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ORAL HISTORY INTERVIEW

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Oral history interview with Dugald Black
[full name of interviewee]

about Coastal Cape Operations
[main focus of interview]

Title: _____
[interviewee's current and/or former title and affiliation]

Interview conducted by Robert B. Merrifield, Staff
[interviewer's name/position]

Historian at MSC KSC?
[location of interview]

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CONTENTS:

Biographical - [date/place of birth; family background] _____

Education - _____

Career Path - _____

Topics - ~~Worked~~ ^{constructions} ~~Began air flight operations~~ at Lewis Research Lab ^(Cleveland) (Ohio); 1959

Big Joe flight on Atlas; Hangar 5 at Cape Canaveral
test & check out procedures for Cape ^{launch} operations
enlarging Hangar 5; larger facilities needed
for Gemini Program; NASA Causeway;
Launch Operations Center (LOC) became
Kennedy Space Center (KSC); Fluid Test
Area for fuels

Dugald Black Interview
Nov. 12, 1969

At the beginning when we belonged to Flight Operations at Lewis Research Lab we were just finishing off our program there - a fullscale crash and fire investigation, in fact we weren't quite finished yet-- it was finishing up a few tests and writing a report.

Erwin Trinkel
Erwin Trinkel was our division chief and shortly after Sputnik he got the group together and asked us if we would like to join the STG that was being formed *at Langley*. We'd have to move to one of two places - Brownsville, Texas, on the Gulf Coast or to Greenbelt, Maryland.

Some went down to Greenbelt over the weekends and looked at homes. But before that came to pass, we were told we would go to the Cape. Some people already had moved or were TDY to Langley, *M.G.M.* Preston being one.

He bought a lot, and started building a home. In the meantime, working with the Langley people, they came up with a concept of building a flying model *of a space capsule* which we called Big Joe. It represented the Mercury spacecraft.

The reason we wanted to do that was the Mercury spacecraft that was being built by McDonnell in St Louis was behind schedule, and it wasn't going to be delivered until some time in February or March 1960. Early in 1959, we went to Langley and got together with the designers and draftsmen

on Big Joe and decided that we would build two Big Joes *at* our Cleveland, Ohio Lab. *Stop and* Martin Eiband was assigned to one and I was assigned to the other one.

The reason for two was in case one failed we would have a backup. This

was to be installed on top of the Atlas to be flown from Launch Pad 14 at the Cape. All that summer we traveled back and forth between Langley and Lewis getting the prints and all the instruments that would be required to be installed in the spacecraft.

We progressed building the two boilerplate Mercurys--the Big Joes. We got one finished and brought it down here to the Cape in July to check the instrumentation out with the range to make sure it was compatible. A few changes had to be made, ^{so} ~~but~~ we took it back to Cleveland, made the changes, and brought it back down to the Cape in August 1959. We brought it into Hangar S which was where we did our work. We ^{installed} ~~put~~ it on top of the Atlas, had it checked out and flew it on September 9, 1959. We had two experts on gyros from Cleveland that came down with us, Warren Plohr and Harold Gold. We flew the thing successfully except the booster malfunctioned. I don't remember the details, but we recovered ^{the spacecraft} ~~it~~ and brought it back ^{to Hangar S.}

Number 2 ^{boilerplate} spacecraft we also brought it down fully instrumented as a backup. We didn't use it. We then sent it to Langley and they used it at the Wallops Island. They ^{installed} ~~put~~ it on Little Joe, I think.

In Hangar S we had very little ground support equipment, except what we carried down from Lewis. In preparation for the flight we had to develop our own procedures, countdown etc., to go along with the Atlas booster. We stipulated ^{an} organization, what was involved in test and checkout of the spacecraft, how it was going to be done, layout of Hangar S, and preparations for scheduling. We ^{published these procedures} ~~wrote it down~~ to teach ^{our} ~~the~~ other people ^{and} newcomers.

within the area just what the rules, regulations, guidelines, etc., were and how to operate. ^{at The Cape} Chuck Mathews was the Operations Manager at that time and he had a lot to do with what went in this book as far as approving it even though his name doesn't appear, we spent a number of hours talking with him on what should and what shouldn't go in this book.

[It was during editing and rewriting of this book that Scott Simpkinson was on the verge of a nervous breakdown and we had to send him to Houston. He was badly overworked, and he and Mr. Mathews had several run-ins. He was sent to Houston. He had been head of the Instrumentation Group up to that time. He was here, then St Louis, attempting to work out the problems, helping to write the countdown, and he just got overworked.]

~~After~~ ^W we prepared to receive the McDonnell contingent and also the McDonnell spacecraft, ^W we found out Hangar S wasn't going to be big enough so we built additional office space to the north end of Hangar S in early 1960. Later on, at the south end of the hangar, we built another extension to put our instrumentation. We also built some office space, a stock room, and small machine shop, inside of Hangar S. ~~We put a second floor around the wall to accommodate the McDonnell personnel. Inside the hangar itself, we didn't use all the floor, as we had to have some place to store the spare parts for the McDonnell Mercury. We~~ also needed additional office space for the McDonnell people besides just the two wings on each side of the hangar. ^{I then ~~new~~ addition built inside Hangar S} We had offices on one end of the second floor and on the first floor the stockroom, warehouse and

instrumentation shop for checking equipment. ~~We didn't have enough room so we had to go on the outside and build a building on each side of the hangar. I think the one on the north side was around 8000 sq ft. It was strictly office space. The one on the south end was for the instrumentation.~~

We soon saw in looking ahead to the future program, Gemini, that even this expanded facility wouldn't be sufficient, and we inquired what buildings were available elsewhere at the Cape. There was nothing. Then we looked to see what ground was available where we could build additional buildings to house the Gemini spacecraft ^{and personnel}. We looked at the area immediately to the ^{west} ~~east~~ of Hangar S -- between Hangar S and the river, all the way to the north as far as Hangar N. This was before the ^{NASIT} causeway was built. Later we were informed that NASA had bought 80,000 acres on Merritt Island. First of all we had a causeway built. The MSO building was the ^{one} ~~or~~ constructed on the Island. It was ^{practically a swamp} ~~then a swampy~~ ~~ground~~, and as a result they had to remove many many thousands of yards of muck and fill it in with dirt that could be compacted. At one time we had a mound of dirt ~~there~~ 40' high. It sat there for 6 months until it all settled. They used this method instead of putting pilings down. That was the Corps of Engineer's recommendation. All our building construction over here was through the Corps and while we were doing this, we were coordinating our efforts between LOC, the launch operations center, which was now KSC, and Houston. This was 1961. The criteria for the O&C Building was approved in January 1962 ^{by Houston and RSC}

As a result of the type of fuels we were using on Gemini-- hypergolic/cryogenic propellants, we built what we called a Fluid Test Area directly to the south of the O&C Building. This Fluid Test Area provided for the remote and safe checkout for the spacecraft hypergolic and cryogenic systems. It was designed with expansion capabilities. The facilities in this area included: Environmental Control Systems Building, Support Building, Hypergolic Test Building, Cryogenic Test Building, Weight and Balance Building, Ordnance Storage Building and Radar Boresight Range. After we had built all of these buildings, we had to install all of the systems necessary to check out the various systems in the spacecraft. Included in this activation were two altitude chambers constructed within the O&C Building.