

3 March 1957

Dear Orville,

Received by parcel post Saturday the 24 airframes and launchers. Today I prepared four of them for photos next Sunday, decked them out in yellow bodies and black fins as per photographers instructions in order to get best contrast. The wind blew like hell all day at 20 knots or more, so it was senseless to try to fly. Instead, I worked on Parabees S/N 2 and S/N 3, using bodies built of rolled balsa with two layers of tissue. They are a hell of a lot stronger that way.

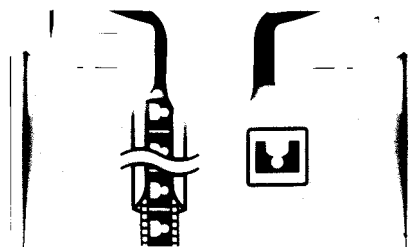
I got my hands on the finest launcher I've ever seen. It is a model Pogo tower built several years ago during the research and development phases of that project in order to study launcher design. The boys were finished with it, and I found it ~~ix~~ lying in the back of the Aerobee lab. It has a 1-inch bore and is three feet long, complete with vernier adjustments for elevation. It just won't quite take a Mark II because the Mark II is just a shade over an inch. But I can cut down the bore and have a fine tower for launching Parabees and Vipers. I will send you a photo of it soon.

Look, don't worry about any troubles we might have down here. We're used to troubles, and it doesn't bother us in the least. Thus far, we've had practically none. Most of them have been due to our own blunders in learning how to handle the Mark II and other blunders in trying to build Grundoons and Parabees. You told me you had some troubles in the development of the Mark II; well, we're going through the same thing with our Grundoons and Parabees, it is a common and accepted sort of thing, so don't fret, bub. Most of us are also savvy enough to find the trouble when it occurs and correct it. After all, we get paid for this sort of thing eight hours a day, five days a week. Your birds are doing great, so don't worry.

We haven't tried any staged rockets yet because the Parabee program hasn't gotten that far yet.

Gilbert Moore, the Pogo man, tried a new stunt with his Grundoon. Instead of flying a complete rocket with chute on the first try, he flew without a chute at all. The ejection charge blew the nose cone off, and both pieces fluttered to the ground. Blowing the nose cone off a rocket destroys its stability. This is an old stunt we used to use down here with the V-2 rockets in order to get them back in somewhat reasonable shape. You probably read about it in the ~~ix~~ "Viking Story". We also use this technique with some Aerobee rockets. You might try it sometime; it's always good for a show, and is something different from parachute recovery. Moore got the Grundoon back twice ~~ix~~ using this method before he flew with a chute.

Under separate cover, I'm sending you some stuff which may be of interest to you.



As soon as I get the bugs out of the Parabee and get it flying right, I'm going to take off hot on the trail of a simple electrical igniter. This may be the answer to shipping. Such an igniter might be made, I think, from a piece of nichrome wire dunked in magnesium paste. It would be inserted into the charge just before firing. One of the big drawbacks to the Rock-A-Chute charge is its appearance; it looks too much like a two-inch salute with that red fuse coming out. Suggestion would be to use an insertable igniter. It might also help to have the charge case colored green or some other nice, cool, color.

Have you thought about developing a reusable case? Something like a brass 30-06 cartridge case? Something that could be used over and over again merely by repacking it with the proper chemicals? I, for one, would hesitate to use one of the paper cases over again, although I intend to try it once I get the depe on how to load the units. I won't test it in flight; I'll clamp the thing in a ~~xxx~~ vise and run a static test. In this manner, I won't lose an airframe.

I tried to get the boys down at the 300,000-lb. solid propellant test stand to run a test on your charge, but they didn't have any thrust gauges small enough! They're used to running stuff with thrusts above 100,000 pounds, and this threw them for a loss. However, I can't think of a better use for a 3 million dollar ~~m~~ test stand than running tests on your rocket charge! It would be fun.

Do you put a smaller ejection charge into the 3's and 4's? I have noticed that they do not eject the chute as forcefully as the higher charges. Sometimes the parachute wrapper and end cap are still in the rocket body when the missile lands. The chute, however, always comes out.

I've also found that the use of a $3/8$ " dowel for a launcher rail is somewhat better than a $1/4$ " dowel. The bigger dowel fits the launching shoe more closely, and there is less tendency for the missile to "tip-off" as it leaves the rail.

I'll be interested in hearing what you think of the Mechanix Illustrated idea I mentioned in my last letter.

Cordially,

