

## Commentary by British U-2 Historian Chris Pocock on the CIA History

*British author Chris Pocock has been writing about U-2 history for years, beginning with Dragon Lady: The History of the U-2 Spy Plane (1989) and more recently Fifty Years of the U-2 (2005). According to a previously excised comment in the CIA history, Pocock's book, Dragon Lady, is "by far the most accurate unclassified account of the U-2 program." Recognizing that any historical study has its limitations and needs to be approached critically, Mr. Pocock has closely scrutinized the CIA history and has kindly provided us with his detailed preliminary reactions on a page-by-page basis.*

*The Central Intelligence Agency and Overhead Reconnaissance: The U-2 and OXCART Programs 1954-1974* by Gregory W Pedlow and Donald E Welzenbach

Written 1992 (S/NOFORN). The U-2 portion declassified with reactions in 1998. FOIA request for a review of the redactions by the National Security Archive in 2005. Document review completed and approved for release 25 June 2013.

### *Note:*

*- I am pleased to report that nearly all of the newly-released information is already in my books, THE U-2 SPYPLANE – TOWARD THE UNKNOWN (2000) and 50 YEARS OF THE U-2 (2005). This is thanks to my own research and interviews, but also thanks to separate, earlier CIA and US govt declassifications, such as the CREST program.*

*- I have described most of the now-lifted redactions below, but have not commented below on those that were already obvious from the context, such as "Area 51". My comments highlight the relatively small amounts of information that are newly-revealed by this declassification.*

*- I have only drawn attention to mistakes in the Welzenbach/Pedlow [hereinafter identified as W/P] history that are newly apparent thanks to the lifted redactions. There are other mistakes in the portions that were published in 1998. We all make mistakes. Readers should note that the W/P history does not cover U.S. Air Force U-2 operations that operated in parallel to (and sometimes in conflict with) that of the CIA.*

P2 footnote

Another CSHP history identified?

P11 footnote

This is a reference to the 16-volume OSA history which has also been FOIA'd (by the NSArchive). The CIA historian told me last year that its release was not pending, due to "multiple equities" and other complications. The authors are now confirmed as Helen Kleyla (RMB's secretary) and Robert O'Hern (who was he?).

The next few lifted redactions...

...are all in footnotes, being the job number references assigned to OSI (OSWR) memos. The titles and authors of the memos were not redacted in the previously-released version – so why were the job numbers redacted? Same goes for other CIA records (OSA, DCI etc) in footnotes throughout this history.

P40

Photo of Jim Cunningham

The names of the first finance and contracting officers in DPS are still redacted. We probably know these from other sources.

P41

Project Aquatone organization chart. Only 25 people in the HQ – today that would be 125!

P42

Numbers of personnel assigned (as per chart on previous page)

P43

The location to which OSA moved in 1968 is still redacted (from memory – the building in Mclean?)

More personnel numbers

Description of covert funding ... the use of unvouchered funds. The last four lines of this discussion (on p44) remain classified. Why?

P44-5

Contract price numbers – confirming what a bargain the U-2 was, but I don't understand the assertion that "only the wings and tail were unique" since (for instance, and from memory) the switch of engine from J73 to J57 required a change to the rear fuselage outer mold line. (W/P are not fully reliable on some of their subsequent descriptions of the U-2 design, either).

P51-4

It appears that the photos of the A-1, A-2 and B-camera rigs are still redacted, but I think this is a result of poor reproduction (as in the 1998 release).

P56-7

Exam question: are these the first declassified references in US govt docs to Groom Lake? Photo on p57 is taken from the hill to the west of the main base and is new to me – it's not in the "In The Beginning" collection.

P58

This is a whole-page map of CA and NV to show where the test site was.

P59

Cable traffic cryptonyms for individual pilots and aircraft explained. I think this adds to our knowledge from the CREST cables.

P65

Footnote reveals names of the four early pilots interviewed by W/P, May 1986

P66 and 72

Paradise Ranch and Groom Lake references

P72

CIA's project security officer William H Marr (this name revealed long ago in other sources)

P73-4

Disappointing. The description of the scheme to use foreign mercenary pilots is still partially redacted – either out of embarrassment or because the Greek (and Polish?) governments would not agree to the redactions being lifted? The first paragraph on p73, which was previously completely redacted, now almost confirms that at least one Polish pilot from the Ostiary program was tapped to fly the U-2.

The second paragraph on p73-4 clearly refers to the recruitment of Greek pilots. The “Air Force officer of [still redacted: Greek origin]” was Major Jim Karnezis.

P78

The U-2 formation photo turns out to be “over Nevada”. I had surmised that this was the formation flown over Wiesbaden by Detachment A. I cannot recall seeing other footage/stills of this Nevada formation in “The Inquisitive Angel” or elsewhere.

P79-80

Jake Kratt identified as pilot of the first off-test site flameout landing (at Kirtland AFB). Wilbur Rose and Frank Grace identified as the first two fatalities. We knew these names already.

Incidentally, Rose was *not* a test pilot, per the W/P text.

P80

Howard Carey (pilot of Wiesbaden crash) and Bob Eicson (pilot of Arizona crash) identified. Again, we knew these names already.

P83

Headcount at PID revealed as 44 after May 1955 expansion.

Author of NPIC-2 history still unidentified in footnote 66. Dino Brugioni?

P93-4

Meetings in London between RMB and MI6+RAF, and then between DCI Dulles and Foreign Secretary Selwyn Lloyd, to gain British government approval for basing at Lakenheath are recounted. I believe there was an earlier meeting between Dulles and Lloyd in Washington, not mentioned by W/P.

Incidentally, Lakenheath was not used by the RAF, per W/P. It was exclusively a USAF base, although retaining the prefix 'RAF'.

P94

The 'Frogman Incident' causes British government to have second thoughts about U-2 overflights from Lakenheath.

I don't understand the other reason given here, about a U-2 "inadvertently penetrating the British radar network".

P100

Carl Overstreet flew the first operational mission

P101

Most of the second para remains redacted. This is in the middle of a discussion about when to start Soviet overflights. I have no idea what this para contains.

P102

Map of first overflights of Eastern Europe. This was declassified and published elsewhere by CIA some years ago.

P103

Map of first two Soviet overflights

P104

Hervey Stockman flew the first Soviet overflight

P105

Carmine Vito flew the second Soviet overflight

P110

Creation of SEI in Boston (HTNAMABLE). (A footnote on next page references OSA records on SEI).

P113

Detachment B cryptonym was HBCORK

P114

Mediterranean countries overflown are listed.

British military build-up for Suez invasion: part of a sentence still redacted. (including words that were not previously redacted: “more new XXX than had previously been reported.”)

P115

Names of key photo-interpretation personnel, and location of the PID photolab in West Germany, are still redacted. Why? The lab was at Wiesbaden, and surely we know the names from other accounts, including CIA histories?

P116-7

A large portion of these pages remains classified, partly because it contains references to overflights of Israel, as well as Toulon, France and other locations where Anglo-French forces were gathering for the Suez invasion. However, Frank Powers and Bill Hall now identified as pilots of two of these missions (but we knew that already!).

P118

I presume this page – still redacted – is a map of the MidEast overflights during the Suez Crisis.

P119

U-2 photo of Almaza airbase, Egypt

P120

UK denied access to further MidEast U-2 photography after the Suez invasion

P121

Creation of photo lab at Adana

P124-5

The identity of the Lemon-Drop Kid is officially acknowledged here. However, I interviewed Carmine Vito a few times. It's a good story, but as recounted by W/P, is exaggerated.

P126-7

Jim Cherbonneaux flew the March 1957 peripheral mission that accidentally penetrated. I previously guessed that from the size of the redaction – Jim had the longest name of all the pilots!

P128

Pakistan a suitable location for deployment

P129

Frank Rodgers identified as the key figure at SEI on the RAINBOW project

P130

EG&G's test location identified as Indian Springs (today's Creech AFB)

P131

Sieker crash was located in a remote part of Nevada. Sure is – I've been there! (I have a small piece of "wallpaper" to prove it.)

P132

\$185,000 for a rebuilt U-2  
more on Indian Springs

p133

first "dirty bird" operational mission was over Iran, Iraq and Syria

Detachment C would be Far East-based

AEC nuclear tests caused the evacuation of Groom Lake

P134

USAF denied permission for CIA to use Yokota airbase for Detachment C

P135

Six-and-a-half lines still redacted, possibly referring to negotiations with Pakistan for basing

Buster Edens identified as the 5 August overflight pilot

P136

A map of the Operation SOFT TOUCH overflights. Not very clear in reproduction.

P138

EK Jones flew 28 August 1957 mission. Sammy Snyder (note correct spelling) and Cherbonneaux flew the 21 and 22 August missions (note correct dates)

P139

One-and-a-half lines still redacted, about Soviet nuclear tests

P140

Detachment A: Howard Carey identified again as crash pilot, plus move to Giebelstadt. Then a bizarre redaction of three-and-a-half lines: they cover mission 2040 over the northern USSR and Norway – as described in an article in CIA Studies in Intelligence article, Fall 1987, that was declassified many year ago!

P141

Is a map; still redacted

P142-3

Three or more entire paragraphs are still redacted. Why? They describe Operation Baby Face, the deployment by Detachment B to Bodo, Norway from late August to early November 1957. Norwegian government historians have described this deployment and the missions conducted in open literature. Maybe the FOIA reviewers did not contact the Norwegian government to check. This section may also remain classified because SIGINT drove this U-2 deployment and missions. As SIGINT historian Matthew Aid has written, the NSA identified Plesetsk as the likely first Soviet operational ICBM base. See my books for a full account of this deployment – p130-133 of THE U-2 SPYPLANE or p76-77 of 50 YEARS OF THE U-2.

P143

Bill Hall identified as pilot of the 10 September 1957 overflight of the Soviet missile test range at Kapustin Yar. The lifting of this redaction also reveals a repeat of the mythology surrounding the supposed RAF overflight of Kapustin Yar four years earlier. See my research note in the journal Intelligence and National Security published in 2002 (I think – I can't find a copy right now)

P144

Only U-2 overflight from Japan

Three lines about the Moby Dick balloon recon program still redacted

P149

Camouflage paint tests were over Nevada

P153-157

British crews join the program. Approved by President Eisenhower 6 May 1957 but discussions with UK did not result in go-ahead until February 1958. AVM William MacDonald, ACAS Int, was the key contact in London.

Less than one line redacted at the bottom of p154 – possibly a reference to the CIA station in London.

Another four months passed before Air Ministry personnel went to project HQ in Washington to discuss the details. Not much of a hurry here then! Formal approval by British PM Harold MacMillan was on 27 August 1958.

Less than one line still redacted near bottom of p155 – another ref to the CIA station in London?

According to W/P, "President Eisenhower viewed British participation as a way to confuse the Soviets as to the sponsorship of particular overflights and to spread the risk in the event of a loss." It didn't turn out that way!

W/P's description of the British motivations seem valid to me.

Final exchange of letters between President and PM in December 1958.

W/P describe two U-2 visits to the UK in May and October 1959 “to support the (UK) cover story” of weather-sampling missions. In fact, there was a third deployment (December 1958) and they also served as test of the “Quickmove” deployment procedure that had been devised by Col Stan Beerli, the new Detachment B commander.

P157

Detachment C’s coverage of Tibet is acknowledged.

P163

Marty Knutson is identified as the 9 July 1959 overflight pilot

P164

One para describing the first British overflight on 6 December 1959 by Robbie Robinson.

P166

Map of first British overflight

P167

One para describing the second British overflight on 5 February 1960 by John MacArthur.

About two lines noting that President Eisenhower was encouraged by the success of the two British missions and the lack of any Soviet protest

P168

Three references to Peshawar airbase

P169

Map of the 9 April 1960 overflight

P170

References to Pakistan/Afghanistan and DPD chief Col William Burke

P172

Various takeoff/landing airfields and Soviet targets for missions TIME STEP (not flown) and GRAND SLAM

P173 map of GRAND SLAM (Powers’ flight 1May60)

P174-177

More references to Col Burke, Peshawar, Bodo etc.

P175

Description of System 9B electronic warfare system to counter Soviet airborne radars

P176

Coded radio transmissions from Incirlik giving the go-ahead for the mission

P178

Operation MUDLARK was the project to determine what happened to Powers over USSR

Less than one line still redacted re the cover story

P181

British pilots immediately evacuated from Turkey

Four British pilots had served at Incirlik.

A “four-man unit of RAF U-2 pilots” were stationed at Edwards AFB until the end of the CIA U-2 program in 1974. (Actually, the unit consisted of two pilots, a mission planner, and a flight surgeon).

P182

Reference to the Nevada test site evacuation of 1957

P184

Footnote: James J White authored a draft history on Powers for the CIA History Staff.

P186

Comments by Leo Geary and John McMahon about the undesirability of Powers returning to the US Air Force

P187

References to the alternative British approval process for overflights

P189

Pakistan and Turkey were bases for peripheral missions

P193

Office of Special Activities organisation chart

P201 and 205

Nationalist Chinese U-2 shot down over China on 8 September (actually, it was 9 September)

P211

“U-2s Over South America”

Overflights of British Guyana/Venezuela border looking for pro-Castro guerillas

P211-215

“Detachment C and The Indonesian Revolt of 1958”

Operation Robin Hood. CIA support to the dissidents aided by U-2 missions from Cubi Point, Philippines. Map on p213.

New: ferry mission 1773 back to Atsugi gathered ELINT on Chinese radars with System 5.

P216-7

Overflights of Tibet and southeast Asia in 1959, under codenames MILL TOWN, SOUTH GATE and QUICK KICK.

P218

U-2 photo of Lhasa, Tibet, November 1959

The test flight (by Tom Crull) that ended with a flamed out landing at Fujisawa, reached 76,400 feet.

P219

More flights over Tibet from Takhli airbase, Thailand.

Less than one line still redacted at the end of this discussion – probably a reference to the CIA station chief in Bangkok.

Detachment C was preparing to stage to the Philippines for air sampling missions

P221

Flights from Cubi Point over Laos and North Vietnam in January 1961 were codenamed POLECAT

NPIC sent photo-interpreters to Clark airbase

P222

Overflight of North Vietnam in August 1961 was flown from Cubi Point

P222-3

“New Detachment on Taiwan”

This is the first of the many sections describing Detachment H/35<sup>th</sup> Squadron, ROCAF which were previously redacted.

The first para discusses previous CIA-sponsored airborne recon programs in Taiwan: Civil Air Transport (BGMARQUE) and STPOLLY. (one mistake here: the P-3As were added in 1966, not 1963).

The second para mentions the USAF-sponsored RB-57 program on Taiwan, and the training of the initial cadre of nationalist pilots to fly the U-2. The W/P text refers to CIA’s “opposition” to a nationalist U-2 program in 1959, citing DCI Dulles. This interpretation is not correct – see 50 YEARS OF THE U-2, pages 231-233. W/P appear to have overlooked the relevant DPD memos, which were declassified via CREST, and relied instead on the draft CIA history, *Low-Level Technical Reconnaissance Over*

*Mainland China 1955-1966 (S)*, CSHP-2.348. (I have been warned about the accuracy of this history. Even so, as the author of *THE BLACK BATS*, which describes the STPOLLY program, it would be nice to see it. What excuse remains for keeping it Secret, now that the nationalist Chinese U-2 operation has been declassified?).

P223

Photos of P2V-7 (strangely, appears to be an aircraft in RAF markings, not from STPOLLY program) and P-3A.

P224

Parts of three sentences in the second para still redacted. This is a shame, since they probably refer to the key role played by Ray Cline, CIA Station Chief in Taipei, in getting the U-2 operations in Taiwan started. See p133 of *50 YEARS OF THE U-2* Formal Presidential and State Dept approval received on 26 August 1960 per W/P (but a declassified DPD memo suggests this date should be mid-November 1960).

P225

Photo of U-2R at Taoyuan (this is from the early 1970s. Like me, W/P evidently could not find any picture of a U-2 taken there in the 1960s).

Discussion of the protracted process in Washington before overflights of China were approved (no mention of Ray Cline's role here).

According to W/P, the first mission on 12 January 1962 and the coverage of the primary target (the SCT missile range) were not optimum. (Actually, the flight was on 13 January (local time in Taiwan), and according to a declassified DPD memo, the coverage was excellent).

P227

Map: Initial Overflights of China Jan-Mar 62

P228

U-2 imagery of Lanzhou U-235 gaseous diffusion plant

P229

Discussion of the feared build-up of PRC forces opposite Taiwan in May-June 1962, and U-2 coverage that helped disprove it. But the W/P text makes no mention of SecDef McNamara's attempt to trump the CIA's U-2 coverage with that of SAC's U-2s. See p139 of *50 YEARS OF THE U-2* for details of this strange – some would say, irresponsible – intervention.

Citing the OSA mission folder, the W/P text claims that the U-2 shot down near Nanchang on 9 September 1962 had a flameout which forced it to descend “to an altitude where PRC interceptors were able to hit the U-2 with an air-to-air rocket.” This version is not supported by any other evidence, including the two substantial and semi-official PRC

accounts that were published in Beijing, which make no mention of any descent. Shades of the Gary Powers shootdown mythology here!

P230

“Use of Detachment H Aircraft By US Pilots”

Seven overflights of North Vietnam from Taoyuan in the first half of 1962.

P231-3

“U-2s in India”

This entire eight-para section on the agreement with India to allow U-2 overflights of Tibet and the Sino-Indian border areas from Takhli airbase in Thailand, including a refuelling track over India, plus two deployments to Charbatia airbase in 1964, is now declassified.

Indian Prime Minister Nehru approved overflight by U-2 missions covering the border areas with China on 11 November 1962.

Although Nehru did not reveal the source of his intelligence, when briefing the Indian parliament, UPI guessed that it was U-2 imagery.

The use of Charbatia was agreed during a meeting between President Kennedy and the Indian president on 3 June 1963, but Indian work to improve it took longer than expected, so the missions resumed from Takhli. According to W/P, the mission on 10 November 1963 was the longest yet flown by a U-2 at 11 hours 45 minutes, and the pilot was so exhausted that project managers limited future flights to 10 hours endurance. In fact, the longest U-2 mission to date was the one flown from Takhli on 29 September 1963.

W/P imply that the first deployment to Charbatia in May 1964 ended because President Nehru died. This is not the case, and a lot of detail is missing from the W/P account – see p215-217 of 50 YEARS OF THE U-2.

P234

Addition of System 12 SAM radar warner to the U-2s on Taiwan, but the Nationalists were denied the OS missile launch warner and System 13 for electronic warfare. (W/P have mistakenly dated OS to 1963 here. In fact, OS was not available until 1965)

P235

Shootdown of second U-2 over PRC in November 1963 led President Kennedy to suspend overflights for five months.

The Birdwatcher telemetry system described.

One of the only two qualified Chinese pilots in spring 1964 (Terry Lee – not named by W/P) “suffered from ulcers and a nervous disorder.”

P236

The renewed suspension of Chinese overflights (following the shootdown of Terry Lee) “was welcomed by the nationalist Chinese government.”

DoD remained reluctant to allow System 13 on the Taiwan-based aircraft

CIA agreed to allow the nationalists to process and interpret the U-2 film on Taiwan

DCI McCone's proposal that American pilots fly missions over China.

P237

“Advanced ECM Equipment for Detachment H”

DoD finally allowed System 13 to be installed in Taiwan-based aircraft

President Johnson refused DCI McCone's proposal to fly a mission to the Lop Nor nuclear test site from Charbatia using American pilot, but approved a mission from Takhli using a nationalist pilot. The W/P assertion that Detachment H did not deploy to Takhli until mid-October is incorrect. The mission was cancelled because of the Chinese nuclear test on 16 October 1964, according to W/P, but this is not correct either. See p220 of 50 YEARS OF THE U-2

By December 1964, the mass of data being provided by the Chinese overflights “was overwhelming the analysts”

P238-9

A large chunk of text remains redacted – why? It apparently refers to the development and deployment to Detachment H for use on Chinese overflights, of the Texas Instrument infrared scanner. This technology cannot possibly still be classified, 45 years later! See p220-224 of 50 YEARS OF THE U-2.

The loss of a fourth U-2 in January 1965 “made nationalist officials reluctant to resume overflights.” They insisted that their pilots be allowed to turn on the System 13 SAM jammer throughout an overflight, not only when they had been alerted by the System 12.

P240-2

Detachment H resumed overflights February 1965 and flew 30 missions by the end of the year, the highest annual total. (W/P apparently fail to mention that many of these were of southern China, in support of US intel requirements re: PRC's military support to North Vietnam).

Only 10 missions in 1966, and two crashes in training.

In fall 1966, US-Taiwan relations were strained by the unilateral US decision to end the ST POLLY program.

The rest of this page, the entire p241, and most of p242, remain redacted. These sections may contain a description of ST POLLY, but they must also contain a further description of Detachment H activity in 1966-7 – in which, why are they still redacted? One reason must be the remarkable Purple Flash/TABASCO missions to drop sensors developed by Sandia Laboratories over Lop Nor. There may also be a discussion here about the Fortune Cookie project to launch radar-stimulating supersonic target drones from the U-2R, for ELINT-collection purposes. Another possible reason: a discussion of counter-intelligence, since the CIA suspected that there was a spy inside Detachment H. The fifth and last U-2 shootdown over China must also be described in these redacted sections. See p229, p232-3, p246-251 and p255-7 of 50 YEARS OF THE U-2 for a full description of these activities.

P242

Wing cracks forced temporary grounding of all U-2s in late 1967

“The End of U-2 Overflights of Mainland China”

The two Detachment H missions in December 1967 and January 1968 briefly described.

They are described as overflights – need to check this, I wrote (p252) that they were peripheral missions with the H-camera.

P243

Last overflight of China 16 March 1968

Detachment G flew the two Cambodia missions in March and April 1968

303 Committee decided all China missions must be at least 20 miles offshore

Last para: Project TACKLE summarised

p244

Table of China overflights by year

“Peripheral Missions by Detachment H”

ELINT missions, crashes in 1969 and 1970,

Newly-designed H-camera (W/P give its focal length as 48-inches. In fact, it was 66-inches.)

LONG SHAFT COMINT package was used on peripheral flights 32 times May71-Dec73

P245

News agency photo of four downed U-2s on display in Beijing

table of peripheral missions by year

minimum distance from China coast increased to 25 miles

p246

photo of Nationalist Chinese U-2R inflight (has been previously published)

TACKLE agreement renegotiated March 1973

P247

American pilots flew the Scope Shield missions from Taiwan under Lockheed cover

U-2 operations from aircraft carriers: protest notes from the Soviet Union to Turkey and Pakistan in the past...

P249-50

“Use of Carrier-Based U-2 To Film A French Nuclear Test Site”

Special Group approved Tahiti overflight on 24 April 1964

development of the Delta II camera with 10-12-inch resolution

Two missions 19 and 22 May

P251

Average cost of CIA’s 24 U-2s was \$812,500 each

P252

The new U-2R models cost \$7.1 million each, almost ten times as much as the originals

P253-4

Project TACKLE U-2s were still flying missions targeted against the PRC

P255

Missions codenamed COMPASS TRIP to photograph poppy fields planted by the Bureau of Narcotics, to provide a standard for comparison with satellite imagery

One line redacted: in fact the SCOPE SAINT deployment was to the UK

P256

Most of first para still redacted: this is also about the training deployments to the UK

Two more small redactions on this page refer to deployments to RAF Akrotiri, Cyprus and the UK

P257

OLIVE HARVEST missions from Akrotiri

Desire not to upset nationalists by ending the CIA U-2 program

Nationalists informed of this

P259-313

“The U-2’s Intended Successor: Project OXCART 1956-68”

I have not reviewed and commented on this chapter, since it has already been released some years ago.

P315

Info from U-2 photographs was used to prepare 5.425 analytical reports

P319

“Participation of Allies in the U-2 Program”

bases in Germany, Turkey, Pakistan and [Iran is still redacted!]

bases in India, Thailand, Japan, Philippines

summary of British and nationalist Chinese participation

According to W/P, two Chinese U-2 pilots died on overflights, and three were captured.

That should be three and two respectively.

Another five were killed in training accidents (that is correct)

Rebellion in Indonesia, Sino-Indian border fighting

P322

The first U-2s cost less than \$1 million each

The OXCART successor cost more than \$20 million each

P325

Abbreviations previously redacted:

AMD Air/Maritime Division

ASPIC Asian Photographic Interpretation Center (presumably the US acronym for the PI facility at Taoyuan airbase, Taiwan)

P331

Key Personnel:

The only redaction here, now lifted, was in the listing for Richard Leghorn: the identification of SEI as an Agency proprietary company.

P335

APPENDIX C: Electronic Devices Carried by the U-2

Previously entirely redacted

First para: I don't understand why W/P make a distinction between ELINT and "ferret" equipment for gathering intelligence on foreign radars"

According to W/P, the first seven systems were all built by Ramo Woolridge. This is incorrect: Systems XI and XII were built by Haller Raymond and Brown (later HRB Singer).

System I described as covering S and X-band – but it may also have covered C-band.

Weighed on 7.7 kg

System III correctly described as a COMINT system, but incorrectly stated by W/P as "never used and was transferred to the Navy in 1958". In fact, it was used by CIA (and USAF) into the mid-sixties. Weighed 16 kg

System IV was used on 16 missions 1957-59

System V "was similar to System I but covered nine wavebands. The device was so heavy that U-2s using it could not carry a camera system". (The same is true for System IV, although this fact was not noted by W/P). It was only used on three missions (not noted by W/P: two of these were 4019 in December 1956 and 4020 in March 1957).

System XI was a lighter-weight replacement for System V that allowed cameras to be carried on the same mission (not noted by W/P: this is because – unlike Systems IV and V – it did not occupy the camera bay aka Q-bay). Per W/P, its coverage was P, L, S and X-bands, but actually, it also covered C-band.

System VII was the dedicated telemetry intercept system built by HRB. (Not mentioned here by W/P: it was used on peripheral flights of the Soviet southern border to monitor ICBM launches from Tyuratam). It could record six frequencies simultaneously for up to 12 minutes. First mission was 9 June 1959, and another 21 followed 1959-60.

System VIII was a redesignation of System VII when it was modified for use by the Navy. (not noted by W/P: it was flown by the Navy's A3D2Q (later EA-3B) Skywarriors that were dedicated to SIGINT)

System IX was the ECM device built by Granger Associates to counter the X-band radars on Soviet fighter-interceptors. W/P say it was also known as the 'KWMARK-30', but Gary Powers referred to it as "the Granger box".

System X was "a modification of HRB's System VI specially built in 1962 for a mission over the Soviet Union that never took place" per W/P. It might be better described as an all-new system, such was the cost. Not noted by W/P: it was designed to capture signals from the Soviet ABM system. See also System XVII.

Systems XI through XV "were ECM devices used by U-2s overflying China and North Vietnam during the Vietnam War" per W/P. In fact, the System XI designation was not used; System XII was a radar warner developed during the Cuba Missile Crisis; and Systems XIII, XIV and XV were adaptations of Navy ECM devices.

System XVI "was a passive ELINT collector" per W/P. I believe it was proposed, but not actually built.

System XVII was built by HRB and was also designed to capture signals from the Soviet ABM system. Collection against the Sary Shagan test site was planned by flying along the western China border, but by the time the unit was completed in 1965 "the tipoff time before test launches had been reduced from almost 24 hours to less than an hour." Not mentioned by W/P: nevertheless, System XVII was a wide-frequency SIGINT system with DF capability, and therefore did go into service on the CIA's U-2s from 1966.

System XVIII and XIX – like myself, W/P evidently could not find much info on these systems, since they do not mention them. (However, a CIA memo in September 1966 recommended development of System XVIII (18) as a replacement for System VI.

System XIX (19) may have been the sensor pods that were dropped over Lop Nor).

System XX was "specifically designed to counter the acquisition and guidance radars of used by MiG aircraft" per W/P. This is incorrect. It was an infrared sensor to detect the exhaust plume of fighters rising to intercept the U-2.

System XXI was a COMINT package that was originally developed for the A-12 OXCART

System XXII was an infrared jammer to counter air-air missiles. Not mentioned by W/P: it may not have gone operational on CIA U-2s, but did so on USAF ones.

For my own summary of the electronic devices on the U-2, see Appendix B of 50 YEARS OF THE U-2, p401-3

#### APPENDIX D: Overflights of the Soviet Union 1956-60

Previously entirely redacted (why?)

Not much new here. We knew all the pilot names already. Incidentally, only four out of these 19 pilots are still alive.

Mission 4020 by Cherbonneau on 18 March 1957 is listed. Not mentioned by W/P: this was an ELINT mission that unintentionally overflew.

Mission 4039 used the B-camera

## APPENDIX E: Unmanned Reconnaissance Projects

Previously entirely redacted

### AQUILINE:

This project has previously surfaced in a couple of open source accounts, and in four interviews that I have conducted. In 2011, I described most of what I knew about it here: <http://www.ainonline.com/aviation-news/blogs/ain-blog-uavs-fly-feathered-friends-over-unfriendly-territory>

New detail from W/P includes:

ORD began work on it in 1965 with Frank Briglia as project manager. Douglas Aircraft received four contracts 1965-69. 8.5 foot wingspan, 105 lbs weight. McCullough 3.5hp two-cycle engine.

Photo of the UAV in flight (it looks exactly like the scale model that I saw and photographed)

3.5 lines still redacted.

Flight tests of prototype at China Lake in 1968.

Three of five prototypes were destroyed in testing

Two paras still redacted – perhaps describing the projected operational missions.

OSA took over the project for operational testing

Range was 130 miles

“it obtained very high resolution photography” – no mention by W/P of the SIGINT mission that is described in one open source (and which I doubt).

Although flight tests were “successful” it was not deemed practical or affordable (another \$35 million and two-to-three years needed, per W/P – this differs from the open source accounts)

Cancelled by DDST Carl Duckett on 1 November 1971

Less than one line still redacted

### AXILLARY

The project name is new to me,

A “miniature multi-purpose airborne vehicle” proposed by the chief aerodynamicist on AQUILINE, Charles Adkins, who had developed a low-cost, lightweight autopilot. (Although it is not clear from the W/P text, he presumably worked for ORD)

An existing glider design, the Hawk 750, modified by contractor Melpar Inc with a rear-mounted engine and pusher-propellor.

OSA flight-tested it in 1971, but rejected its use for short-range covert reconnaissance because of its large radar cross-section.

ORD suggested an alternative use, with a warhead added, to attack SAM sites in North Vietnam. Some words redacted.

DoD provided funding to develop radar-homing and ‘television’ eg electro-optical payloads. Flight tests of the radar-homing payload at China Lake were successful, but funding was cancelled as the US withdrew from Vietnam.

A further 3.5 lines redacted.

P343-4

At least two more substantial paras are redacted. Possibly a third unmanned recon project. I know that there was one involving an unmanned version of Bert Rutan's 'Long-Eze' design. Possibly the 'CPS' project that is described in a couple of OSA memos declassified via the CREST.

P347-351

This was entirely redacted in the 1998 publication, but released with some redactions via the CREST in 2003.

This time, the authors of two articles in Studies in Intelligence are revealed, plus the aforementioned authors Helen Kleyla and Robert O'Hern of the 16-volume History of OSA (when will *that* ever be released ?! It has been FOIA'd).

The authors of six CIA Histories remain redacted. So does the author of a Studies article, "The Oxcart Story". This has been in the public domain for many years, with the author identified as 'Thomas McNich'. This is a pseudonym – it was written by John Parangosky.

P352-3

This is a list of the interviews conducted and speeches consulted by W/P, all in the 1980s. Mostly classified. It would be interesting to read the transcripts.

P355-

Index – not previously released.

Up to 85 entries still redacted