M.A.R.C.S. SPARKS

Monthly Newsletter of the Madison Area Radio Control Society
Madison, Wisconsin AMA Charter # 665

Volume 43 - May 2004 - Issue 5

Come Fly With Us

MARCS meetings are held on the first Thursday of every month at 7:00 P.M. in Room 201B of the Madison Labor Temple, 1602 S. Park St. in Madison. Visitors are always welcome. We think we have a great hobby and we invite your to come and see and consider joining us.

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Contribution of articles for publication is encouraged. **Deadline for publication is the 20th of the month.**

April 1, 2004 MARCS Meeting Minutes

By Andrew Morrow

- Minutes from the last meeting were accepted.
Visitors: Norris Headli is about to join the club.
New Members: John Sullivan
Old Business: - The means of putting out the monthly newsletter is still up in the air.
- Habitat for Humanity thanked the club for its memorial contribution in the memory of Bob Miracle.
- Make sure to change your information with Ed McDonald as you renew you're membership.
- Thanks to Mark Finley and Bill Disch for doing the Adopt-a-Highway.
New Business:
- As a fund raiser, Dave Rush is looking at selling apparel for the club.
- The field is soft and wet this time of year so be sure to take good care of it and use good judgment about walking on it..

Philosophy 101

I'm not offended by all the dumb blonde jokes. I know I'm not dumb - I know I'm not blonde either.

Dolly Parton

Dang Me!

Even though I have Sparks on my computer, I have a copy sent to me each month. I was certainly surprised last month, as I'm sure you were too, at the wild and crazy type font changes that ran all through the bulletin. I rechecked the file and it was fine. I also reprinted it and, again, no problem. Of course, being in a hurry and not anticipating anything like that, I had simply grabbed it off the printer and took it to Office Depot for printing. You may be sure that next time I'll review it a lot more carefully. Obviously, there was a glitch in the paper feed process in the printer, since the character width is normal but the vertical variations are enormous. I think static electricity may have played a part. Sorry 'bout that.

What seems even worse is that I appear to have hit

MARCS 2004 Calendar of Events

Event	Date	Location
Field Work Day	May 1	Kettle Field
Big Birds Fly In	June 12	Kettle Field
Thermal Soar	June 19	Long Island Sod Farm
War Birds Over Dane	June 26	Kettle Field
Electric Fun Fly	July 24	Kettle Field
1.5 Meter Hand Launch	August 14	Long Island Sod Farm
Ken Kindschi Scale Rally	August 15	Kettle Field

the wrong option when the spell checker hit Nels Wareham's name in his dues article. Sorry Nels. It was not a good day.

Field Status Report

By Wayne Lanphear

On Friday April 9, a group of members filled the sunken field drain runs and rolled the field. Charlie Schultz provided a tractor and roller which members spelled each other on in rolling duty while others filled the depressions using the club wheelbarrow and leftover fill dirt from last year. Thanks go to Charlie Schultz, Bill Disch, Steve Kettle, Mike Kimmerly, Bill Kinney, Danny Sutter, Greg Sutter and Dave Rush. This will shorten the list of Field workday needs but plenty of volunteers are still needed on Saturday, 1 May, to accomplish the rest of the workday agenda

Another subject: Gate lock. For the benefit of those of you who weren't at the April meeting, in the near future the gate lock will be changed from an ordinary padlock to a keypad lock. You will be notified of the combination by means of a post card mailing a few days in advance of the change The shed access doors for buddy boxes, first aid kit and the emergency phone will have a keypad lock too, with the same number. The combination will be changed at the end of each year and the new combination will appear on the back of your new MARCS membership card.

The initial lock I found is unsatisfactory as it cannot be turned up properly so one can align the tumblers from inside the locked gate. The gate is open enough but the lock tumblers are on the wrong side. In addition I contacted the Lodi club who use a tumbler lock and this lock deteriorates in a year due to the plastic external tumbler parts. I have since found an all metal Master tumbler lock with the tumblers on the bottom and it works O.K. I am going to see if it can be purchased in a long hasp version. I am also going to ask the landfill folks to reposition the post lock tab down in line with the gate tab. This will make it easier to open and close the lock. Why didn't I think of that before? Cost is up as each lock costs $20 and we need 6 locks. The landfill supervisor thinks the tumbler lock and yearly change is a great idea. I also was told that the landfill has a projected end date of 11 years. You may have noticed that they are preparing the clay liner for the new area .

I met with Ray Shane, the city person, and the field will be fertilized (at least the new portion from last year) and the whole field sprayed for dandelions. In addition the city will provide 10 new "no spectator past this point" and 4 "flight line" signs. The golf course folks feel that by fertileizing the new area and letting it grow over the summer that it should fill in and be less rough. We'll see. The rolling helped some. Neither the county nor the golf course have suitable rollers.

See you at workday on May 1, Sunday, May2, if rained out on the first.

Booze at the Field

Recently some beer cans and broken liquor bottles had to be cleaned up in the shelther. There is no way to know if this debris was left by members or outsiders who may have come in over the running path to party, although I strongly suspect the latter. If it was one of you, however, remember that liquor in a city park is illegal and use of it by our members at the field could easily jeopardize our lease. If it was one of you, cut it out. If you are aware of outsiders doing it, notify Vince. ID info, like license numbers, should be taken, if possible.

Safety Notes

By Mike Pirkl, Safety Officer

Look for some new items and some updated items at the field this year for safety equipment.

There will be a new First Aid kit; it will be located

at the frequency board in a lock box. The new kit is compartmentalized and is also a waterproof box now. The old kit will still be located in the shed but will now be used to supplement the new kit when items are used and need replacing.

You will also see a new sign at the field by the frequency board. This is a first aid sign; it has directions on how to administer first aid for things such as cuts, broken bones, choking, etc. The sign will be posted in close proximity of the new first aid kit.

There are also two new fire extinguishers that are located in the new shed. These are to be used for any of the events that are to be held at the field. Event chairman/coordinator will see too it that one fire extinguisher will be placed at each of the two small fence entrances to the field that separates the pilots from the flying field.

And finally before you make your first flight of the season check to make sure your plane is ready and safe to fly. Some items to check over are:

Batteries: You should test your batteries under load. If the battery pack is not up to its rated capacity, you should replace it. Be sure to check your transmitter's batteries too.

Fuel Lines: Make sure your fuel lines are in good condition. Be sure to inspect the clunk lines and clunk in the fuel tank. This is where most failures occur. While you have the fuel tank out of the plane, check it for worn spots due to vibrations. This is also a good time to flush out any oil that may have accumulated in the fuel lines.

Engine: Check all of the engine-mount bolts and the muffler bolts. Be sure the bolts are tight and replace any that are missing. This is also a good time to replace the glow plug. If you fly a gas plane, flush out any oil that may have accumulated in the carburetor. This is done by removing the diaphragm cover and depressing the diaphragm lever, while the fuel tank is under slight pressure.

Linkages: Inspect all linkages. Check all the control horns for excessive wear. A worn-out control horn could result in flutter or even cause loss of control in flight. Check all the solder joints, ball links, cables and hinges. All the connections should be tight, and the control surface should move freely.

Radio and Servos: Check all the wires and connectors for wear. Look for holes or cuts in the insulation due to vibrations. Be sure all connections are secure. Replace any defective wiring, switch assemblies and tie wraps. Tape your crystal into your receiver by wrapping the receiver with electrical tape over the crystal. Check the condition of the foam used to protect your receiver.

Antenna wire: Antenna wires typically take a lot of abuse and could be damaged. Also, check your servos for smooth, full-range operation. There should be no glitching or erratic movement.

Landing Gear: There are many kinds of landing gear, from fixed gear tail draggers to full-scale models with retractable systems and brakes. But they all need to be checked to ensure all nuts and bolts are tight, and all the components are in good condition. Don't forget to add a drop of retract oil to the air tank of your retracts. Also, be sure to apply a small amount of grease to the axles and brakes.

Now that your plane is ready to go, you may want to spend a little extra time sprucing it up. Inspect the covering and work out any wrinkles that you find. Clean off the excess oil and touch up the paint.

See you at the field.

Flight Instructors Needed

It's that time of year again and, as usual, we have more folks neediing instruction than we have instructors. You were once taught to fly RC by someone who was willing to invest some of his time in you. Now it's your turn. Call Andrew Morrow at 798-0281or e mail him at rcflierajm@netscape.net and tell him you will be glad to help,

Roster Updates

Following are names of new members and address changes. Please update your copy of the club roster accordingly.

New members: Ryan R, Woodruff, 225 Lexington Pky., DeForest 53523, phone 846-0834. **John F. Sullivan,** 5318 Jonquil Ct., Middleton 53562, phone 831-7206, jsullil028@aol.com. **Cliff Amundsen**, 2309 Cypress Way #24, Madison 53713, phone 658-1245. **Dan & Greg Post,** 430 Lori Ln., Copttage Grove 53527, phone 839-5116. **Doug Robichaud** 5334 Reeve Rd., Mazomanie 53560, phone 767-2050. **Ryan Woodruff**, Jr.,225 Lexington Pkwy., DeForest 53532.

Address changes: Andrew Seaburg, 6832 Frank Loyd Wright Ave., Middleton, WI 53562. **Marty Endres,** martyenders@charter.net, **Mike Piechowski,** ., Madison, WI 53711, 278-1657.

Update on Sparks by e Mail

It's happening now! I only got eighteen answers and all but three were "yes." As I said last month, I assume

that the lack of any response equates to willingness to get Sparks by e mail only, so it's a done deal.

The board is considering invoking a $10 per year dues increase for 2005 for those members who cannot receive Sparks by e mail, and for those who wish to receive a hard copy despite being able to get it by e mail.. The increase would not apply to junior, family or associate members. Now is the time to comment on this, if you wish to have your view considered. You may also buy a copy for $0.75 at the meeting.

I'm working on creating the group address file for mailing to you, but most of you aren't in my address book. Copying from the club roster is both a big job and extremely error prone, **but you can help - *and I certainly hope you will.*** If you have e mail access, but did not get a copy of this issue by e mail (if you were to receive one, it would have arrived well before your hard copy), ***please send me an e mail using "address" in the reference line***. Please send it it to me at **jbuss@itis.com.** I will use it to quickly and accurately add you to my address list. You do not need to add a message, but you surely may if you wish. If you use some sort of pseudonym in your name field (such as "flyboy" instead of "Tom Smith"), please give me your real name as message text. Your help in this manner will save me a lot of work, prevent lots of errors and it will ***really*** be appreciated.

Everyone is getting this issue by hard copy. If all goes well, we will begin next month with the elimination of hard copies to those with e mail. If you receive neither an e mail nor a hard copy of the June issue by the end of May, either phone me at (608) 244-8534 or e mail me (preferably), because it will mean I have a bad e mail address for you.

Nonmembers who now receive hard copies should take note that if you wish to continue to receive Sparks and you didn't get an e mail distribution of this issue you should advise me of your e mail address. If you do not have an e mail address, you may continue to receive Sparks by purchasing an associate membership for $15.00**.** See the banner on page 1.

Those having e mail access will receive the bulletins as e mail attachments in printable PDF foremat. This requires that you have Adobe Reader. There will be a link in the cover message to allow you to download a free copy, if you don't have it already. Of course, you will also continue to be able to get Sparks from the MARCS web site, www.marcswi.org, as is the case now.

The Bent Bird

Engine Reliability and Airplane Recovery

By Don Wiegt

Nothing jeapordizes a plane more than the engine quitting unexpectedly when the plane is far out and low, especially if flying away from the pilot and flying field! If high enough, the plane can often glide back, but if too low, you're in for a long walk. If you can find the plane, and are lucky about where and how it lands, that might be all the trouble you have. But, it's hard to land a plane nicely when you can't see it well or clearly see the terrain under it. Many times repairs will be needed. Let's also hope you don't hit any valuable property, animals, or especially, people!

Avoiding this situation greatly improves our models' life expectancies! It also increases our enjoyment of the hobby and saves us money and grief. There are two parts to avoiding off-field deadstick landings: making the engines run as reliably as possible, and keeping the models where we can glide back if the engines should quit.

Back in the dark ages (say 1958 when I was learning to fly RC), most models had no throttle. Engines were started and adjusted, and the planes were launched. They flew until out of fuel, and were normally glided back to a landing. We got pretty good at deadstick approaches! Even today, I usually can get a deadstick model back on the field. It's a useful skill, and one you can develop.

When your model has reasonable altitude and isn't too far away, cut the throttle to idle and try to glide it back to the field. The spinning prop probably makes more drag than a stopped one, so if you can get it back idling, you probably could have gotten it back deadstick. This is a good way to practice guiding the plane so you can land it on the field, into the wind, just like you would under power. It has the advantages over a real deadstick, in that you can add power if you aren't going to make the field, and you also can taxi it to the pits and don't have to walk out onto the field.

Student pilots in real planes do nearly the same thing. The instructor will close the throttle and say "engine out" or something similar, and the student has to go through his emergency checklist and pick a field for a forced landing. If it's away from an airport, the practice ends when the plane is at a few hundred feet above the ground and it's clear whether or not the student would have reached the chosen landing point. Power is added and the plane climbs away: no sense having some farmer report a plane in trouble when it isn't! If the plane is near an airport, the drill

may continue all the way through the landing.

If it's good for full scale pilots to practice power off landings, surely it's good for model pilots, too!

Back in the old days, we didn't have fixed pits and flight areas. So, we'd stay away from the parking area, and fly upwind of the field. This way, the wind would help bring back any plane where control was lost, as they'd tend to circle and the wind would make their circle drift back toward the field and pilot. This was a big deal, because control was limited and out of range flight happened often!

Practicing gliding in to land, you'll quickly find the wind is a big factor. If it's blowing the plane toward you, you might get back in half the time and from half the altitude you would need if the wind is blowing the plane farther away. In a strong wind, a model might not get any closer at all as it flew with its nose pointed right into the wind! Ooops! Long walk ahead... Well, maybe not, if you push in some down trim to make it glide faster, but it's a tough situation.

So, practicing landing from high and far out, with the engine idling, is a good way to find out where you can fly under different wind conditions and be reasonably certain you could glide back to the field. It'll also be good practice adjusting the plane's approach pattern to get it down in the right place and pointed into the wind without adding power, which you wouldn't be able to add in a true deadstick.

Of course, it's even better to never have an engine stop in the air, except when the pilot shuts it down. This involves a lot of things, from proper mounting and a decent engine and glow plug, to the prop being on tightly enough so it doesn't slip. But, most of these things will show up on the ground, before the plane ever takes off or is launched.

The three main things an engine needs to run are air, fuel, and a source of ignition. Air is all around us, and the ignition sources of our model engines are very reliable. That leaves fuel...

Many "engine" problems are really fuel related. One of the most common is simply flying too long and running out of fuel, or perhaps getting distracted and forgetting to fuel or refuel. It happens to the full scale planes, and it can and does happen to models! If we avoid that, we still need to be careful about fuel quality.

The fuel is metered by one or more needle valves, and it flows through very narrow spaces. It only takes a tiny bit of dirt to partially block the narrow passages and reduce the fuel flow. This makes the engine run leaner. Engines are less tolerant of being too lean than of too rich. So, if the engine is leaned to or near its peak power, just a little bit of dirt in the needle valves or jets can make it go too lean and quit. That's one good reason to set engines a little bit rich of peak.

It's also a good reason to keep the fuel clean and free of contaminants. It's a good idea to filter the fuel going into the airplane's tank. It's even better to start with clean fuel and be careful to keep it that way! Make sure fuel containers are clean. Keep them sealed as much as possible. Minimize opportunities for dirt to get into them.

For example, on my glow engine powered planes I use the tanks' muffler pressure lines for overflows. I connect them to the fuel bottle or can I'm pumping fuel from. As the airplane's tank fills with fuel, the "air" from the tank flows back into my fuel bottle. It's a closed system: no fresh air gets into the fuel bottle (or can). This is good for several reasons. First, the "air" in the tank is mostly engine exhaust, and most dust in it was trapped on the oily engine parts or in the muffler pressure line. Also, this gas ("air") has been in the fuel tank, and fuel has evaporated into it. So, it's already saturated with fuel vapor, and won't evaporate any fuel in the fuel bottle. Of course, it also means the fuel overflow from the tank goes right back into the fuel bottle, which is fine as long as the plane's fuel tank is clean, but is another reason it's good to filter fuel going into the airplanes' tanks, just in case any dirt is washed out of the tank and into the fuel bottle.

The alcohol in glow fuel has a strong affinity for water, and will absorb a lot of water from the air if it's unsealed for very long. Refueling with a closed system minimizes the fuel's chance of absorbing water from the air. Unfortunately, it also guarantees some of any water or water vapor in the tank will end up mixed into the fuel in the fuel bottle, and we know there's water vapor in engine exhaust. That's because the fuel's energy comes from burning carbon and hydrogen, making water vapor, carbon dioxide, and carbon monoxide, in addition to releasing a lot of heat that is the source of the engine's power. But, the amount of water and water vapor in the models' fuel tanks has never seemed to affect my fuel. I think it's less than might be received by drawing in fresh air to replace the fuel leaving the bottle. In any event, it seems it's not too much.

Something that's really bad for glow fuel is leaving the cap off the bottle for any length of time; this lets a lot of water vapor in. It may also cause loss or breakdown of the expensive nitromethane in the fuel that is needed to make many glow engines run well and produce the power we expect.

Common symptoms of water in glow fuel or low nitro are lost power at full throttle and a tendency to quit

when idling. Either may not require a change of needle setting.

A common symptom of dirty fuel is an engine that leans out a lot as it runs. If the needle is backed out (set richer), it may suddenly get very rich when some of the dirt finally gets through the needle valve or jet. After the needle is again leaned, the cycle may repeat, with the engine quickly leaning again as more dirt is trapped in the needle valve or jet.

By itself, age isn't harmful to glow fuel. Water or water vapor getting into it is. Strong light may be, too, as it could break down the nitromethane. Storing fuel in tightly sealed bottles in the proverbial "dark, cool, dry place" may keep it fresh for more than a decade. I remember Duke Fox, of Fox engine fame, writing he liked to use 10 year old glow fuel in his planes. He thought esters formed in the old fuel that made it idle better. I know I burned about 8 gallons of 10 year old fuel in my SuperTigre G-2300 without problems.

Of course, there were a few instances recently when old fuel, I think in metal cans, exploded when someone tried to open them. So, it's probably best to use up your fuel within a year or two of purchasing it.

Gas and oil mix, used in the bigger planes, has a different set of problems. Water won't readily dissolve in gas or mix with it, but it will condense and settle to the bottom. That tankful of "fuel" you just put into your model might be water from the bottom of the fueler! And, we all know water doesn't burn worth a hoot..

I make certain the pickup for fueling my gas planes is about a half inch above the bottom of the fueler bottle, and empty those dregs into my weed trimmer, rather than using it in my planes. I'd rather have trouble with dirt or water in a trimmer engine than in an airplane!! And, both water and dirt will settle to the bottom of the bottle.

I also mix oil and gas in 2 gallon batches, and let it rest so any contaminants have time to settle. Then I pour or pump fuel from the top of the can into my model fueler. Again, the gas in the bottom of the can goes into my trimmer, not my plane!

I also treat the gas and oil mix with "Sta-bil" in the recommended amount, to keep it from getting gummy and messing up the carburetors' fuel passages. Ed Buechner recommended it to me. Says he tells his gas station customers their small engines would need a lot fewer repairs and tuneups if they always used Sta-bil in their gas. I've had very good luck using it in my PT-19's Zenoah G-23. It also dramatically improved a carburetor problem with my old 4 stroke snow blower. So, I second Ed's recommendation.

Here again, I like to use a closed system for fueling, returning the overflow to the fueler. Gas planes usually vent their tanks to the air, so they aren't full of exhaust: just fresh air that's already saturated with fuel vapor. Still, it's probably better than letting other fresh air into the fueler and venting the fuel vapors from the tank.

I'm positive it's better to collect the overflow fuel back in the fueler, with the chance to use it to power a later flight, rather than risk having it go on the ground. And, it's easier and there is less risk of contamination to send the overflow directly back to the fueler bottle, instead of collecting it in another tank that has to be emptied back into the fueler.

One problem with gas that you won't see much with glow fuel is that the fueler will pressurize if it sits in the sun, and when you unhook the loop of hoses to fuel, it may spurt gas and oil mix all over. Not pleasant, nor good for the environment! The best way I've found to avoid this is to slightly loosen the fueler's cap when at the field. But, be sure it's tight and sealed when you haul it to the field and back home! You may find the fueler collapses when you store it in a cool place, too. Again, the best solution I've found is to have the cap slightly loose, though this probably results in a tiny bit of evaporation.

I believe gas is "thinner" (lower viscosity) than alcohol, and far less is needed per cubic foot of air for ideal combustion. So, gas engines have smaller fuel passages than glow engines of comparable size and power. That means they can be plugged by particles that would pass through a glow engine's needle valve and jet. So, it's extra important to keep gas clean, even though gas engines often have a fuel filter screen in their carburetors.

So, keep your fuel clean and uncontaminated, and you will have a much better chance of landing your planes under power every time! Practice gliding back to the field by throttling back. If you still have a deadstick and can't get the plane back to the field, try to land it from stable glide, with the wings level (not turning), and with the plane pointed into the wind. This gives it the best chance of a gentle touchdown.

Flying the Mail

By Jerry Buss

For the reader's benefit, I will review here the names of the important actors in the initiation of air mail that appeared in last month's article. Otto Praeger, Second Assistant Postmaster General of the US, in charge of mail transport operations, Major Reuben Fleet, Army CO of air

mail operations, Captain Benjamin Lipsner, Fleet's aide and Lts. Boyle, Webb, Edgerton and Culver, pilots on the first day's four legs, Washington to Philadelphia to New York and reverse.

The first day of air mail delivery was hailed as a brillliant success. Little mention was made of the fact that Lt. Boyle had pulled a Wrong Way Corrigan twenty years before Corrigan. Newspapers made much of the success and Praeger, Fleet and Lipsner were greatly pleased over the way it was received The *New York Herald's* headlines declared that nothing short of a hurricane could stay these intrepid carriers from their appointed rounds. The *Scientific American* rejoiced over the "--total absence of that incessant tinkering which we generally connect with air flights." The reporter was, of course, reciting events from the vantage point of New York, not that of Washington where Boyle's Jenny refused to start because no one had remembered to refuel it.

The second day was less satisfying, however**.** Lt. Stephen Bonsal, son of a famous war correspondent, got lost in fog over New Jersey and made a forced landing on the horse-filled infield of a race track at Bridgton. Carreening and swerving, he managed to avoid the horses but crashed heavily into a fence with serious damage to his plane.

The third day was worse. At Praeger's urging, Fleet agreed to give George Boyle a chance to redeem himself. Boyle was well-connected, after all, but Fleet took no chances. He first carefully instructed Boyle that to get to Philadelphia, all he had to do was keep the water of Chesapeake Bay on his right. When it ended, continue on the same northeasterly course, pick up the Delaware River where it emptied into Delaware Bay and Philadelphia would be dead ahead, up river. To doubly assure Boyle's success, he took off with him and flew on his wing as far as Baltimore before turning back and leaving the young officer on his own. Boyle adhered slavishly to Fleet's instruction, keeping the water just off his right wing. After a time, the Bay ended and the shore turned sharply southward. Boyle began to wonder if something might be amiss. Fuel was getting awfully low. He'd better land, perhaps, and try to discover exactly where he was. He had studiously kept Chesapeake Bay off his right wing. When it ended and its shoreline doubled back to the south, he had turned with it, putting Philadelphia behind him without ever having passed it. He was back near his starting point, but across the Bay, near Cape Charles, Virginia.. After refueling, he again set out for Philadelphia and this time made it. Unfortunately, he crash-landed and broke a wing. Fleet rejected Praeger's request to give poor Boyle yet another chance to redeem himself and sent the lieutenant back to flight school.

Still, it wasn't all bad. After two weeks the Post Office announced that of the first 60 scheduled flights, 53 had experienced no unscheduled delays. After a month, three of the four first day pilots, Webb, Culver, and Edgerton, had gotten through without mishap. Considering their inexperience, their rickety aircraft and that they sometimes operated in very bad weather, it was almost miraculous.

In anticipation of the inauguration of air mail service, the nation's first air mail stamp had been issued on May 10, 1918. It featured a picture of Boyle's Jenny, number 36262, in blue on a white and red background with a face value of twenty four cents, the rate for one ounce of air mail. On May 14, the day before the first deliverys, William T. Robey, a collector of stamps, went to his local branch post office in Washington and bought a block of 100. They seemed odd. He asked to see another block. It was different. The Jenny pictured on it was right side up, whereas the one on his block was inverted! It was right side up on other blocks too. Realizing that he had a collector's dream here, he hurriedly sold his stamps to a Philadelphia dealer, Eugene Klien, for $15,000 in the belief that, surely, there would be other examples of the upside down Jenny and he had better get as much as he could before they appeared and diluted the value of his treasure. None ever appeared, however. Klien sold the sheet to Colonel E.H.R. Green for $20,000 and Green later broke the sheet up and sold the stamps separately. Today, a single inverted Jenny stamp sells, albeit rarely, for $100,000 and up. It is the most valued stamp in the world.

In early July 1918 the Post Office and the War Department agreed to end their association and on July 15 Praeger announced a reduction of the air mail postage rate from twenty four cents to sixteen cents per ounce. On August 8, army operations were concluded. Army pilots had flown 254 legs, experienced 16 forced landings and had suffered no serious injuries.

Meanwhile, at Praeger's urging, Ben Lipsner resigned his commission to become Superintendant of Air Mail Service to replace Rueben Fleet who returned to other military duties. Lipsner's first task was to recruit pilots to replace the army men and he laid down the chief requirement that a man must have 1,000 hours of stick time. His first hire was Max Miller, an army instructor. He also hired Eddie Gardner, a former auto racer, Robert Shank, a barn stormer and Maurice Newton, a test pilot.

They would become the hard core of the air mail service at salaries ranging from $3,000 to $5,000 per year, very good pay in an era in which a Deputy US Marshall earned $100 per month.

To replace the Army's Jennys, Lipsner arranged the purchase of 6 new JR-1B's from the Standard Aircraft Corporation, the firm which would go on to become part of Hamilton Standard, the propeller maker. Despite the fact that the Standard had the same 150 hp Hispano Suisso engine as the Jenny, it was a good deal faster and had a much better range. At the same time, it was no better able to deal with the bad weather that was so often encountered and its instrumentation was no better than that of the Jenny.

James Edgerton also resigned his commission to become Chief of Flight Operations. He had been through a terrible storm of rain, hail and lightning at 10,000 feet and survived. Otto Praeger was particularly gung-ho that weather didn't matter – the mail must go through. Easy for a non-flyer to say, but after his bad weather experience Edgerton adopted Praeger's position saying, "The pilot must take a chance and fly under almost any conditions." It would become the mantra of mail flying during Praeger's reign and costly in terms of lost mail, destroyed aircraft and, most of all, pilots' lives. The first flights by the civilian pilots occurred on August 12, 1918.

An ardent supporter of air mail and Praeger was an Italian immigrant, Mario Terenazio Enrico Casalegno, who mercilessly anglicized his name to Henry Woodhouse. He was the owner of two aviation magazines, *Flying* and *Aerial Age Weekly*, as well as being an officer in the Aero Club of America. He saw air mail as the mere beginning of commercial aviation and supported it vocally. He regarded the New York - Washington run as a mere preliminary and advocated establishment of an airway to Chicago and then on to the West Coast. He published maps of proposed routes and suggested calling it the Woodrow Wilson Airway. Already, he and Praeger were talking, albeit most prematurely, of multi-engine mail planes and night operations.

With Woodhouse's vocal support, an experimental flight from New York to Boston and back was attempted. The weather was foul and the load so light that, for now, it didn't bear repeating. It was time to look west, as Woodhouse so badly wanted.

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