

FORGOTTEN HISTORY

A SPIRITUAL CONNECTION (PART I): THE B-2 BOMBER

Please stand by
the stream will start soon!

FINAL FANTASY FRIDAYS

2000 – 2200, Blind Playthru
Regardless of History Streams.



ROTATION SUNDAYS

1700-1900, Tales of Vesperia – or –
1700-1900, Genshin Impact

FORGOTTEN HISTORY SERIES

19 MAR	1800	A Spiritual Connection: Part I – The B-2 Bomber
09 APR	1800	A Spiritual Connection: Part II – The ATF Program
07 MAY	1800	A Spiritual Connection: Part III – The “Raider”

TALES OF CHAD SATURDAYS

2000 – 2300, Co-op gameplay.
2300 – 0000, Reddit r/nosleep



GENSHIN WEDNESDAYS

1800-2100, new story days only.
As permitted by schedule.

HISTORIC AFFAIRS TALK SHOW

26 MAR	1800	History in an Age of Media
23 APR	1800	Military History: Cold War Implications & Impacts
21 MAY	1800	Ethics & Conservation



JACKBOX COMMUNITY NIGHT: Last Friday of each month @ 2200.

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FORGOTTEN HISTORY

A SPIRITUAL CONNECTION (PART I): THE B-2 BOMBER

FRIDAY, 19 MARCH 2021 @ 1800-1900 CDT
VIA TWITCH.TV @HISTORYKID

HOSTED BY: **THE KID**

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DEFINING A “FAMILIAL SYSTEM”

THERE ARE **2** DIFFERENT TYPES OF FAMILIAL SYSTEMS:

INHERENT FAMILIAL

- Uses cumulatively procured technology.
- Has multiple design schematics with a single “parent.”
- Anthological characteristics make information sensitive.



OPERATIVE FAMILIAL

- Uses uniform technology across platforms.
- Utilizes a unified design schema.
- Popular with mission and materiel consolidation.



FAMILIAL SYSTEMS ARE NOT NEW, NOR IS THE DEMAND FOR SUCH A SYSTEM.

AURORA

THE AURORA INHERENT FAMILY OF WEAPON SYSTEMS

1979 – present

- The codename was given to the entire ATB Program.
- There were two competitive companies in the Aurora Family.
- Northrop was the winning bid for the program.
- The entirety of the ATB Program was funded as “Aurora.”

Rockwell's B-1A Lancer Bomber had been cancelled by President Carter in 1977 in favor of ICBM's and B-52's.



The B-52 was the glue holding Strategic Air Command and the Nuclear Triad together after the Vietnam War.

- Standard procedure for new programs to be “black.”
- Aurora's function was to add a new dimension to evasion.
- Origins in design to 1946.
- Northrop's 1981 victory in the program resulted in a new name: Spirit. The program is still funded up through completion as Aurora.
- Lockheed's entry looked like a jumbo F-117.

A HISTORY OF WINGS: 1910 - 1950

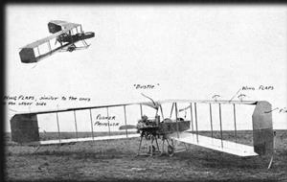
1910



J.W. DUNNE

- Conceptualized the idea of a flying wing over a series of tailless aircraft.
- The designs were based largely off his observations of seagulls.

1917



DUNNE MODEL D.8

- First flown in 1912 and confirmed inherent stability by design.
- Utilized a swept-wing design and is one of the first of this wing configuration.
- The U.S. Army utilized the D.8 for it's Signal Corps while others were delivered to the U.S. Navy.

1929



NORTHROP'S FIRST FLYING WING

- The X-216H Flying Wing was Northrop's first successful design.
- Was not a true tailless aircraft, however.
- Lessons learned from the X-216H were used in the development of the N-1.

1934



THE HORTEN BROTHERS

- Created the first Horten Model H.I Glider, a gliding wing design.
- In the years leading up to World War II, the Horten Brothers create several swept-wing gliders.
- Contemporary with Jack Northrop in flying wing design, although Northrop was creating powered frames from the 30s.

A HISTORY OF WINGS: 1910 - 1950

1940



THE NORTHROP N-1M

- Northrop's first design under his own company footprint.
- Was used largely to prove that the design scheme could work, but the results didn't provide much more at the time.

1943



THE HORTEN HO-229

- Powered version of the Horten Model IV glider.
- Jet powered aircraft which was fielded late in the war – the last few months.
- *PAPERCLIP* recovered the incomplete and non-operational Model 229's.

1946



NORTHROP'S FLYING WINGS: YB-35 & YB-49

- Originally worked up for a program that launched the B-29 Bomber.
- Design was not completed in time for the end of the war.
- Subsequent designs modifications called for a jet powered variant (YB-49) in 1947.

1950



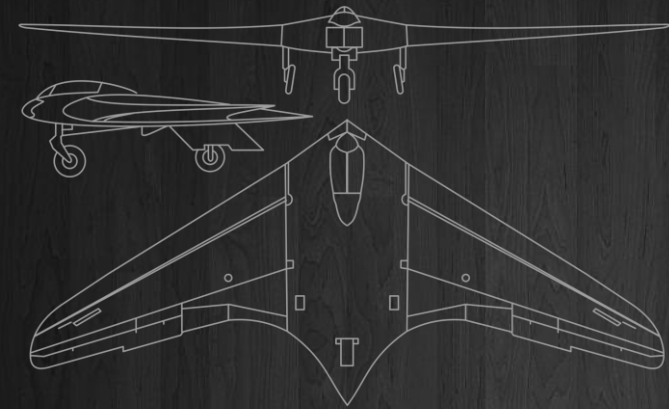
THE FLYING WING FALLS

- Rapid innovation in aviation technology left the YB-35 unviable.
- Loss of two YB-49 prototypes, the onset of heavier weaponry, atomic deployment, were all cited as the cause for cessation.
- More likely were political games, specifically connected to the Peacemaker Scandal.

THE FLYING WING: A CONCEPT FROM AROUND THE WORLD

THE HORTEN MODEL IX, HO-229 TAKES FLIGHT IN GERMANY

1943 – 1945



Outline drawing of the Horten Ho-229 V3 as it appeared in 1945.

- Horten Brothers begin to experiment with blended wing gliders in 1934.
- Most designs were unpowered and intended to be used for reconnaissance.
- Highly agile and stable, but unpowered flight limited it's usefulness in combat.
- Six gliders made from 1934 thru 1940.
- The last model in 1943, model IX, was a powered design and requested by the *Luftwaffe*.

- The *Luftwaffe* requirement was for a strike bomber.
- Viability required the inclusion of a 1,000 lb payload with 30 mm guns.
- Had to maintain superior stability and agility.
- Had a supposed **reduced radar cross section (RCS)**.
- 20 day fighter variants ordered in March of 1945.
- The Me 262 and Ar 234 were fielded, but the 229, while in production and flight, was never fielded.

A mockup of the Model IX, only a handful were airworthy at the end of World War II.



JACK NORTHROP

NORTHROP GRUMMAN

THE MAN WHO SAW THE FUTURE OF AVIATION

10 NOVEMBER 1985 – 18 FEBRUARY 1981

- Northrop had begun working in aviation design in 1927.
- Northrop's self-launched company, Avion, failed by 1930 (founded a year earlier).
- Backed by Donald Douglas, Northrop enters as a staying power in 1932, then establishes as a subsidiary in 1939.
- In 1940, Northrop establishes his own Northrop Company in California.
- The first all Northrop design to gain notoriety was the N-1M.



Jack Northrop with the YB-35 in 1946.

Northrop with his first flying wing, the X-216H.



- By 1943, Northrop had begun fielded proposals for a **new long-range strategic bomber**.
- After the program was cancelled in 1950, Northrop's design was shelved.
- Was hands on in the development of the F-89 Scorpion in the 1950s.
- Also involved in the Northrop Snark ICBM.
- Due to Northrop's design being the cornerstone of **Aurora**, he is credited with design authorship of the program and subsequent **Spirit** program.

Was also involved in key innovative technologies, such as the fly-by-wire system.

THE FLYING WINGS

THE LONG-RANGE STRATEGIC BOMBER “OF THE FUTURE”

- Northrop’s YB-35 was based on the N-1M design from 1939/40.
- Was the entry for potential replacement of the B-24, competed against Consolidated.
- The design was extremely stable and was seen as an attractive solution.
- Northrop won the contract in 1941.
- The X/YB-35’s were made obsolete by the jet-engine design and new missions.



The original YB-35 flying wing design in 1943.

The 8-engine jet powered YB-49 in flight.



- The YB-49 was the **jet-powered** modification to the original YB-35 design.
- Boasted the ability to fulfill the new USAF requirement for a long-range strategic bomber to replace the B-29 and B-50.
- Utilized 8 jet engines instead of 4 turboprop engines.
- While both the B-35 and B-49 were ordered, both orders were cancelled before they could be fielded.
- The YB-49 design is what was used in the **Aurora** program in 1979.

THE ADVANCED TACTICAL BOMBER PROGRAM

AURORA IS BORN...A PROGRAM STILL IN SECRECY

THE MISSION REQUIREMENT OF THE PROGRAM MEANT IT WAS TO REMAIN “BLACK.”

Carter’s cancellation of the **B-1 program** may be attributed to the viability of the technology in a “**long-range stealth bomber.**”

Regan’s 1979 criticism of the Carter Administration’s cancellation resulted in **public disclosure** of the ATB program.

The ATB program was funded explicitly under the codename “**Aurora**” in DoD Budgeting.

Northrop’s design was countered by a proposal from Lockheed and Rockwell which failed to meet the requirements.

The Northrop design was called **SENIOR ICE**, while Lockheed’s was called **SENIOR PEG**.

On 20 October 1981, the USAF chose the Northrop design for full production...the **Spirit** had been born.

THE DESIGN SCHEMA THE NORTHROP TEAM USED TO DRAFT THE PROPOSAL WAS JACK NORTHROP’S YB-49.

CONSPIRACIES ABOUND

DON'T FEED THE TIN FOIL HATTERS...

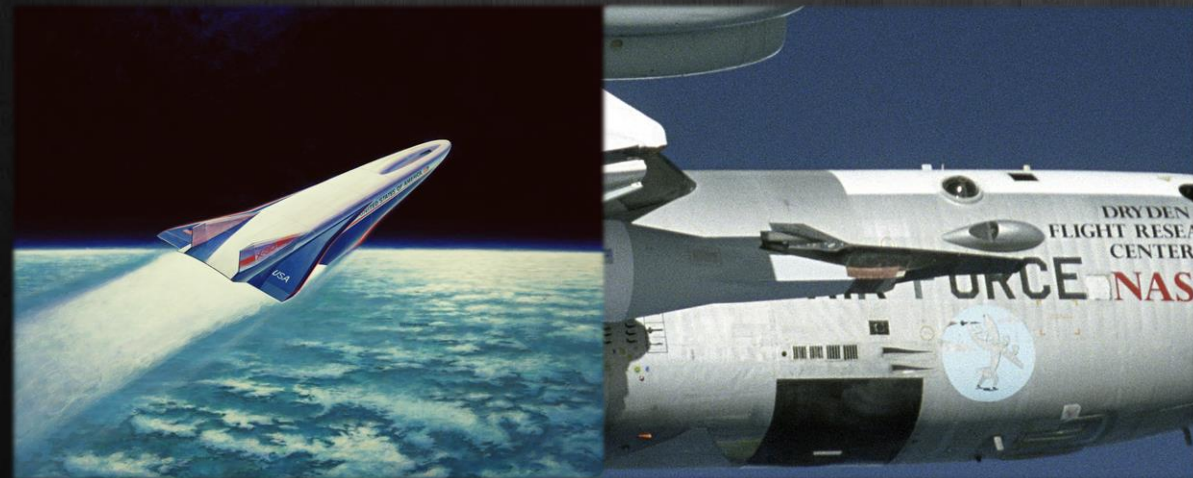
- Unfortunately, timing coincidences resulted in several conspiracies.
- Cancellation of the **SR-71** program seemed to coincide with Aurora...kinda.
- Rockwell's **X-30 NASP** demonstrator was largely guarded, but not a lot.
- Misrepresentational use of the codename "**Aurora**" seemed to be used frequently in the Pentagon.



Artistic rendering of "Aurora." It was a quad-pulse engine hypersonic interceptor / reconnaissance aircraft shaped like a triangle.

Left: Artistic rendering of the X-30 NASP Space Aeroplane.

Right: The NASA X-43 Hyperdart on B-52 DFRC Research plane.



- Pulse wave technology was under development on drones.
- The NASP was active during the early days of the Aurora conspiracy.
- NASA used data collected during the NASP trials for the X-43. Both were intended to be technology demonstrators.
- Nevertheless, Aurora's appearance on DoD budgeting resulted in a widespread conspiracy about "the SR-72 Aurora."
- Aurora, as it was described, was Project Spirit.

THE SPIRIT OF AMERICA

SPIRIT TAKES SHAPE...

22 NOVEMBER 1988



Spirit of America on public display at Palmdale, California on 22 November 1988. The front was all that was visible.

- A black project by nature, the B-2 suffered from espionage issues.
- The project was delayed by two years and inflated by \$23 billion.
- The biggest changes had to do with longevity concerns.
- Enjoyed less secrecy than the F-117 Program.
- At least two Northrop employees were arrested for espionage since 1984.

- 82-1066 first made a public flight on 17 July 1989.
- AV-1's first actual flight date is still unknown.
- *Spirit of America's* inclusion in the procurement was the last B-2 to be converted for combat use.
- A total of 165 B-2's were planned for procurement.
- The first B-2 was delivered to the Air Force in 1993 and was introduced formally in 1997.

Spirit of America, AV-1, in her first public flight on 17 July 1989 from Palmdale to Edwards.



NORTHROP'S B-2 SPIRIT BOMBER

AVIAN ORIGINS



- Keeping with Dunne's design, the B-2 was created based on the Eagle.
- Aerodynamic design and low profile provided stability and reduced RCS.
- Radar absorbing paint used on exteriors.
- External control surfaces were flush with the body.
- Embedded engine exhausts masked heat signatures and sound.

- Boasts an operational range of almost 7,000 miles.
- Operates on average between 20-30,000 feet, max to 50,000.
- Ordnance limit of approximately 40,000 lbs.
- Powered by 4 jet engines embedded in the body.
- Takeoff weight is around 169,000 lbs.
- 21 were produced, 20 remain.



TRICKLE DOWN INNOVATIONS

IT HAD SPIRITUAL CONNECTIONS...



One of two YF-23 prototypes on a TARMAC during testing in the ATF program.

- Advanced Tactical Fighter program was launched in the 1980s.
- Northrop utilized trickle down technology designed with the B-2.
- The YF-23 borrowed many features from the design of the then-built B-2.
- Stealthy and sleek, the YF-23 boasted additional advantages to older aircraft.
- Used similar control features to the B-2.

Rear view of the YF-23 displaying embedded engines and shielding.



- Despite losing the ATF program, Northrop pitched the idea in ATA.
- Additional bomber programs led to rescuffing the YF-23.
- Northrop's pitch was dropped each time in favor of others – or the programs were mothballed altogether.
- More recently, Northrop used the Spirit as a basis for the B-21.

HALT TO PRODUCTION AND CANCELLATION

THE B-2'S DEMISE: BUDGET



B-2 Bomber on a runway at Anderson Air Force Base, Guam. The B-2 Bomber is operated explicitly by the 508th Bombing Group at Whiteman Air Force Base, Missouri. The 508th has the distinction of drawing its heritage back to the 508th Composite: the same group that dropped the atomic bombs on Japan.

- At \$1.4 billion per unit, the B-2 program was the costliest aircraft in the USAF inventory. It became a hot button issue.
- Congress largely opposed the program, especially after the fall of the Soviet Union.
- Enough opposition led the USAF to condense its purchase order from 165 to 20, with all future orders cancelled.

OPERATIONAL FOOTPRINT

ROLE AND HISTORY

- The B-2's intended mission was to be a long-range stealth bomber.
- It filled a need within the bomber triad and the nuclear triad.
- It's primary bombing mission was a nuclear one until about 1996.
- Modern deployment uses of the B-2 have been for a combined function.
- Operational estimates for the B-2 range between 2032 and 2058.

▶▶▶ *Spirit of Pennsylvania* on TARMAC in 2020 for routine mission from Whiteman Air Force Base, Missouri.



▶▶▶ The bomber triad in 2020, B-1 (top), B-2 (middle), and B-52 (bottom) in training formation.

- First saw combat in the Kosovo War in 1999.
- Subsequent operations flown in *IRAQI FREEDOM* and *ENDURING FREEDOM*.
- Sorties against IS and hostile forces in Syria and Iraq.
- B-2's are in constant motion within the nuclear triad program.

THE NEXT GENERATION BOMBER PROGRAM

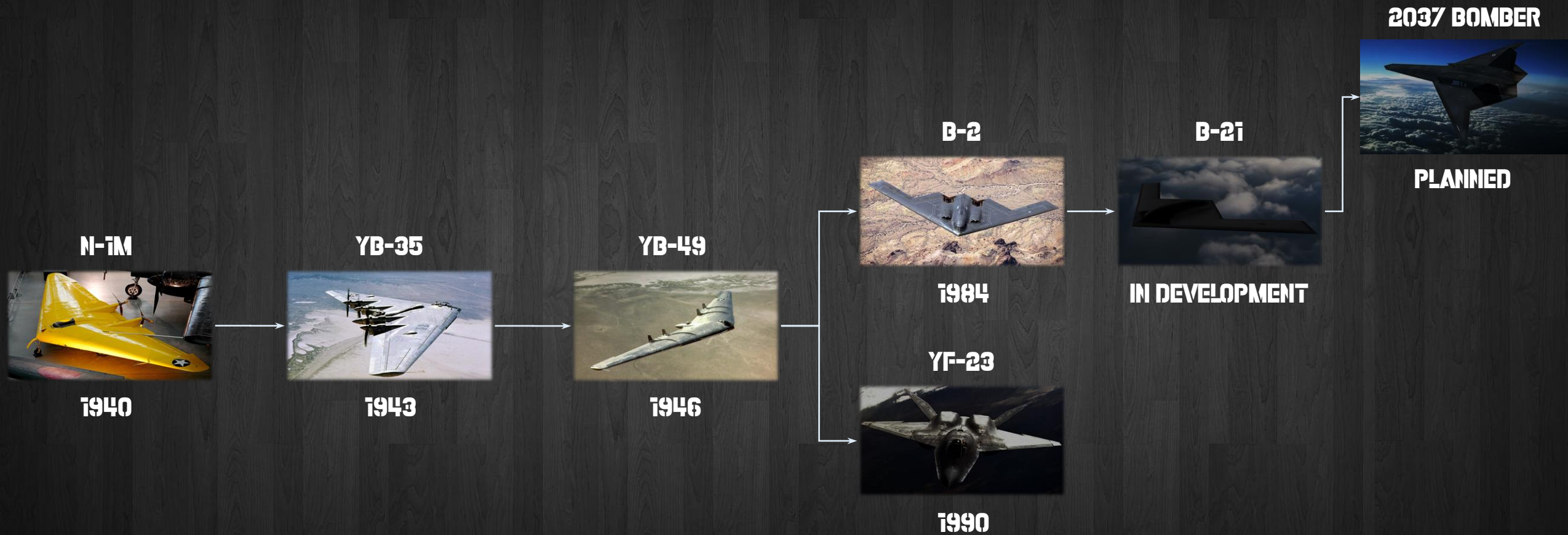
IN HONOR OF THE RAIDERS...

- Mission is to work for a short period of time with the B-2.
- Eventually planned to phase out the B-2 altogether.
- Estimated first flights in the next year or two.
- The B-21 Raider is named in honor of the Doolittle Raiders.
- Trickle down technology from the B-2 is aiding in the development.
- Northrop is the company spearheading the development.
- The project is expected to remain “gray” for many more years.
- A stop gap between the present and the 2037 Bomber program.
- Smaller and more agile than the B-2, with avionics in a supposed Block 50 configuration.
- Introduction date slated to be around 2025.
- Around 160 have been ordered across five different installations around the United States.



Artistic renderings of the B-21 Raider, the B-21 will be require new housing like the B-2 did when it is fielded.

ROADMAP IN THE PROGRAM



YOUR LIFE'S WORK...

"AS HE HELD THIS MODEL IN HIS SHAKING HANDS, IT WAS AS IF YOU COULD SEE HIS ENTIRE HISTORY WITH THE FLYING WING PASSING THROUGH HIS MIND." — JOHN CASHEN



"NOW I KNOW WHY GOD HAS KEPT ME ALIVE FOR 25 YEARS."

THANK YOU FOR JOINING US

PART II AIRS ON 9 APRIL @ 1800

Next Stream: **Final Fantasy VII Remake – Episode 2**
TONIGHT @ 2000

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