

# Smoke Signals

Monthly Newsletter of the Meroke RC Club

September 2008

AMA Gold Leader Club #458 - established 1963



## The Rhinebeck Aerodrome

This coming weekend, RC hobbyists from all over will be descending on the Old Rhinebeck Aerodrome with their vintage aircraft. Only a few hours drive north of Long Island, it's well worth the trip.

The Old Rhinebeck Aerodrome is a true "living" museum of antique aviation located in Rhinebeck, New York. They present one of the largest collections of early aeroplanes in the world, many of which regularly take to the air in all their glory during their weekend airshows. The Aerodrome features aeroplanes, automobiles, motorcycles, early engines and memorabilia from 1900-1935. In addition to the airshows, there are four museum buildings displaying aircraft from the Pioneer Era, World War I and the Lindbergh/Barnstorming era. These were the golden years of aviation.

Their weekend air shows are scheduled from mid-June through mid-October. On these weekends (weather permitting), the Aerodrome turns back the hands of time and relives the years of early aviation. The colorful era of early aviation is brought back to life amidst the roar of rotary engines and is great entertainment for all ages.



The Saturday Shows chronicle the History of Flight with Pioneer, World War I and Lindbergh era aircraft taking to the skies. If the winds are calm you'll even see their 1909 Bleriot (the oldest flying aircraft in the United States) take to the air.

The Sunday Shows feature a World War I dogfight plus Barnstorming Aircraft. Marvel at world-renowned pilot, Stan Segalla, The Flying Farmer, one of the greatest acts on the air show circuit! You won't believe what Stan can make an airplane do!

Weekdays the museum buildings are open and the air show aircraft are on static display. The Old Rhinebeck Aerodrome was the life's work of Cole Palen and his dream was to preserve early aviation. They are actively carrying on his work by promoting and preserving a "living" history of aviation for the public. It is their hope to instill aviation's rich heritage and colorful past with all generations and to ensure it lives and flies forever!

For more information - contact them at 845-752-3200 or on their website at [www.olderhinebeck.org](http://www.olderhinebeck.org).

## Meroke Calendar

September 4 <sup>th</sup>	Club Meeting 8 PM - Show & Tell
September 14 <sup>th</sup>	Nassau Flyers Giant Fly-In at Cedar Creek (field closed)
September 18 <sup>th</sup>	Club Meeting 8 PM - Ed Alt on NSRCA Pattern Flying
September 21 <sup>st</sup>	Fun Flies at Aerodrome
September 26 <sup>th</sup> to 28 <sup>th</sup>	Bellmore Street Fair (sign up to volunteer)
October 2 <sup>nd</sup>	Club Meeting 8 PM - Show & Tell
October 16 <sup>th</sup>	Club Meeting 8 PM - Program to be announced
October 19 <sup>th</sup>	Fun Flies at Aerodrome

### Some Important Future Dates

November 20 <sup>th</sup>	Meroke Club Elections
December 4 <sup>th</sup>	Awards Dinner at Meeting Hall

Meetings are held the first and third Thursday of each month at 8:00 PM at the First Presbyterian Church of Levittown located at 474 Wantagh Avenue. The church is about 1 mile north of Exit 28N on the Southern State Parkway. Additional information can be found on the club website - [www.meroke.com](http://www.meroke.com).

## Club Officers & Volunteers

<b>President</b>	Dave Bell 516-633-0034	dave.bell0323 @verizon.net
<b>Vice President</b>	Lou Pinto 516-785-6890	meroke36@aol.com
<b>Treasurer</b>	Herb Henery 631-665-6274	hahenery@aol.com
<b>Recording Secretary</b>	Al Weiner 516-868-5674	
<b>Corresponding Secretary</b>	Curtis Underdue 917-213-4459	curtisu@msn.com
<b>Board of Directors</b>	Mark Klein 516-326-0855	mklein@optonline.net
	Ed Wiemann 516-735-0733	eww46@man.com
	Nelson Ramos 631-420-2889	nel98rc@optonline.net
	Ernie Schack 516-481-1814	radioschack2@aol.com
<b>Chief</b>	Bob Reynolds	mrbrew@optonline.net
<b>Field Controller</b>	516-775-4377	
<b>Asst Chief</b>	Tony Pollio	rctony@optonline.net
<b>Field Controllers</b>	516-794-9637	
	Ed Wiemann 516-735-0733	eww46@man.com
<b>Field Safety Officer</b>	Tony Pollio 516-794-9637	rctony@optonline.net
<b>Smoke Signals Editor</b>	Russell Rhine 516-484-0368	rrhine@optonline.net
<b>Membership Programs</b>	Frank Lasala	
<b>Education</b>	Phil Friedensohn	
<b>Friends of Cedar Creek</b>	Charlie Lando George Carley	
<b>Building Program</b>	Charlie Lando	Ernie Schack
<b>Archivists</b>	Ron Berg	Stan Blum
<b>Webmaster</b>	Ted Evangelatos	
<b>Social (Coffee)</b>	Irv Kreutel	Al Hammer
<b>Raffles</b>	Nick Guiffre	Curtis Underdue
<b>Show and Tell</b>	Ed Wiemann	
<b>Video Librarian</b>	Bob Cook	
<b>Come Fly With Me</b>	Mark Klein	Dave Bell
<b>Open Fly-In</b>	Ernie Schack	Tony Pollio
<b>Monthly Fun Fly</b>	Bob Reynolds	Gene Kolakowski
<b>One Fly</b>	Ted Evangelatos	
<b>Picnic/Dinner</b>	Al Weiner Nick Guiffre	Chris Mantzaris
<b>Contest Directors</b>	Allen Berg Ernie Schack	Tony Pollio Tom Scotto
<b>Flight Instructors</b>	Allen Berg Douglas Frie Mark Klein Ken Mandel Tony Pollio Bob Reynolds Ernie Schack	Ted Evangelatos Dan Gramenga Gene Kolakowski Tim Murphy Rick Porqueddu Bill Streb Al Weiner

## From the President

Here we are at the end of August. I hope everyone had a great summer and a great vacation. As the kids get ready for school, we get ready to start our fall and winter flying. Along with that, now that we have the Barbeque Pits installed, we get ready for some good cookouts. Apparently there have been some very good after dusk BBQ's and I look forward to attending one. I am not sure how it all gets organized, but I hear Nick and Mike and Ted and a few others are presently the chief cooks and bottle washers. As a reminder, the grills are open to Merokes and Nassau Flyers and they did go  $\frac{1}{2}$  with us on the second grill. There is also a storage container at the Field, which I am not too sure of its contents, but I have a feeling it is supplies for the BBQ's. Thanks to Mike, Phil & Russ for the acquisition and installation of the BBQ units.

Here is the month of September events:

1. September 14<sup>th</sup> is the Nassau Flyers Giant Scale Fly In at Cedar Creek
2. September 18<sup>th</sup> brings us Ed Alt speaking on Pattern Flying.
3. Late September also brings us the Bellmore Street Festival where we will have a table or two with demonstrations of model building, models on display and answer any questions people may have about our Hobby. We hope to generate enough interest for new members and members for our building Program

Looking ahead to the next few months:

November 6<sup>th</sup> ...Club Dues are to be paid.

November 20<sup>th</sup> ...nominations and elections of Club Officers and Board Members. Start thinking whom you would like to nominate for Officer and Board Member.

December 4<sup>th</sup> ...Club Awards Dinner in the Hall.

Stay safe and happy flying.....

## The ABCs of ESCs

An **electronic speed control** or **ESC** is a device mounted onboard an electrically powered radio control model in order to vary its drive motor's speed, its direction and even to act as a dynamic brake in certain controllers.

An ESC can be a stand-alone unit which plugs into the receiver's throttle control channel or incorporated into the receiver itself, as is the case in most toy-grade R/C vehicles. Some R/C manufacturers that install proprietary hobby-grade electronics in their entry-level vehicles, vessels or aircraft use onboard electronics that combine the two on a single circuit board.

Regardless of the type used, an ESC interprets control information not as mechanical motion as would be the case of a servo, but rather in a way that varies the switching rate of a network of field effect transistors, or "FET's." The rapid switching of the transistors is what causes the motor itself to emit its characteristic high-pitched whine, especially noticeable at lower speeds. It also allows much smoother and more precise variation of motor speed in a far more efficient manner than the mechanical type with a resistive coil and moving arm once in common use.

Most modern ESCs incorporate a battery eliminator circuit (or BEC) to regulate voltage for the receiver, removing the need for extra batteries. ESCs are normally rated according to maximum current, for example, 25 amperes or 25A. Generally the higher the rating, the larger and heavier the ESC tends to be which is a factor when calculating mass and balance in airplanes. Many modern ESCs support nickel metal hydride and lithium ion polymer batteries with a range of input and cut-off voltages. The type of battery and number of cells connected is an important consideration when choosing a BEC, whether built into the controller or as a stand-alone unit. A higher number of cells connected will result in a reduced power rating and therefore a lower number of servos supported by an integrated BEC.

DC ESCs in the broader sense are PWM (Pulse Width Modulation) controllers for electric motors. The ESC generally accepts a nominal 50Hz PWM servo input signal whose pulse width varies from 1ms to 2ms. When supplied with a 1ms width pulse at 50Hz the ESC responds by turning off the DC motor attached to its output. A 1.5ms

pulse-width input signal results in a 50% duty cycle output signal that drives the motor at approximately half-speed. When presented with a 2.0ms input signal the motor runs at full speed due to the 100% duty cycle (on constantly) output.

ESCs for electric powered airplanes are very similar to those used in cars. However, features like reverse are not needed. Some units may be programmed to spin the motor in either forward or reverse depending on the application. Dynamic brakes are used to stop a propeller from "windmilling," allowing folding props used on gliders to fold in, therefore reducing drag.

Brushless motors have become very popular with radio controlled airplane hobbyists because of their speed, power, longevity and light weight in comparison to traditional motors. However, brushless DC motor controllers are much more complicated than brushed motor controllers. They have to convert the DC from the battery into phased AC (usually three phase) that the brushless motor can use. The correct phase varies with the motor rotation, which is where the complication lies. Usually, back EMF from the motor is used to detect this rotation, but variations exist that use magnetic or optical detectors. Computer-programmable speed controls generally have user-specified options which allows setting low voltage cut-off limits, timing, acceleration, braking and direction of rotation. Reversing the motor's direction may also be accomplished by switching any two of the three leads from the ESC to the motor.

## From the Editor

The Officers and Directors of our club voted to use monies in our treasury for the purchasing of a laptop and a video projector. Along with a donated DVD player, we are moving right into the 21<sup>st</sup> Century.

Most of you probably remember the AV (audio-visual) guys when we were in school. They wheeled those big projectors throughout the halls to classrooms for us to watch movies, etc. Maybe now, we our latest acquisition, we need to add one new volunteer to our long list - an Meroke AV "guy".

## Sig P-51B Mustang

The legacy of the North American Aviation P-51B is given to us in the form of a nicely done model from Sig Mfg. The model is one of the most famous P-51B aircraft flown during WW II, the Shangri-La. This plane was flown by Ace Don Gentile in the 4th Fighter Group, who made 30 kills in 1944. The last flight of the Shangri-La was April 13, 1944, when Gentile was returning from his last mission. Just before going home stateside, he made a very low pass for the press and cameras and struck the prop on the ground crashing the Shangri-La.

The Sig P-51B model is built using balsa and plywood construction with a covering of Sig Aerokote. The scale model comes equipped with retracts, flaps, a big red spinner and a very complete hardware package. The scale look of the finished model is outstanding and has the sleek and graceful lines of a fighter. Adding to the scale detail is the location of the tail wheel on the fuselage. This model is not recommended for the beginner, but a modeler with one or two trainer aircrafts under his belt should be fine with this plane. The author of this review spent about 20 hours completing this aircraft, and every minute he said was worth it when he got to look at the finished plane.

### FOLLOWING IS THE REVIEWER'S OBSERVATIONS OF THE AERODYNAMICS OF THIS PLANE

**STABILITY** The Mustang exhibited good stability at all speeds.



**TRACKING** Ground and in-flight tracking are predictable with minimum input. Ground handling was helped by having



wheels toed in a little. I do not fly off grass but if I did, the only thing I would keep my eye on is the landing legs because they bend easily.

**AEROBATICS** This is a P-51 so I did not fly it like an Extra 300. The rolls, loops and spilt-S's looked and flew great, but my favorite is the low pass with one wing tilted up; it looked fantastic.

**GLIDE & STALL PERFORMANCE** The glide and slow speed performance are very predictable and at slow speed the stalling wing will do a slow drop to let you know it needs more speed. Adding power or getting off the elevator will straighten the stall right out.

### Specifications

MODEL	P-51B Mustang ARF
DISTRIBUTOR	Sig Manufacturing (sigmfg.com)
TYPE	WW II
LENGTH	55.9 in.
WINGSPAN	66.9 in.
WING AREA	770 sq. in.
WEIGHT	8.5 lb.
WING LOADING	25 oz./sq. ft.
MOTOR REQ'D	.90 to 1.00 2-stroke or 4-stroke
RADIO REQ'D	6-channel w/eight servos
PRICE	\$ 319.99

Catch the full review in the November 2008 issue of *Model Airplane News*

### RC Airplane Tip of the Month

My advice on CA and building... avoid the CA. You can come out just as light (lighter...) and build just as quickly using yellow carpenter's glue. In addition, you can reposition stuff after the glue is applied. If the yellow glue has set... heat it and it lets go and is able to re-bond with just heat 1 time.

## Show & Tell

We had 3 participants in the August Show and Tell:

- Tim Murphy discussed another electric foamie that he made. It was built using EPP foam, weighed about 5 ounces and Tim used a paper plate as the template for the plane.
- Nelson Ramos displayed a Giles 202 that he got from Terry OGrady. He spoke at length about how he fabricated his own cowl. Nelson won the prize.
- Lenny Schroeder showed his TA-152 Folke Wulf that he built from plans. He installed Hobbico retracts and fabricated the cowl from the bottom of a bottle of BeneFiber (will this help regulate the engine?).

## Battery Corner

*Q: How do I find out how many flights I can safely fly with my pack?*

*A:* The answer is different for just about every application. Factors like how you fly, what servo's you have, what the temperature is and what the type pack and it's relative overall condition is will all impact the number of flights you can safely fly with a full charge. A battery cycler can establish what the capacity of the pack is, and your ESV checks will reveal when it's no longer safe to fly. To determine the amount of energy required to fly your plane just fully charge the pack and fly two or three of your routine flights (while checking between flights with an ESV to stay safe) and record the amount of time flown. You can then return the pack directly to the cycler and record the capacity remaining. Subtract that from the normal capacity of the pack to get the amount of capacity your flights used. Next, just divide the amount of capacity used by the number of minutes flown and you have the average amount of capacity consumed per minute of operation.

## September Birthdays

- 4 *Charlie Restivo*
- 4 *Ernie Schack*
- 5 *Robert Peters*
- 6 *Frank Savarese*
- 8 *Mike Loboza*
- 8 *Al Weiner*
- 10 *Timothy Murphy*
- 15 *Frank McGrath*
- 23 *Greg Gatto*
- 28 *Frank Lang*



## Product Review - FlyCamOne2

**Just released! Version 2 of the Hobby Lobby FlyCamOne2 Micro Video Camera**

V.2 changes include: larger resolution, LCD display, rotating lens, longer battery life, and a thermal-activated motion detector. Video camera includes audio, still photos, a voice recorder, USB drive, and a webcam. Unit is small enough to mount on just about any model airplane, small park flyer, RC car, train, skateboard, or even a kite. Can be remotely activated using an additional servo. Videos are recorded with a resolution of 640x480 for clear playback, complete with sound, and 1280x1024 pixels for still photos.



Camera lens rotates 90 degrees so you can take photos or video from multiple angles. A built-in rechargeable 200mAh Li-ion battery

can be charged via the USB port on your computer in about 1 to 1 1/2 hours. For video and audio recordings, FlyCamOne2 requires a minimum sustained write speed of 9 megabytes (MB) per second and a read speed of 10MB per second (not included). With a 2GB SD card (not included), the video recording time is about 30 minutes. Webcam use requires the included software and USB cable. No software required for all other uses! You can edit and compress the .avi video files using Windows Movie Maker, included with Windows XP SP2 and Windows Vista. Version 2: 3x1 1/2x1/2 in. (camera only), 1 oz.; price: \$99.90

## New Member

James Fazzolare

## Aircraft Lighting Systems

*With the newly installed BBQ grill, it looks like fliers will be staying at the field a little later in the evening, so this is a very timely article to those diehard flying gourmets.*

A great way to add some excitement to your RC flying experience is to install a functional lighting system. Not only will you be able to extend your flying day past sundown, but you can use it in daylight as well. Bright lights can help with orientation, especially on overcast days with defused light or when you fly your model in front of a darker background such as distant trees. For years, Ralph Warner of RAM has been producing easy-to-install, pre-wired systems for all sorts of models. Most were intended for big glow-powered models and required a separate battery pack and switch. The new Park Flyer Ultra Brite Nite Lites and the Micro Heli Lites packs operate on 5-to 8-cell NiCD or NiMH packs, or 2- and 3-cell LiPo packs. They can be wired directly to the model's main power battery pack and they draw very little power, typically about 6 to 10 miliamps during a 10-minute flight. If you solder the leads to the ESC's battery connector, you don't need a switch; connecting the pack automatically turns the lights on.

### Airplane Lighting

Keeping your installation as simple as possible ensures reliable operation. The easiest way to install these lights is to simply tape them into place with some clear packing tape. This is how you'd do it for a flat profile foamie. If you have a solid molded-foam flyer, your installation can be a lot neater by simply making a long shallow cut on the bottom of the wing leading out to the wingtip. You can slip the wire into the cut then apply clear tape over the slice. This can also be done with the fuselage to place a light in the tail. Using tape also allows you to easily remove the lighting system later on.

For hollow foam structures, like with the ElectriFly F6F Hellcat, use a long piece of music wire with a sharpened end to "drill" a hole from the wingtip, and then push the wire into the center of the wing. Slide a pushrod guide tube over the music wire and feed it to the center of the wing. Remove the music wire and slip a light into the end of the guide tube, tape it secure, and then pull the tube with the light attached back out of the wing. Snap on the colored lens cap then use a small dab of silicone or Goop

adhesive to lightly hold the light in place. You can do the same to install the tail light in the fuselage.

If you have a removable wing, you will need to install a small wire connector into the tail light leads. Use an old mini receiver battery pack connector. Simply cut the leads in an appropriate location, strip and tin the wires, solder the connector into place and apply some heat-shrink tubing to the solder joints.



Lightweight lighting systems from RAM come prewired and are ready to install right out of the package.

If your model has a removable wing like the ElectriFly F6F Hellcat, you'll need to add a wire connector like this one.

To install wing lights in a solid foam wing like the one from the ElectriFly Yak 55 3D, first cut a channel about 3/8-inch deep from the wing root to the tip. Use a straightedge and a sharp hobby blade.

Next, place the LED lamp at the tip and press it down into the channel. Now use your thumb and press the wire lead into the channel. At the root or each wing panel you can cut another channel so you can feed the wire up to the fuselage so it can be connected to the main battery pack.

To finish the installation, use a strip of clear packing tape to seal the wire lead into place. The wing will be just as strong as before the channel was cut.

### Helicopter Lighting

Installing heli lights is a bit easier as there is complete

access to the wire leads and the heli's framework. The heli light package comes with two additional LEDs that should be installed in the nose of the helicopter's canopy. These look like search lights or a pair of high-intensity landing lights. The green and red navigation lights go on the upper sides of the canopy near the main shaft, and a single white taillight goes on the top of the tail boom or fin.

Solder a connector for the leads to the main power leads on the ESC. Cable ties can be used to secure the tail light wires to the model's boom and frame, and the rest of the lighting system should be installed with Velcro or double-sided foam tape to the inside of the canopy. This system is extremely lightweight and won't affect your heli's balance.

To make holes in the plastic canopy, use a thin soldering pen to melt the holes instead of drilling them out. Slip the lights into place and secure them with a small dab of Goop. You can also install rubber grommets in the holes then slip the lights into the grommets. This way, the lights will easily slip out of place if you need to work on the system. Be sure to secure any excess wire with tape or cable ties to keep it out of the way of any moving parts. Snip off the ends of the tie wraps and you're done.

Using an onboard lighting system in your backyard flyer or helicopter is a great way to add excitement to your flying experience. Besides being able to fly at night, you'll also have increased visibility for low-light conditions, which can greatly extend your daily flying time, even if you don't want to fly by moonlight. Have fun!

### **Internal lighting made easy**

Many of the newer super-lightweight aerobatic models are made from hollow molded foam. By installing several high-intensity LEDs inside the model, you can literally light your aerobat like a neon sign. The CC BEC switching regulator from Castle Creations makes this kind of lighting job easy. The CC BEC can be programmed to supply exactly the amount of voltage needed to light up numerous LEDs. However, the current has to be regulated with an inline resistor. For more information on the CC BEC, visit [castlecreations.com](http://castlecreations.com). For more information on internal lighting, send an email to [info@castlecreations.com](mailto:info@castlecreations.com).

## **Tech Tip**

**Glow Plug Problem:** Silicon poisoning

**Solution:** Silicon components in the fuel blend produce a glass-like deposit on the platinum-alloy wire element, causing it to slowly lose its catalytic action. Although the plug element glows brightly and continues to offer reliable startup performance, its temperature rating slowly declines (turns cold), and the engine's ignition point retards. When the engine begins to experience idle-performance problems, it's time to replace the plug. Most reputable fuel manufacturers have stopped using silicon compounds as an anti-foaming agent, but some modelers still give each new gallon of fuel a "shot" of Armor All a kiss of death to the glow-plug element!

## **Planes for Sale**

Contact Len Schroeder 516-599-0235, for the following planes that he has for sale:

60 size Super Sky Bolt from a Great Planes kit. With an OS 1.20 four-stroke engine with pump. Equipped with Futaba servos, a high-band receiver and a 4.8 volt battery. Only a handful of flights, and a steal for at only \$600.

40 size RV4 from a Great Planes kit with an OS .46 engine. Equipped with Futaba servos, a high-band receiver and a 4.8 volt battery. Only a handful of flights, and a steal for at only \$400.

50 size rebuilt F4U Corsair ARF. All wood with all balsa skin. Equipped with Magnum .90 four-stroke, flaps, and 180 retracts. All Futaba equipped for \$400.

40 size Elder from a Top Flight kit. Equipped with a Magnum .60 four-stroke. One flight on air frame and only a few flights on the engine. Futaba and Hitec equipped for \$300.

EP Super Sportster ARF from Great Planes. Only one flight on plane. \$100.

40 size Uproar built from kit and equipped with a Magnum 46. All Futaba and has only been flown 3 times. \$300.

## New Product - OS 35AX Engine

## Top Gun - August 24<sup>th</sup>

### Just released! O. S. Engines 35AX ABL Engine

The O.S. 35AX ABL Engine produces exceptional output for popular-sized planes and uses the same mounting dimensions as the 32SX and 25FX engines. The included E-3080 muffler effectively dampens noise and is fully adjustable.



### Features:

Distinctive 5-sided heat-sink head design for better cooling. A diagonally-mounted needle valve that makes adjustments much safer. The dual-layer durability of ABL (Advanced Bimetallic Liner) construction

### Specifications:

Displacement: 0.35ci

Bore: 0.795 in.

Stroke: 0.709 in.

Practical RPM range: 2,500 to 17,000

Output: 0.9 ps @ 11,000 rpm

Weight w/muffler: 12.8 oz.

Includes: E-3080 muffler, no. 8 glow plug, needle valve extension cable

Recommended Props: 10x6, 10x7, 11x6, 12x6

The weather started as very cloudy, but it cleared up and was a great day for a Top Gun Competition. Gene Kolakowski, assisted by judges Russell Rhine and Doug Frie ran a great event. Patrick took 1<sup>st</sup> place in 3 of the 4 events and moved to within 4 points of the current Top Gun leader Ted. The event was held concurrently with the One Fly and everyone in both events were treated to some great hot dogs cooked by our Top Chef, Al Weiner. A total of 10 fliers signed up for the event and following are the standings through August. Highlight of the event was the balloon busting which made a number of fliers anxious as they taxied all over the runway trying bust the balloon.

1	Ted Evangelatos	47 points
2	Patrick Boll	51 points
3	Bob Reynolds	80 points
4	Chris Mantzaris (tied)	81 points
	Nelson Ramos (tied)	81 points
	Ed Daus Sr (tied)	81 points
7	Gene Kolakowski	84 points
8	Curtis Underdue	105 points
9	Allen Berg	108 points
10	Richard Boll	110 points
11	Ed Daus Jr	117 points
12	Ben Corbett	121 points
13	Bob Albano	127 points

The next Top Gun competition is scheduled for Sunday - September 20<sup>th</sup>.

## CHICKEN WINGS

www.chickenwingscomics.com

