

1. The second XP-77 in flight shows its size by the somewhat cramped position of the pilot. All wood construction accents its clean lines.

## Bell XP-77

### The Bell XP-77 by Rick Koehnen

Bell Aircraft submitted two design proposals to an Army Air Corps specification issued 19 March, 1937. Their Model 3 was passed over but Model 4 went on to become the XP-39.

The idea of a lightweight, high speed, high altitude interceptor pursuit aircraft came out of the Army Air Corps watching the early air operations of the British, German and Japanese fighters. The day after Pearl Harbor, the Air Corp dis-

cussed such an aircraft with Bell Aircraft representatives. Bell's design appeared to be very similar to their earlier Model 3, reduced to approximately 80% and with the Allison V-1710 replaced with a Ranger V-770. The specified Ranger V-770 engine being developed by the Navy's Bureau of Aeronautics.

The small Bell fighter carried the designations Tri-4, Model D-6, Model 32 and finally XP-77. An order for 25 Tri-4's was placed under General H. H. Arnold's recommendations but because only six test engines were being allocated to the Army from the Navy, only six air-

craft were ordered from Bell. Bell's XP-77 was to be built of either all wood, or mixed construction with wooden wing and metal fuselage. It would be capable of 410 mph at 27,000, at 500 hp if equipped with the -9 turbocharged engine (but it was estimated to be at least 18 months away). Armament was to be two .50 cal machine guns straddling the engine and a 20mm cannon in the propeller hub similar to the P-39.

On 29 May, 1942, Bell proposed to build six XP-77's for under \$500,000 and to deliver them all

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## TCAH This Month

The monthly meeting will be held Saturday April 12, at Fleming Field, South St. Paul, beginning at 1:30 pm. Vendor baiting will begin about 12:30, so come early.

Picture your model here! Send me a photo of your model, and it'll be used to fill these little white spaces at the ends of the columns.

## GENERAL MEETING MINUTES – March 2008

Bob Maderich called the meeting to order at 1:30 pm. Steve Jantscher gave the treasurer report. John, Axel, and Greg gave vendor reports. We decided to have two ¼ page ads for Nordicon in the IPMS journal. Bob gave us his synapses on the Mad City Model Show in Madison. The club decided to sponsor two trophy packages for the IPMS Nationals later this year. We had Show n Tell and then Steve Erickson gave us his presentation on Soviet aircraft camouflage of the MiG-3. Next month we are going to have a vote on having a club contest in Dec.

For next months meeting we are having out annual awards and pizza party. I am in charge of getting the pizzas and plan on having them delivered at 12:30 pm. And I am taking special award packages for Nordicon. Please e-mail me at: cheapshotsforever@yahoo.com if you want to sponsor an award.



## From the Vice President by Larry Donovan

'Though I have been very quiet on the model front, I have not gone underground (yet, wait until I file my, ahem, tax return. Did we ever ratify that extradition treaty with the Solomon Isles yet...)

All joking aside, I want to sincerely thank the club members who will be helping us improve our craft by participating in the seminar series. Right now we have the complete 2008 year pretty much wrapped up, however some dates are flexible to meet the individual presenter's schedule. But a big round of applause is due to all these gentlemen for their contributions of time.

The next project is the judging  
*(Continued on page 3)*

## From the President by Bob Maderich

Welcome to the April TCAH newsletter.

Just a couple of things this month:

1) Come early to the meeting and shop and dine on pizza. Yes, it's the annual pizza bash, so be there.

2) Let's get a vote on the Club Contest idea, and I would like some feedback from people on the idea.

3) Finally, club awards will be handed out this month as well, so it should be a full meeting.



## Remebering by Terry Love

The famous Doolittle raid on Japan in April of 1942 used 16 B-25s crewed by eighty men. That was a lot of years ago. On March 20,2008, Jacob DeShazer died. He was the bombardier on the last of the 16 Mitchells. His death leaves 11 of the Doolittle raiders still living. When they are down to two remaining survivors, those two men will open a bottle of Hennessy Very Special cognac, vintage 1896, the year that Doolittle was born, and toast Doolittle and his men. That bottle of cognac is literally worth thousands of dollars.



1946 Stinson 108 in 1/72 scale  
Scratchbuilt by Noel Allard

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seminar. If you desire to become a judge, but were afraid to ask, sign up by all means. This will provide you a great way to learn judging and help the club spread the talent so the same members who judge can **enjoy** a show, instead of being locked away in a small, airless, windowless room, only hearing the mutterings of the mob below wanting their gold/silver/bronze so they can go home or hit the fleshpots (Scale Model, the Hubs, etc) of our fair city. Another plus to learning the judging craft is that after the seminar you will be able to face that question at another club's contest with aplomb and dignity. You know the question: "Hey, we need a judge for the Science Fiction/Real Space category. Can you help?"

Finally, I am still working on improving communications between our club and others in the region. I see this as a more informal thing, as the IPMS RCs have their assigned role. However, there may be in existence clubs not "formally" part of IPMS for a variety of reasons, for example the Red River club in North Dakota which had to drop out due to declining membership and the loss of their meeting place.

Before I close for this month, I just want to remind everyone about Merrill Anderson's challenge "Ground Pounders". Hopefully everyone's workshops are a churning assembly line of Stukas, Typhoons, A-10As...and don't forget those Breguets and Blochs! Until the meeting!



### **Airline Chatter** by Terry Love

Mitsubishi is presently designing a passenger jet airliner.

Boeing delivered its 700th Boeing 777 to Cathay Pacific on March

6. Cathay Pacific now operates 24 Boeing 777s with 23 more on order. Cathay Pacific also operates 19 Boeing 747 freighters with 16 more on order.

Boeing has orders for 1060 Boeing 777 with 55 customers. 700 have been delivered.

Southwest Airlines has been fined a record \$10.2 million by the FAA, for failing to inspect 43 airliners for structural cracks.

Birman Bangladesh Airlines ordered 4 Boeing 777-300s and 4 Boeing 787 Dreamliners for \$1.3 Billion.

Singapore Airlines took delivery on March 12, of their third Airbus A-380 super jumbo jet. They are now operating revenue flights to Europe using the A-380.

Continental Airlines, Delta Airlines, Spirit Airlines, and Jet Blue have all been granted rights to fly from the USA to Columbia.

Air Tran added San Juan, Puerto Rico to their route system from Atlanta and Orlando.

Delta Airlines added New York JFK to Tel Aviv, Israel to their route system. They already operate from Atlanta to Tel Aviv.

Big Sky Airlines ceased operations on March 7. They were owned by Mesaba Airlines.

Airbus announced an order from CIT Group, an aircraft leasing company, for 15 Airbus A-320s and 5 Airbus A-330s. Deal is worth about \$1.9 Billion.

Boeing announced a huge order, although they did not identify the customer. The order is for 40 Boeing 737-800s, 10 Boeing 777s, and 35 Boeing 787 Dreamliners. Value of the deal is over \$11 Billion.

Boeing now has 275 orders for

the year of 2008. Boeing also has 892 orders from 57 customers for the 787 Dreamliner.

El Al, the airline of Israel, bought 4 Boeing 777-200ERs for \$540 million.

Air France continues to purchase other airlines for expansion of their routes. Air France just purchased a very chaotic Alitalia Airlines for only \$184 million.

Northwest Airlines will eliminate all paper tickets effective June 1.

British Airways ended decades of loyalty to the Boeing 747, by ordering 12 Airbus A-380 super jumbo jets. But British Airways also 24 Boeing 787 Dreamliners. these deals are worth \$8.2 Billion. British Airways also took options for 7 more Airbus A-380s and 18 more Boeing 787 Dreamliners.

Delta Airlines wants to cut staff by 2000 employees. With jet fuel costing so much, Delta will cut back on the number of domestic flights by at least 5%, and domestic expansion plans.

United Airlines is going to park up to 20 of their least fuel efficient airliners.

Northwest Airlines is also planning capacity cuts in their routes, but not until later this year.

Aloha Airlines filed for Chapter 11 bankruptcy on March 19, 2008. Cost of jet fuel is the main reason.

Korean Airlines ordered an additional three Airbus A-380s on top of the 5 that they already had ordered.

United Airlines and Continental Airlines merger talks are picking up their pace.

Boeing announced that the second new Boeing 787 Dreamliner is complete. It will be used as a test

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between 5 and 7 months from contract date. This was for the wood and metal version which was also recommended by the Experimental Engineering Section at Wright Field. But engineering work was already completed on the all wood version and General Echols directed Bell to proceed with the all wooden fighter.

Bell was plagued with setbacks as it found it had to farm out most of the wood work at the height of the glider build-up, when subcontractors were already expanding to their limit. Costs rose and delay followed delay without even counting the problems with the new engines which were suffering cooling problems. The Air Corps was alarmed over the delays and costs over runs of not only the XP-77, but also of the XP-62, XP-60, XB-19A, XB-29 and XA-26. They recommended utilizing the style of contract used with North American Aviation for experimental aircraft.

By the end of May, 1943, it was recommended the XP-77 be terminated, as the Air Corps feared it would affect P-63A and XP-59A development. On second thought it was decided to complete two of the aircraft to obtain data on the type of construction and performance capability of them. In August, Bell estimated it could finish the two aircraft for just over \$1.8 million and the delivery dates would be 31 January and 1 March, 1944.

In February, Bell still had not received its first wing panel from the subcontractor. In fact the original wing subcontractor had to be dropped and a new one found. Finally on 1 April, 1944, the first aircraft (43-34915) took to the air for 25 minutes and all was reported satisfactory. It spent May at Wright Field going through vibration tests which were unfavorable due to the lack of engine mount, the V-770 being bolted directly to the engine bulk-head. Both aircraft were directed to Eglin Field for fuel consumption and operational testing as

soon as possible. The first aircraft was grounded due to damage to a nose gear failure but the second aircraft (43-34916) which was used for contractor demonstration flights, was ferried immediately from the Bell plant in Niagara Falls, N.Y., to Eglin Field, Florida, arriving on 22 July, 1944. Preparing to return this aircraft to Wright Field for official AAF performance flight testing, the pilot attempted to perform an Immelman and had gone into an inverted flat spin. The pilot bailed out and was uninjured but the plane was totally destroyed.

During July and August, -915 was being tested at Eglin Field and cruised and climbed 30 mph and 150 fpm slower than design estimate and was 157 pounds overweight. Top speed was 316 mph at 5,000 feet.

Following this evaluation it was recommended no follow on aircraft be completed. One thought was as a possible advanced trainer, but Eglin recommended against it.

By October, 1944, Bell was requesting complete termination of the contract and it was officially concluded on 2 December, 1944.

First flight was 9 days short of one year late. Cost for two aircraft rose to more than four times that for the original estimate for six. Engine output and performance gave the XP-77 lackluster performance. At war emergency power it was considerably slower than most interceptors at regular military power. Using the non-turbocharged engine for which it was not designed, its rate of climb was very low and its surface ceiling rendered it useless in its design capacity.

Its general handling characteristics were satisfactory although the trim tabs for the controls were only ground adjustable while most other aircraft could be trimmed in flight. Visibility was good but vibration was bad. A high speed of 328 mph was obtained at military power at 12,600

feet, while 330 mph was obtained at war emergency power at 4,000 feet and at war emergency power a 3,630 fpm rate of climb was obtained at 2,000 feet.

In general the Bell XP-77 was a total failure but an interesting experiment. Hard to believe that this aircraft was under development in the same building as America's first jet aircraft, the Bell P-59, yet more than a year behind it.

#### DESCRIPTION:

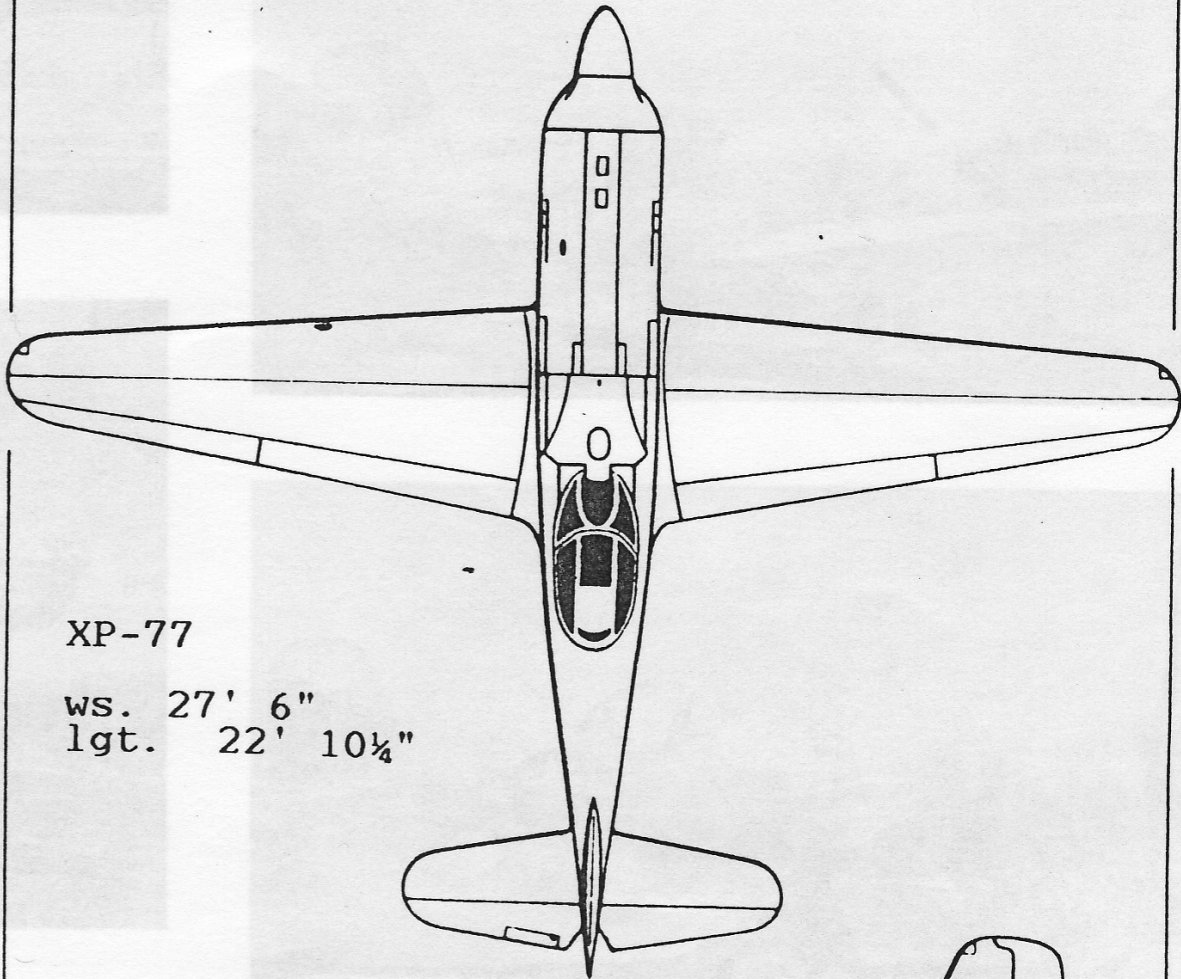
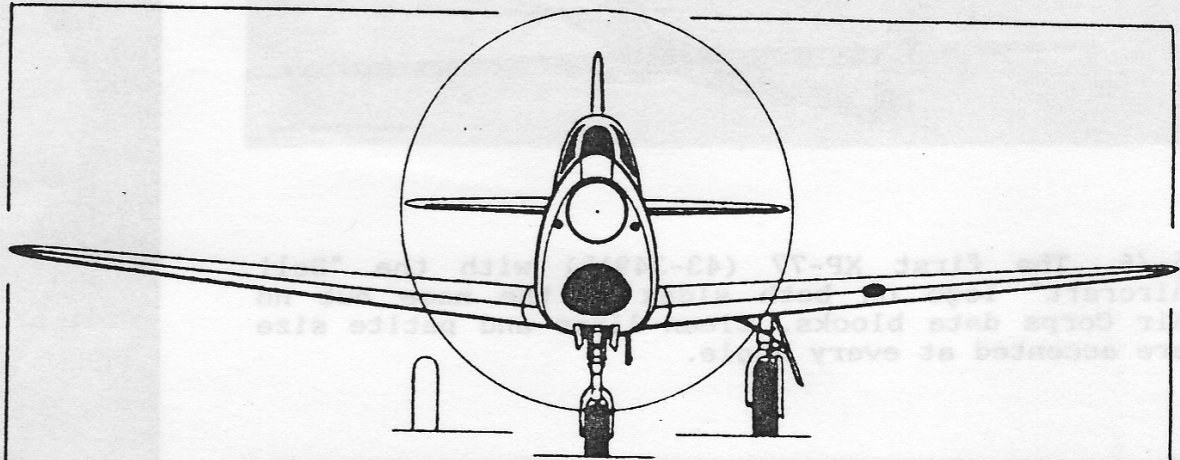
XP-77 was a light weight all wooden fighter. The fuselage was a single piece unit of resin bonded laminated wood consisting of a stressed skin-stringer combination with transverse frames. Fume tight bulkheads were between engine, fuel tank and cockpit. Engine bolted directly to bulkhead with no mount. The wings also were constructed of resin bonded laminated wood and had a mono-spar and stressed skin and were detachable. Armament consisted of two .50 cal machine guns mounted in the nose with a gun camera mounted below the left gun.

The Ranger V-770 was a 12 cylinder engine of 500 hp that would have propelled the XP-77 along at 410 mph at 27,000 feet with the use of a turbo charger. The engine turned a two bladed Aero-products propeller with a 9' 6" diameter. The turbocharged engine was never installed in the XP-77s and its performance reflected this.

#### SPECIFICATIONS:

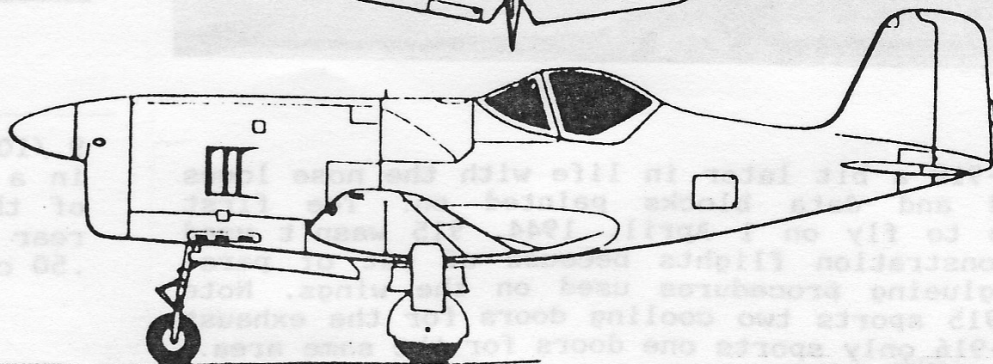
Wing Span: 27' 6"  
Length: 22' 103"  
Gross Weight: 3671 pounds Initial Climb: 3600 fpm  
Range: 305 miles (high speed) 52 gals fuel, no bombs Ceiling: 30100 feet  
Armament: 2 M-2 .50 cal guns, 200 rounds each  
325 pounds of bombs  
Engine: 12-cylinder Ranger SGV-770C-ID 520 t/o hp @ 3150 rpm

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XP-77

ws. 27' 6"  
lgt. 22' 10 $\frac{1}{4}$ "



(Continued from page 3)

aircraft, as well as the first built 787. Currently there are 21 787 Dreamliners are on the production line in various steps of construction.

U S airlines carried 769.4 million scheduled passengers in 2007, which was up 3.3% over 2006. U S airlines carried over 90 million international passengers in 2007, which was up 4.7% over 2006. U S airlines operated 10.7 million flights in 2007.

American Airlines has a problem. They have about 300 MD-80s, which burns about 20 to 30 percent more fuel than a Boeing 737-800. The MD-80s average age is 18 years old. They will need replacement soon. Therefore, what do they do. Do they order Boeing 737-800s or do they wait for the replacements for the current generation of narrow-body jets, like the Airbus A-320 or the Boeing 737. Boeing, Airbus and engine manufacturers are exploring the next-generation designs, but they have not committed to any timetables yet. They probably would not be available until about 2016 or 2017. By then the MD-80s would be 10 years older or about 28 years old, and, in the meantime, they burn 20% more fuel than others. Both Boeing and Airbus have increased their technologies by great amounts since the 737s, MD-80s, and A-320s were designed, mainly in composite materials, weights, and engine efficiencies.

Northwest Airlines has the oldest average age of its fleet with 17.5 years. American Airlines is second with 15.9 years old average.

American Airlines has 124 Boeing 757s which average 13.9 years old. Also their Airbus A-300s average 18.8 years old. But, their Boeing 767s average 21 years old.

American Airlines says that an MD-80 burns 3,334 gallons of jet fuel on an average flight from Dal-

las to New York. At over \$3.00 per gallon for jet fuel, that comes or about \$10,000. If the plane is full, that is about \$70 per passenger cost is fuel. What is the price of a ticket? Most are around \$100 per passenger each way. That leaves very little money for operations, salaries, equipment, etc.

Boeing says that a 747 holds 55,000 gallons of jet fuel. At \$3 per gallon, it costs \$165,000 just to full up the fuel tanks. That is \$413 per passenger for fuel. That is why on those long-range flights, tickets are usually over \$500 each way.



Historical Society, Summer 1983.

United States Army and Air Force Fighters 1916-1961, Robertson, Harleyford, 1961.

U.S. FIGHTERS, L.S. Jones, Aero, 1975.

\*\*\* Best reference above is the Winter, 1981, AAHS Journal; includes 17 page history, 23 photos and 3-view.

\*\* Next best is Lloyd Jones' US Fighters book which gives a 3-view, 3-photos and history on 3 pages.



(Continued from page 4)

PAINT SCHEME: As best to my knowledge the XP-77's were painted with a silver dope. Only markings were larger tail serials on tail and national insignia (blue and white) on fuselage and wings. Variations you could add would be Aeroproducts logo on both propeller blades, data blocks on lower rear of left fuselage insignia and left side below front of cockpit. 915 during early run ups only had 915 on the vertical fin and later had all six numbers 334915 on fin and rudder. It also sported "BELL Aircraft" on left and right side of the nose. 334916 carried no company logo but the full serial.

REFERENCES:

The American Fighter, E. Angelucci, Orion, 1985.

Fighters of the United States Air Force, Dorr & Donald, Military Press, 1990.

JOURNAL American Aviation Historical Society, Winter 1981.

JOURNAL American Aviation

Book Review  
**Spitfire vs Bf109**  
**Battle of Britain**  
Tony Holmes, Jim Laurier and Mark Postlethwaite

Review by Osprey Publishing



Churchill's words, 'never was so much owed by so many to so few', came to encapsulate how, in a few critical months, the entire fate of the British Empire, if not the war, hung in the balance, to be determined by a handful of pilots fighting tirelessly in the skies over Britain. Tony Holmes describes the Battle of Britain, the clash between the Spitfire I/II and the Bf 109E - de-

(Continued from page 6)

tailoring not only the key elements of both air-craft types - the airframe, engine, armament and flying characteristics, but also the pilots' training and tactics accompanied by diagrams of actual flight formations. The growing influence of radar and the efforts of British air defenses are also examined, as are real-life engagements - from both German and British perspectives. With a wealth of first-hand accounts from the veterans who strapped themselves into these legendary machines as well as illustrations and cockpit-view artwork, this book puts the reader in the midst of a dog-fight, providing a unique insight into one of the greatest duels of history in the world's first major aerial battle.

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Includes interviews with surviv-

ing aces explaining the strengths and weaknesses of both aircraft when engaged in dogfighting

Written by Battle of Britain expert and Osprey aviation editor Tony Holmes

This is the 5th title in Osprey's "Duel " series, which provides accounts of machines of war pitted against each other and the combatants who operated them. Step onto the battlefield and immerse yourself in the experience of real historic combat.

Tony Holmes has worked as Osprey's aerospace editor since 1989. He established the critically acclaimed and hugely popular Aircraft of the Aces series in 1994. Tony has written more than 20 books for Osprey in the past 17 years. He has had a lifelong fascination with the Battle of Britain and is in contact with the surviving veterans of this critical conflict.

Jim Laurier is a native of New

England and lives in New Hampshire. He attended Paier School of Art in Hamden, Connecticut, from 1974-78, and since he graduated with honors, he has been working professionally in the field of Fine Art and Illustration. He has been commissioned to paint for the US Air Force and has aviation paintings on permanent display at the Pentagon.

Mark Postlethwaite is a leading aviation artist and currently does all the cover artwork for the Aircraft of the Aces and Combat Aircraft series for Osprey Publishing and is based in Leicester, UK. Mark completed the battlescene painting in this volume.



## ON THE TABLE March 2008

Name	Model	Manufacturer	Scale
Bernie Kugel	CVN-71 T. Roosevelt	Italeri	1/720
""	USS Hornet	Trumpeter	1/700
Don Burgoyne	KV-II	Trumpeter	1/35
""	Panzer II J	Alan	1/35
Johannes Allert	Sherman flail	DML	1/72
""	Sherman Hybrid	DML	1/72
""	M48 Patton	Revell	1/72
Mark Jacques	Sherman Early	Tamiya	1/35
John Bernier	Templar Sergeant	Andrea	75mm
Larry Donovan	TF-104G	Revell	1/144
Steve Erickson	MiG-3	Trumpeter	1/48
Steve Rewey	German Sabre Mk.5	Hasegawa	1/48
Steve Hustad	Fw.190D dio	Tamiya	1/72
Merrill Anderson	Stug III dio	Old Tamiya	1/35
Don Stauffer	Ryan NYC "Spirit of St. Louis"	Revell	1/48
""	Edwald L. Ryerson	Scratchbuilt	1/500
Steve Jantscher	E-10 tank destroyer	Trumpeter	1/35
Bob Maderich1	941 Chevy Pick-up	Revell	1/25
Kyle Nelson	KV-85	Tamiya	1/35
David Nelson	Sdkfz 753 (KV-II)	Trumpeter	1/35
John Eian	Sabre Mk.4	Hasegawa	1/48

## Directions to the Club Meeting Location

**Where: South St. Paul Municipal Airport, a.k.a. Fleming Field,** located on the southern extremity of South St. Paul, south of I-494, west of Concord Street and East of Highway 52.

### If coming from the western Twin Cities going east on 494:

- Exit at the 7th and 5th Avenue exit (Exit No.65)
- Turn right (South) on 7th Ave and go approximately .6 miles to a 4-way Stop sign. This is South Street W. To your left there will be a McDonald's; to your right front there will be a Walgreen's.
- Turn left (East) at the 4-way Stop onto
- South Street W and go approximately .6 miles. Along the way you will encounter three more Stop signs—the third Stop sign (Henry Avenue) will be a "T" intersection. At the "T" intersection on your left will be homes and on your right softball fields.
- Turn right (south) onto Henry Ave. and go approximately .2

miles toward the Fleming Field airport terminal building.

### If coming from east Twin Cities on westbound 494:

- Exit at the 7th and 5th Avenue exit (Exit No.65)
- Turn left (South) on 7th Ave and go approximately .6 miles to a 4-way Stop sign. This is South Street W. To your left front there will be a small strip mall; to your right there will be an Amoco station.
- Turn left (East) at the 4-way Stop onto
- South Street W and go approximately .4 miles. Along the way you will encounter two more Stop signs—the third Stop sign (Henry Avenue) will be a "T" intersection. At the "T" intersection on your left will be homes and on your right softball fields.
- Turn right (south) onto Henry Ave. and go approximately .2 miles toward the Fleming Field airport terminal building.

The terminal is on the right with parking available.

Twin City Aero Historian  
**Rick Schmierer**  
 1852 E. 39 Street  
 Minneapolis, MN 55407

Return address requested

The Aero Historian is published monthly by the Twin City Aero Historians, Inc., a joint chapter of the American Aviation Historical Society and International Plastic Modelers Society/USA, for members and readers as part of their annual dues or fees.

The group is open to aviation enthusiasts from teenagers on up who are interested in aviation modeling, photography, collecting, art and writing. For more information contact Ken Hornby at 651-552-0888

The Twin Cities Aero Historians (TCAH) meet the second Saturday of every month at 1:30pm.

See above for the new meeting locations and directions.

Mail Newsletter material and address changes to the treasurer.

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