of such Meets. Then it is hard to find tow planes and tow pilots. I suggest that everyone who can do so send along information to Soaring Magazine concerning tow planes; make of ship, where located, availability and if possible send the names of tow pilots qualified to fly these ships. I believe this would tend to encourage more pilots to try for records at any season if conditions were favorable. In our great country there are many locations where long distance flights are possible—probably they could far exceed existing World records—if one could make the attempt at the best season in the area selected. Knowing that Tow Planes were at hand would be very encouraging to such a try.

We, for instance, like to make the Nationals. Generally, they are held at a point quite far from our home base. At the end of the Meet we would like to do some more soaring, perhaps at another location a few hundred miles away. A lot of others are like us, and make that time an extra long vacation, hoping to better their soaring records and to try out new locations. It is very thrilling to soar above strange territory and

it helps to keep one alert.

We have often considered the possibilities of soaring in the Dakotas or Nebraska, but we have no knowledge of where or if Tow Planes could be had in those sections. Such a survey would make this information available for all.

Our Piper Cruiser does a nice job of towing. It is kept at the Sanford Airport and is nearly always available if one needs a tow. Anyone wanting to try out soaring here should make a note of this.

Keep up the good work, Eugart, as we look forward to getting "Soaring" more than any other publication.

Sincerely,
Walter J. "Pop" Krohne

Civil Aeronautics Administration
Department Of Commerce
Washington 25

January 1, 1951

Soaring Society of America
3778 Marion Avenue
Memphis, Tennessee
Gentlemen:

Further study of the fatal accident at Elmira, New York, July 1949, has focused our attention again on the hazards of non-automatic tow releases. This accident, as you undoubtedly recall, involved a Kursawe Kirby Kite built and certificated in this country and resulted in the death of Mr. William G. Mayfield. The accident was the apparent result of the manually controlled tow line release either failing to operate or the tow line becoming fouled because of late operation of the release.

This accident is not the first accident by any means of this type and it is difficult to understand why this type accident has to be repeated. As a step in the direction of preventing future accidents of this type, we have forwarded a letter to all Civil Aeronautics Administration offices requesting that original certification be withheld of new type gliders and newly manufactured gliders of old types until they have incorporated a tow release device having an automatic release feature.

As an added step, we believe that it would be most desirable for you to encourage further the use of automatic type tow releases on the few gliders in this country that do not now have this type release. Such a release should disconnect the tow line automatically before a rearward component of force from the tow line is applied to the glider. The device should have a manual release device for normal usage.

We trust that our combined efforts will be successful in preventing accidents of this type from occurring in the future. Should you need further information concerning the circumstances of the accident discussed above, you may obtain it either from us or the Civil Aeronautics Board.

Very truly yours,
GEORGE W. HALDEMAN
Chief, Aircraft Division

Dear Eugart:

I received my September-October issue of "Soaring" today and when I read the letter that Thayer Smith wrote and you published under 'Let-

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