The Flightline

Volume 40, Issue 3 Newsletter of the Propstoppers RC Club AMA 1042 March 2010

President's Message

This winter is flying by, but then so is the club's new indoor field [Brookhaven Gym] it has been great .The turn out has been great too.

Chuck has been doing a good job of keeping all the planes flying and getting the most out of the time we are there. Don't forget indoor flying at Tinicum School, Friday March 5th, and remember the club is picking up the tab for all of the events so come on out and play. Hope to have another flying night in Brookhaven in April.

Once again we have been invited to Middletown Townships Pride Day when we have more news we will let you know time and date.

The February meeting was cancelled due to weather, so no meeting, no minutes!

See you at the March meeting in the Middletown Library; 6 pm till 8 pm.

Show and tells are welcome

See you at the meeting

Dick Seiwell

Agenda for March 8th Meeting
At the Middletown Library;

Doors open 6:00 pm, Meeting 6:30pm, Library closes by 8:00 NEW HOURS

1. Membership Report
2. Finance Report
3. Summer Meet and Picnic Plans
4. Year Round Indoor Program Discussion
5. Show and Tell

INSIDE THIS ISSUE

Second Brookhaven Borough Gym Indoor Fun Fly

Well, another Great indoor event at the Brookhaven Municipal Hall. With almost 25 pilots, most with multiple models, and probably almost that number in spectators, the bleachers were full. I guess my plea for pilots to bring a friend, relative (read wife), or especially a kid, paid off. We had at least 7 or 8 kids that were active in some manner. Kids seem to have an affinity for choppers. Their fingers, groomed by hours at computer games, are a lot more nimble than mine. They do well.

Joe Mesko brought his, uh, well; I guess it could be called a model aircraft. Every time I turned around, the wing was someplace other than on the, uh, plane.

Dick Bartkowski has been experimenting with small electric free flight models for several years. He had his granddaughter, and son and wife, with him. A few lessons and his granddaughter was flying like a pro.

We had a couple visitors from New Jersey. They have been to Tinicum in the past. Steve flew a Vapor and I believe a chopper. Lou, a friend of Al Busualdo, brought a couple larger 3-D models. He and Al flew several 3-D sessions. The other flyers and spectators were impressed. They did a bang up job. Al also flew several small models with equal skill, adding to the excitement. He also brought his own cheering section, a gentleman he works with that is getting into the hobby, and his 2 sons.

Dave Harding had his small scale free flight Lancaster out for the first time in about eight years. Problems kept it from flying well. Turned out 1 of the 4 motors was quitting causing it to spiral in to the left; Fixable.

Editor Dave Harding with old four-motor Lancaster free flight

Calendar of Events

Club Meetings

Monthly Meetings
Second Tuesday of the month.
Middletown Library
Doors open at 6:00, meeting at 6:30 pm.

8th March
Tuesday Breakfast Meeting
Tom Jones Restaurant on Edgemont Avenue in Brookhaven.
9 till 10 am. Just show up.
Flying after at Chester Park 10 am.

Indoor Flying

At the Tinicum School Gym.
6:30 – 9:30 PM.

March 5, 2010

At Brookhaven Boro. Gymnasium
April TBD 6 till 9 pm

Regular Club Flying

At Christian Academy; Electric Only
Monday through Friday after school till dusk
Saturday 10 am till dusk
Sunday, after Church; 12 pm till dusk

Special Club Flying

Saturday mornings 10 am
Thursday evenings in the Summer
Tuesday mornings 10 am weather permitting after breakfast at Chester Park.

Check our Yahoo Group for announcements;
http://groups.yahoo.com/group/propstoppers/

Beginners

Beginners using due caution and respecting club rules may fly GWS Slow Stick or similar models without instructors.
The club also provides the AMA Introductory Pilot Program for beginners without AMA insurance.

Propstoppers RC Club of
Delaware County, Pennsylvania.
Club Officers

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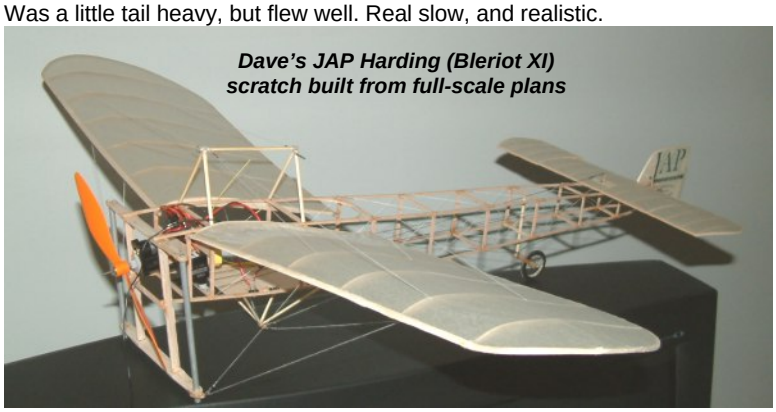
Propstoppers Web Site; www.propstoppers.org

He also had a nice scale scratch built JAP Harding (Bleriot XI). Was a little tail heavy, but flew well. Real slow, and realistic.



Dave's JAP Harding (Bleriot XI) scratch built from full-scale plans

Dave Bevan KA3UMI had his usual box of Delta Darts and gliders to keep the kids interested.

One gentleman, Mike (I forget his last name, I believe Simmons) had one of the new Larger dual rotor choppers. He was new at flying it but was getting the hang of it. It is very impressive in the air. I don't think it will ever be 3-D, but it sure looks good. Can't wait to see it when he has more time with it.

There was very little time that there weren't 6 or 8 planes in the air. The whole evening flew by (pun intended). More than one pilot ended up flying someone else's plane instead of theirs. Couldn't figure out why it didn't do what they wanted. There was also a lot of CA used during the night.

Now my moment if you will---

As most of you know, I volunteered to run the Indoor events for the club. I have tried to do this in a manner which allowed everyone to have a good evening, in a safe and pleasant atmosphere. This is not always easy, but I try. If anyone has any suggestions for events, such as pylon races for Vapors, or Embers, please speak up. The same goes for complaints. I will consider all comments, good or bad, in a manner that is consistent with safety, and the club desires. But please tell me.

And on a better note; for all those who had a good evening, TA-DA--- we will be able to have another Brookhaven night in April. Stay tuned for more info. And TA_TA_TA_DA-- we will probably be able to start again some time in November. President Dick has been talking with Harry Swagman in regards to available nights.

By the way, Harry was the gentleman in the denim shirt that was hovering around and taking pictures all night. He is Da Man that has the scheduled. He has really developed a liking for what we do. He especially likes to see the kids having a good time.

I have probably missed a few things but I'll try to take better notes next time. Until then, any comments can reach me at- chuxtruk@yahoo.com Till then

Fly Safely,

Chuck Kime

(I would have published your pix had I received any, so; you got me! Ed.)

The Balsa Story

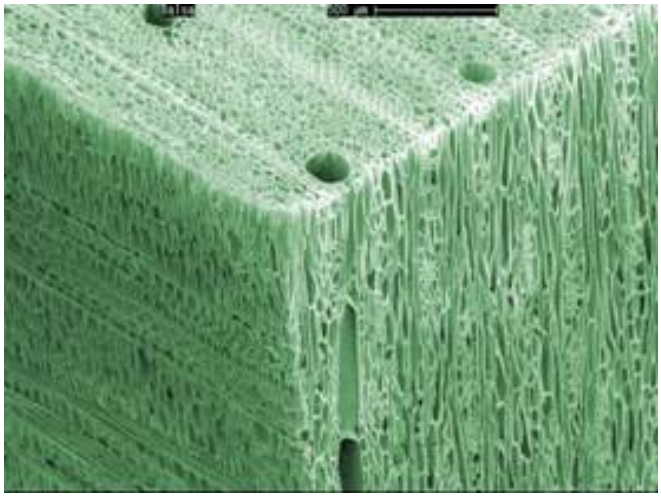
By Ted Horne and others.

Until about 1930 balsa was unknown in the modern civilized world, and as far as I know only existed in Ecuador where it was considered to be a weed.

Wind blown seeds of the balsa tree lie on the forest floor for many years until the right conditions for germination occur. The right conditions in Ecuador occur when the natives clear a patch of forest for cultivation allowing sunlight and hence heat to fall on the dormant seeds on the forest floor thus starting the process of germination. Young balsa seedlings grow faster than any of the other seedlings which are found on the rain forest floor, and they develop enormous leaves, which in an adult tree can be as much as eighteen inches across. These leaves in turn block out the sunlight and warmth from all the other plants, including weaker balsa seedlings, which just shrivel and die though lack of light. It is for this reason that the forest dwelling Ecuadorians consider the balsa trees a weed, as it is of no use to them as food, too soft for construction purposes, and to harvest it commercially requires a certain amount of skill and careful husbandry.

Young balsa trees grow very fast and can reach a height of sixty feet in less than eight years, and yet have a diameter of only ten inches. If the tree is left to grow to a maximum size, it could reach a height of one hundred feet, and be as much as eight feet in diameter. The density, however, would be in the order of fifty or sixty pounds per cubic foot; this is of no use as a modeling material.

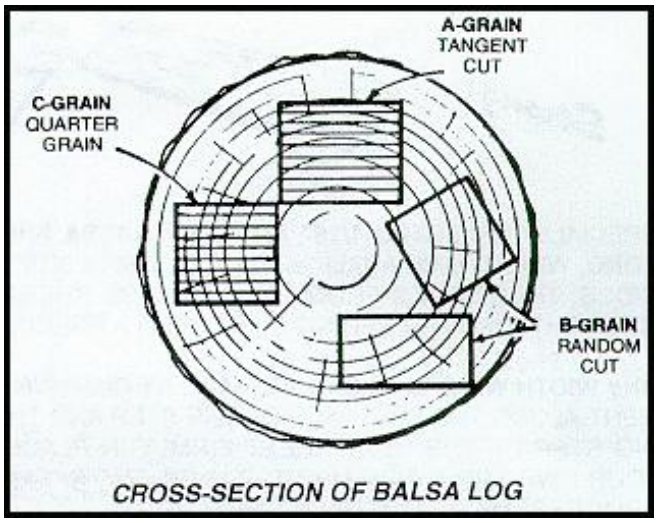
A tree of about eight years, providing it has had the right treatment, nutrients, sunshine etc., will have a density of between four and eighteen pounds per cubic foot and it is at this age that the tree will be harvested for the purpose of supplying the modeling industry. Should the main trunk be rubbed, bumped, or bruised at any time during these eight years, hard areas will develop which will destroy its value.



The secret to balsa wood's lightness can only be seen with a microscope. The cells are big and very thin walled, so that the ratio of solid matter to open space is as small as possible. Most woods have gobs of heavy, plastic-like cement, called lignin, holding the cells together. In balsa, lignin is at a minimum. Only about 40% of the volume of a piece of balsa is solid substance. To give a balsa tree the strength it needs to stand in the jungle, nature pumps each balsa cell full of water until they become rigid - like a car tire full of air. Green balsa wood typically contains five times as much water by weight as it has actual wood substance, compared to most hardwoods which contain very little water in relation to wood substance. Green balsa wood must therefore be carefully kiln dried to remove most of the water before it can be sold. Kiln drying is a tedious two week process that carefully removes the excess water until the moisture content is only 6%. Kiln drying also kills any bacteria, fungi, and insects that may have been in the raw balsa wood.

When the raw log is taken to the sawmill it is cut up in such a way so as to get as many boards as possible out of a single trunk. This ignores the way in which the growth rings lie relative to the way the board is cut. The board that passes right through the centre of the tree will be quarter or “C’ grain, and be very stiff when it is bent across its width as the growth rings will be closest together and lie at right angles, relative to the width of the board. As the boards move further away from this central board, so the growth rings tend to lie in line with the width of the board and as a result the boards become more flexible across their width. The board closest to the outside comprises just two or three growth rings instead of ten or so. This board is known as “A” grain and is very flexible across the width of the board. Boards between types “A” and “C” will contain what is generally known as “B” grain which is a mixture of “A” and “C” with some ”A” at the centre and some “C” at the extremities. The exact ratios will depend upon the position relative to the central board. From the above it can be seen that very little “C” grain wood is produced from a single tree, maybe less than 10%.

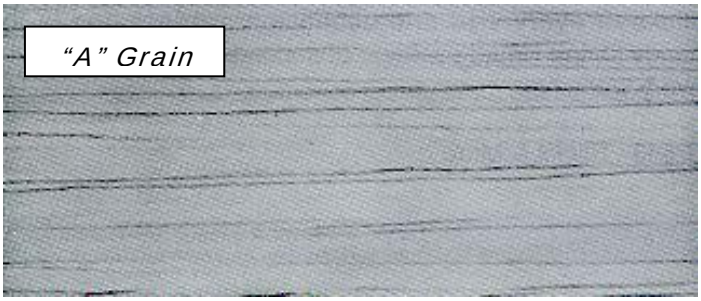
To cut a tree up in such a way as to produce a reasonable quantity of "C" grain wood, would create such an unacceptable quantity of waste, that the price from the sawmill, and consequently the model shop, would have to double, or even treble.

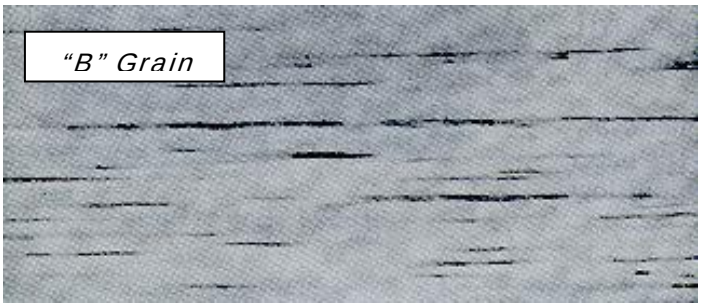


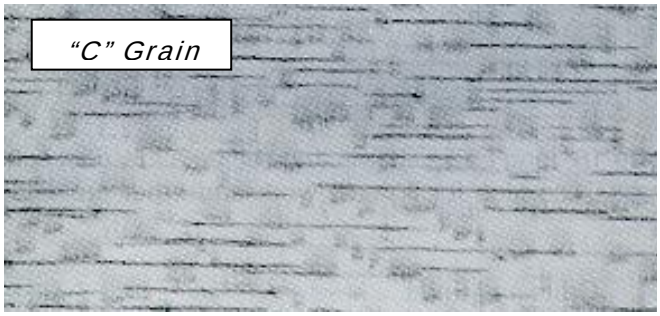
When I go into my local model shop to buy wood I often see somebody buying 20 or 30 sheets of say 1/8th inch wood, and just taking the first 20 or 30 sheets out of the rack, without thinking about the grain or the density. For me, if I want 1/16th "C" grain sheet I pull a whole rack of sheets out and examine each sheet individually and maybe select one sheet in ten or less, I then weigh them and invariably reject at least 50% as being too heavy. I am most grateful to those people who just take the first 30 sheets because it means that there is a good chance that there will be some sheets that fulfill my requirements, unless of course someone like me gets to the rack before I do. Most of the small models that I build contain about 70% 6 pound per cubic foot or less "C" grain wood, and the power models perhaps 40%. If I can't get what I want from the local shop I go to someone like Peck Polymers; http://www.peck-polymers.com/newreleases.asp where I know that I can specify the weight and grain and get just what I want. The price that I have to pay is higher than the local shop, but as the quantity of wood I use during the year is relatively small the cost is not a real factor. (Suppliers like Lone-Star and National Balsa will try to provide you with "contest grade" but the results are spotty and you might only get a small portion of your order filled to your satisfaction. Ed)

Knowing the density of the wood that is needed for a particular component, there is only one set of figures that need to be remembered before buying a sheet of wood, and these are:- 1 sheet of 1/8th x 4in x 36in six pound per cubic foot wood weighs 28 grams, or to be exact 28.35 grams (or in old money units 1 ounce Ed.). Using these figures it is not very difficult to work out that if the selected sheet weighs 35 grams, then the density is 35/28 x 6,which is 7.5lb wood. Similarly for 3 inch wide 6lb density wood, it would weigh ¾ x 28 = 21 grams. From this single set of figures the density of any single piece of wood may be established, by using a set of scales calibrated in gram increments, and a simple calculator.

Identifying the different types of grain can sometimes be difficult, bending them across the grain is a good test with thin sheets, but with thicker sheets it is a bit more difficult. "A" grain wood generally has long straight grain lines and is uniform in color, whereas, "C" grain tends to have short grain lines, as well as very short lines which go across the sheet, and almost appear like circular saw marks. If a thin sheet is held up to the light, these marks become very apparent. To me, "C" grain has an almost satiny sheen to its surface and appears blotchy whilst "A" grain is smooth, has straight grain lines, and is very uniform.







You may think by now that you know all there is to know about buying wood of the right quality for the job in hand, but nothing is quite that easy. During the life of our tree it may have had a year of poor sunshine which resulted in one of the growth rings not developing properly allowing the individual cells to grow closer together, thus creating a hard area on one side of the sheet. Your scales may say the sheet is eight pound wood, but the reality is that one side may five, and the other eleven pound wood. Holding it up to the light will quickly tell you which are which, if you have not already done the finger nail test.

There are two more areas that can give you incorrect densities on thin sheets of wood, and these are:- 1) 1/16th sheet (.0625in) can vary by as much as 15% in thickness, and 2) The thickness across the width of the sheet can vary, again by as much as 15%. I have come across both of these faults, but mainly in kits that I have been asked to build and review. With large radio models the density of the wood used

in the construction is not the critical factor that it is with indoor models. The first Lacey M10 that I built, albeit from a kit, weighed 15 grams, the last one, less what I considered some unnecessary structure, came in at 8 ½ grams which in ultimate performance gave a significant increase. Don't be put off by all of the foregoing when you go to your local model shop to buy wood, but be aware that with a little bit of careful selection, your finished model could perform well instead of having the characteristics of a brick.

Actually there is another way to get the balsa you need. "Dave, I have been thinking about building a new XYZ but I will need some medium hard ¼ inch square balsa sticks for the fuselage longerons…….

And yet another very rare way. "Dave, would you like some five foot balsa"? "I am moving and need to disperse the contents of my 30 year collection of modeling stuff". So said Ed Goretzka last week. Would I ever!

So Mick Harris, Chuck Kime and I visited Ed and they sifted through his stuff while I carted out box after box of balsa. It seems that Ed travelled a good deal in his business and instead of gorging himself at the never ending "great restaurants" he visited the local hobby stores. And, just like the fellow who wrote the article above, he sorted through the balsa stock. I ended up with half a van load of balsa, much of it sorted into boxes of "C" Grain and "Contest Grade" stock. It has taken me a week just to sort and organize the storage of the sheet material. I have one huge box of sorted sticks of all sizes that will just have to be stored in another location, and I haven't even thought about what to do with the block material and Ed's working stash of short stock sheet and strip. But I now have three modeling lifetimes worth of material so I should never have to leave my shop to get what I need (yeh, right!). And of course I am more than willing to share it with any club member that is actually going to build something. Here is the store as it looks today. The empty box at the front was reserved for strip stock but is not nearly big enough!

Ted Horn, Dave Harding and others.

70th Anniversary of Jet Flight

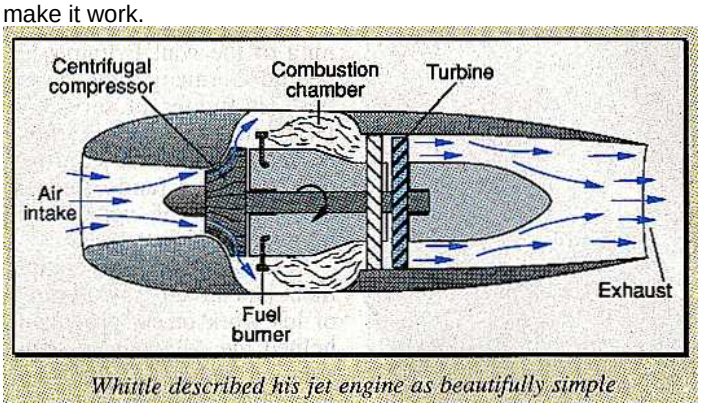
Well, more like 70 ½ but who's counting. It is just that there are some e-mails, you know, the kind that we all receive and some of us share…. Anyway, I suppose it took six months for them to reach me as the first flight took place on 27th August 1939, three days before the start of WWII. But the story of jet development is very interesting for many reasons some of which are to do with the way Governments help or hinder.

The basic desires, thoughts and ideas lead back hundreds of years but the actual threads that lead directly to the first jets began in the 1920's.

Whittle

In 1923 Frank Whittle, a motor mechanic's son, gained a place as an apprentice at RAF Cranfield . There he was active in the Model Aircraft Society where he built airplane replicas. The quality of these attracted the eye of his commanding officer, who felt that Whittle was also a mathematical genius. He was so impressed that in 1926 he recommended Whittle for officer training. Completion of the officer training required the candidate to write a technical paper. Whittle wrote one on high speed - high altitude flight technology that formed the basis for his subsequent definition of the jet engine which he patented in 1930.

His ideas were turned down by the RAF because the senior government technical expert believed it impossible to achieve the turbine and compressor efficiencies necessary to make it work.

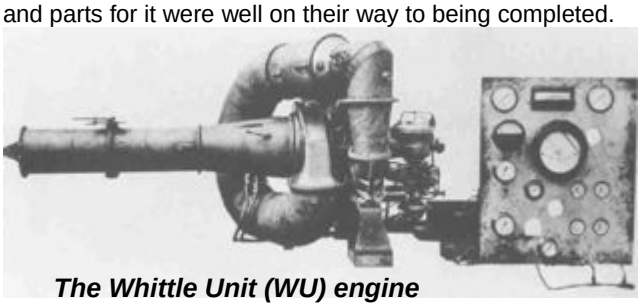


Whittle described his jet engine as beautifully simple

Whittle's RAF career then took him to study at the Officer's Engineering Course at RAF Henlow where he scored so high that he was then sent to Cambridge University for a further two years study, graduating in 1936 with a First Class degree.

In 1935 two of Whittle's comrades persuaded him to form a partnership aimed at the development of his jet engine ideas and they arranged initial funding from two investment banks. The January 1936 partnership was called Power Jets.

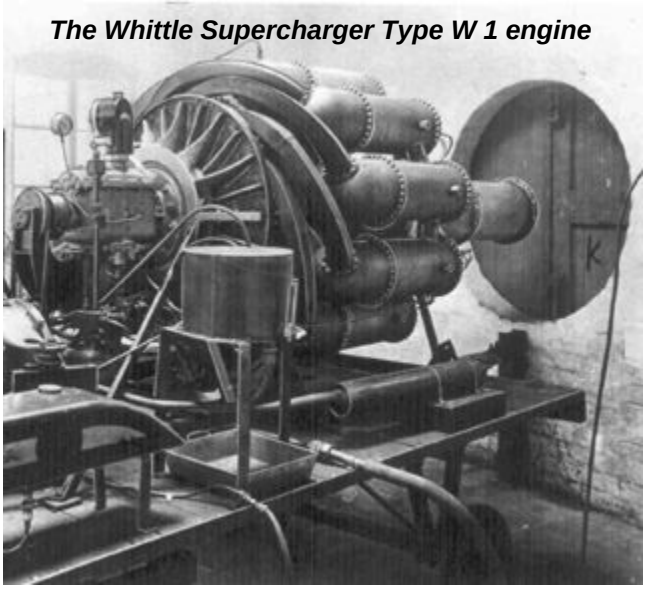
With this initial funding the partnership made arrangements with an old line British steam turbine company, British Thompson Houston, to design and build a working engine. By the end of the year the prototype detail design was finalized and parts for it were well on their way to being completed.



The Whittle Unit (WU) engine

January 1936, when the company formed, Henry Tizard, the rector of Imperial College London and chairman of the Aeronautical Research Committee(ARC), had prompted the Air Ministry's Director of Scientific Research to ask for a write-up of the design. The report was once again passed on to the same expert for comment, which was not received back until March 1937 by which point Whittle's design was well along. Astonishingly (well, maybe not) the expert gave some support but a good deal of criticism too the result of which was funding for the "expert's" own jet developments. Given this lack of official support the bankers withdrew from any further funding for Whittle. However, Whittle was able to continue to the point of actually running the WU engine on 12th April 1937.

The Whittle Supercharger Type W 1 engine



At this point Tizard declared Whittle to be "streets ahead" of any other advanced engine he had seen, and managed to interest the Air Ministry enough to fund development with a contract for £5,000 to develop a flyable version. However, it was a year before the funds were made available, greatly delaying development. In March 1938 the Air Ministry funds finally arrived. This proved to be a mixed blessing – the company was now subject to the Official Secrets Act, which made it extremely difficult to gather more private equity. These delays and the lack of funding slowed the project.

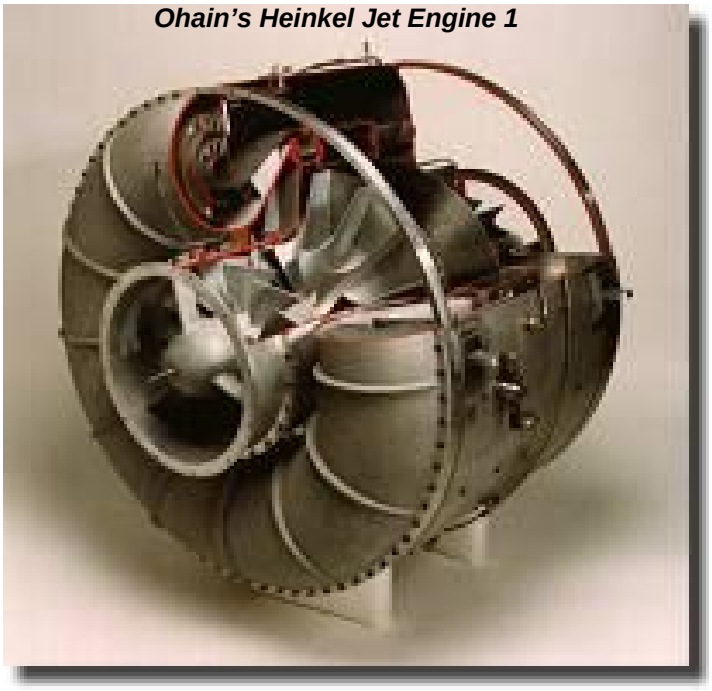
Ohain

Hans von Ohain earned a PhD in Physics and Aerodynamics from the University of Göttingen, then one of the major centers for aeronautical research. (You do know about all those Gottingen airfoils, don't you?) During his studies in 1933 he conceived of "an engine that did not require a propeller. His engine, like Whittle's, used a centrifugal compressor, but unlike Whittle he used a centrifugal turbine too; just like your automobile's turbocharger. He patented it in 1936.

In February 1936, his professor wrote to Ernst Heinkel on behalf of von Ohain, telling him of the design and its possibilities. Heinkel arranged a meeting where his engineers were able to grill von Ohain for hours, during which he flatly stated that the current "garage engine" would never work but there was nothing wrong with the concept as a whole. The engineers were convinced, and in April, von Ohain was set up at Heinkel's works. They decided to produce a completely new engine incorporating all of these changes, running on hydrogen gas. The resulting *Heinkel Jet Engine 1*, was built by hand-picking some of the best machinists in the company, much to the chagrin of the shop-floor supervisors.

The engine was extremely simple, made largely of sheet metal. Construction started late in the summer of 1936, and completed in March 1937. It ran two weeks later on hydrogen, but the high temperature exhaust led to considerable "burning" of the metal. The tests were otherwise successful, and in September the combustors were replaced and the engine was run on gasoline for the first time

Ohain's Heinkel Jet Engine 1



Jets to Airplanes

Ohain

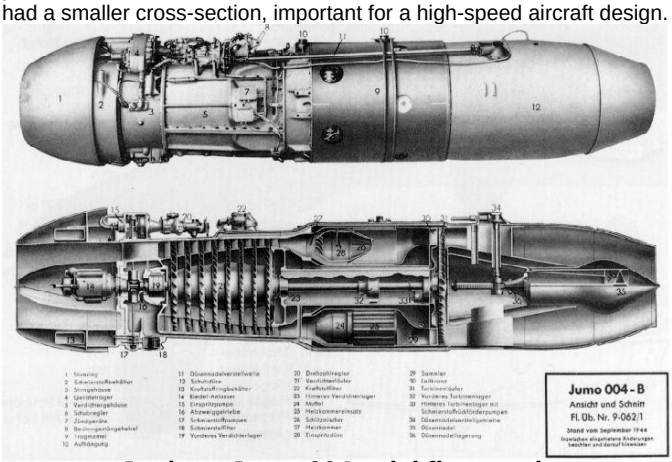
While work on Ohain's HeS 1 continued, the team had already moved on to the design of a flight-quality design, the **HeS 3**. The major differences were the use of machined compressor and turbine stages, replacing the bent and folded sheet metal, and a re-arrangement of the layout to reduce the cross-sectional area of the engine as a whole by placing the flame cans in an extended gap between the compressor and turbine. The original design proved to have a turbine area that was simply too small to work efficiently, and increasing the size of the turbine meant the flame cans no longer fit in the gap correctly. A new design, the **HeS 3b** was proposed, which moved the flame cans out of the gap and modified their shape to allow the widest part of the cans to lie in front of the compressor's outer rim. In the 3b, compressed air was piped forward to the combustion chambers, and from there the now-hot air flowed rearward into the turbine inlet. While not as small as the original HeS 3 design, the 3b was nevertheless fairly compact. The 3b first ran July 1939 (some references say May), and was air-tested under the Heinkel He 118 dive bomber prototype.

Heinkel HeS 3b Engine

The original 3b engine soon burned out, but a second one was nearing completion at about the same time as a new test airframe, the Heinkel He 178, which first flew on August 27, 1939, the first jet powered aircraft to fly by Test pilot Erich Warsitz.

The He 178 V2 (note the squared-off wingtips). Contrary to the caption, this particular aircraft only flew as an unpowered glider. Nevertheless, the demonstration to high Luftwaffe staff did not energize development of production applications because Hitler believed it would be a short war and maximum effort should be applied to production of existing aircraft.

But efforts did continue on jet engine developments, now under the support and guidance of the Luftwaffe directorate. Most of the Reich Air Ministry remained uninterested, but Helmut Schelp and Hans Mauch saw the potential of the concept and encouraged Germany's aero engine manufacturers to begin their own programs of jet engine development. Heinkel with Ohain were not favored by the Nazi regime who did not want to further reward them by encouraging their entry into the engine business. The engine companies remained skeptical and little new development was carried out. Eventually in 1939 Otto Mader, head of Junkers Motoren (Jumo) stated that even if the concept was useful, he had no one to work on it. Schelp responded by stating that Dr Anselm Franz, then in charge of Junkers' turbo- and supercharger development, would be perfect for the job. Franz started his development team later that year, and the project was given the RLM designation **109-004** Franz opted for a design that was at once conservative and revolutionary. His design differed from von Ohain's in that he utilized a new type of compressor which allowed a continuous, straight flow of air through the engine; an *axial compressor*, recently developed by the Aerodynamic Research Institute at Göttingen. The axial-flow compressor not only had excellent performance, about 78% efficient in "real world" conditions, but it also had a smaller cross-section, important for a high-speed aircraft design.



Junkers Jumo 004 axial flow engine

The first prototype **004A**, which was constructed to run on Diesel fuel, was first tested in October 1940, though without an exhaust nozzle. It was bench tested at the end of January 1941 to a top thrust of 950 lb, and work continued to increase the output, the RLM contract having set a minimum of 1,300 lb thrust.
On July 18, one of the prototypes Messerschmitt Me 262s flew for the first time under jet power from its 004 engines, and the 004 was ordered into production by the RLM to the extent of 80 engines. The initial 004A engines built to power the Me 262 prototypes had been built without restrictions on materials, and they used scarce raw materials such as nickel, cobalt, and molybdenum in quantities which were unacceptable in production. Franz realized that the Jumo 004 would have to be redesigned to incorporate a minimum of these strategic materials, and this was accomplished. It was not until early 1944 that full production could finally begin. Technical setbacks were the principal factor delaying the Luftwaffe's introduction of the Me 262 into squadron service.
This was the engine used in the Me-262 and Arado Ar 234 bomber.

The V3 third prototype airframe became a true "jet" when it flew on 18 July 1942. In mid-1943 Adolf Hitler envisioned the Me 262 as an offensive ground-attack/bomber rather than a defensive interceptor, as a high speed, light payload ("Fast Bomber"), to penetrate Allied air superiority during the expected invasion of France. His edict resulted in the development of (and concentration on) the *Sturmvogel* variant. It is debatable to what extent Hitler's interference extended the delay in bringing the *Schwalbe* into operation. Albert Speer, then Minister of Armaments and War Production, claimed in his memoirs that Hitler originally blocked mass-production of the Me 262 before agreeing to production in early 1944. He rejected arguments that the plane would be more effective as a fighter against Allied bombers then destroying large parts of Germany and wanted it as a bomber for revenge attacks. According to Speer Hitler had felt that its superior speed compared to other fighters of the era meant that it couldn't be attacked and so had preferred it for high altitude straight flying.

In April 1944, *Erprobungskommando* 262 was formed at Lechfeld in Bavaria as a test unit (*Jäger Erprobungskommando Thierfelder*) to introduce the 262 into service and train a core of pilots to fly it. On 26 July 1944, *Leutnant* Alfred Schreiber with the 262 A- damaged a Mosquito reconnaissance aircraft of No. 540 Squadron RAF PR Squadron, which was allegedly lost in a crash landing upon landing at an air base in Italy. Other sources state the aircraft was damaged during evasive maneuvers and escaped. It was the first victory for a turbojet fighter aircraft in aviation history.

Whittle.

By June 1939 Power Jets could barely afford to keep the lights on when yet another visit was made by Air Ministry personnel. This time Whittle was able to run the W.U. at high power for 20 minutes without any difficulty. One of the members of the team was the Director of Scientific Research, David Randall Pye, who walked out of the demonstration utterly convinced of the importance of the project. The Ministry agreed to buy the W.U. and then loan it back to them, injecting cash, and placed an order for a flyable version of the engine. Whittle had already studied the problem of turning the massive W.U. into a flyable design, and with the new contract work started in earnest on the "Whittle Supercharger Type W.1". It featured a reverse-flow design; compressed air from the outer rim of the compressor was fed into the burners and ignited, then piped back towards the front of the engine, reversing again, then finally into the turbine area. This design allowed the flame cans to be folded in length, reducing the length of the engine, and the length of the drive shaft connecting the compressor and turbine, thus reducing weight.

Continued overleaf.

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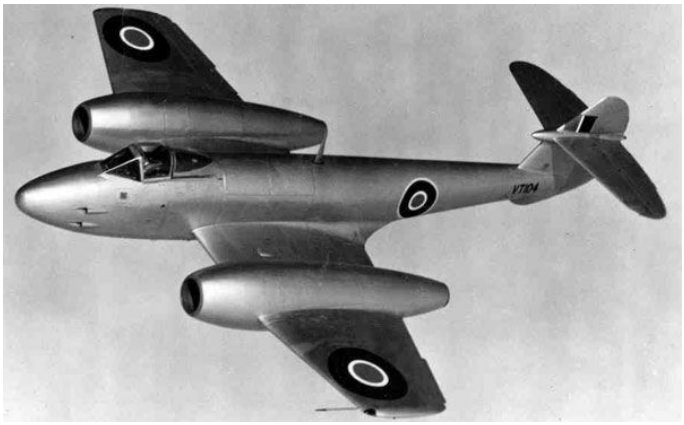
Propstoppers R.C. M.A.C

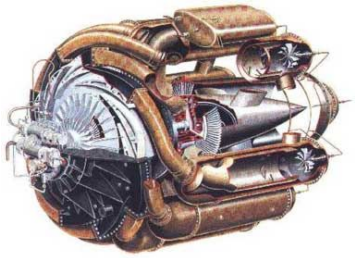
England's Gloster E28/39 first flight- 15 May 1941



England's Gloster Meteor first service- 27 July 1944

Germany's Heinkel He-178 first flight- 27 September 1939

Germany's Me-262 first service- April 1944



In January 1940, the Ministry placed a contract with the Gloster Aircraft Company for a simple aircraft specifically to flight-test the W.1, the Gloster E.28/39. A contract for two prototypes was signed by the Air Ministry on 3 February 1940 and the first of these was completed by April 1941. On 15 May 1941, Gloster's chief test pilot, Flight Lieutenant Gerry Sayer flew the aircraft under jet power for the first time from RAF Cranwell, near Sleaford in Lincolnshire. The flight lasted 17 minutes and was a complete success.

The first British jet production application, the Gloster Meteor had its first flight on 5 March 1943 and fleet introduction on 27 July 1944.

USA

One of the "Lease Lend" quid pro quo deals made between the British and the US before the US entered the war was sharing Radar and the jet engine. Whittle engines were provided to GE under a Top Secret program. (http://en.wikipedia.org/wiki/Tizard_Mission) GE had pioneered exhaust driven turbochargers, demonstrating the capability to maintain piston engine power up to high altitudes. They demonstrated this on a Liberty V12 engine by running it on Pike's Peak in 1918. This was GE's forte and they developed it into a very successful product line. However, they never made the logical step by applying it to the turbo jet concept until Whittle showed them how. GE was not in the engine business until they acquired the Whittle engine. Of course now they are among the world's leading manufacturers.

Had any of these developments been seized for rapid exploitation the air war in WWII might have been very different.

Dave Harding with many web sources, particularly Wikipedia.

Tinicum School Indoors

6:30 – 9:30 PM.
March 5, 2010
Look forward to seeing you there!
Mike Black

Brookhaven Boro. Gym Indoor Again

Saturday ? th April TBD
6 pm till 9 pm