8-1

21-24 October 1971
Washington

JAMES P. HAMILL

Was involved in the European Theater of Operations - Ordnance Technical Intelligence, involving all weaponry used by the Germans. My first interest came in London before the invasion. That's when we lost many nights sleep over the V-1.

1944 in France, and artificial distinction was made between the V-1 and the V-2. V-1 had wings and became the responsibility of Air Technical Intelligence. The V-2 was a projectile and became the responsibility of Ordnance.

Air Technical Intelligence, Navy Technical Intelligence, and Army Ordnance Technical Intelligence were generally coordinated by the Supreme Headquarter of the Allied Expeditionary Forces. My specific area was Artillery Fire Control and Submarine mines for Army Ordnance. There was good liaison between the three branches of the forces.

Ordnance Technical Intelligence - Army was primarily interested in those weapons vital to combat elements of the US Army which could encounter these weapons.

With each Army there was a technical intelligence team of an officer(S) and enlisted men. They received information from their own units, from us or a combination of the two, giving them the potential location of the equipment they were to zero in on.

The Corps of Engineers, and the Signal Corps also had technical intelligence teams. From the field, quick reports came back and were consolidated at General Toftoy's office. We might, for example pick up a manual while they would pick up a piece of equipment - or one team might pick up a component and another might pick up a component and we could 1)get out a fragmentary report as to the nature of the equipment being taken in or 2)write a general report on larger things, like a system which also went to the US and maybe on to MacArthur in the case that the Germans had passed this on to the Japanese.

One of the functions of the teams in the field was to get the equipment. The agreement under which we operated was that the first piece would go to England for analysis there since it was closer and the second piece of equipment would go to the US. Col. Toftoy had many difficulties here, because the British were also capturing equipment. Many times, we would not get their second pieces. So there was quite a bit of friction between the British and the Americans as to why the staff couldn't get to Aberdeen when there were 2-3-4-5 undergoing tests in the UK. This is not to distort the proportion but to show that Technical Intelligence had not only to deal with the three service branches but also Britain and France.

Sometime in June 1945 Toftoy was ordered back to the US with a specific assignment - to replace Trichel as the Chief of the Rocket Brance of the Office of Chief of Ordnance. Contracts at that time were in the form of a study contract with GE. Study contracts were various individual technical developments with JPL.

New Beginning — Also see Eifler

Toftoy's Predicaments:

The Ordnance Department at that time was built on the concept of the arsenal system whereas the Army Ordnance had retained special installations, knowledge for various commodities within Ordnance. There was no arsenal in 1945 - not until we moved from Bliss in the late 40's.

~~Toftoy was faced with the problem~~

Toftoy had a small staff of 20 people, including administrative personnel who were to monitor the surface to air, surface to surface, missile development for the Army. He therefore had to rely to a great extent on his two principal contractors, GE (for surface to surface) and Western Electric (surface to air); Although Hermes also included a surface to air study which would indeed have incorporated some of the concepts of the Wasserfall.

JPL was a research laboratory in propulsion and it was only after they fired their research vehicle successfully that the

Therefore, in relying on the contractors, one had to work with them.

I think it can be said in general that GE was completely responsible to the desires of the Army. This was one of the things that caused the program ultimately to fail as a system development program. 37 (See Driscoll)

GE was always willing to change concepts, weights, requirements at the Army's request. Bell Telephone Laboratory on the other hand, presented a system in Sept. 1945 and ultimately put the first one off the line in North Carolina in Burlington in 1952 and the artist's concept and the production model were in concord, even in appearance. In short, they decided what the Army needed most and stuck to the original concept and turned out a piece of hardware.

Not having the Arsenal System, Toftoy single-handedly had a problem obtaining funds, not only from the Army, but also even within the Ordnance department which was accustomed to dealing with tangible commodities and not with concepts which were not to come to fruition as tactical weapons for the entire period of time which he was in Washington.

He, therefore, can be credited with having had the single-handed responsibility for the Army missile program as we know it today. 71 In addition to obtaining funds, providing guidance to the contractors, he also had the problem of dealing with the General Staff who in turn was influenced by the thinking of the various combat armed boards, and centers - like Bliss for example. Also the commanding general of the Army ground forces and their own planners in G-III. It was Toftoy who had to satisfy the requirements, on one hand of the General Staff and their customers, and at the same time have a reasonably balanced program at his industrial contractors. These were not arsenals to whom you could issue orders. In addition to that, during this entire time (45-52) Toftoy had to continually battle the roles admission. There were many definitions of tactical missiles. If it was under 25

it had wings, the Air Force claimed it was theirs.

The mission as proposed by us, the chief of Ordnance, Col. Tofto for the Fort Bliss operation was three-fold;

1) To serve as an interrogation center for contractors, industrial and university in rocket or guided missile development. In this area, the Germans saved the US many many times their entire cost - not by telling American industry what to do, but by telling them the blind allies down which the Germans had gone and proven futile and thereby precluding us from spending money in areas which were totally fruitless, or alternatively, pointing out pitfalls which one would meet as one progressed in one's development, The most critical area (Germans helping Americans) in my opinion was in aerodynamics and the propulsion problems. Work on double integrating accelerometers, gyros and stabilized platforms was also very valuable. The launching and handling experience and of course, the propulsion system itself was a tactical proving ground until 1950. It is indeed difficult to say which made the greatest contribution, however, Production talents remained more or less a German cocoon for when the time came to tap it, when Rudolf and Minning were sent to California, the Ordnance man in charge (Firestone) didn't want to have anything to do with the Germans. Firestone didn't know a thing about production and whereas in the Western Electric Program we had the Western Electric general office assistant manage Bell Telephone, we, in the Corporal program had no one to manage. JPL Firestone and ---. This was left to the Ordnance Corps.

2) The second mission was to assist in the preparation for firing and the firing of those V-2s which had been shipped back from Germany, recalling, of course, that these did not come back as complete missiles but rather, as components reportedly sufficient for 100 V-2s This role occupied a good percentage of our effort.

3) The third role, was to conduct such studies and to propose such missile programs as would determine for Fort Bliss. This effort took various and sundry turns. However, the primary effort was to utilize the V-2 as a booster since we could obtain

was the way in which the group could most quickly establish its capability of performing or demonstrating a prototype system. The second question was what type of system to be used with the V-2.

(Discusses Ramjet - description and reason. It could extend range of V-2, utilize the V-2 reliability and tactical use - jet propulsion - significant technical advances permit Army to extend its range of activities.)

We didn't even make a serious proposal to the Office of the Chief of Ordnance for the manufacture of an American version of the V-2. The problem, then, is the same problem which is facing the battle tank in Europe today, and that is the conversion of metric to English standards. Just the drawing conversion of the V-2 as it stook coming out of the Elektromechanische Werke to a commodity coming out of an American paint was by far more costly than 2 - 3 years of our budget at Bliss for salary, equipment, etc.

It must be remembered, in regard to roles and missions, winged and unwinged, changed with the fashions of long and short dresses. At times,(44-51) the Air Force took a stand on winged vehicles and they did, indeed, object to our Ramjet. However, at other times, it was fashionable only to allow so many miles per tactical support. Therefore the Air Force objection to the Ramjet was a factor, though mot an overriding factor, at least during the time that the Hermes II was proposed.

This was proposed to Barnes and Toftoy sometime in 1946 by von Braun, at which time General Barnes made the decision that personnel and supplies to augment the staff at Bliss would be provided by the GE Company as an amendment to the existing Hermes contract which would from then be known as the Hermes II supplement.

FORT BLISS:

The first problem that was encountered was whether or not to keep the German Scientists in enclosure. Ir appeared to me at the time that this would be the easiest way to remain inconspicuous to utilize the batallion area made available to us and to keep

the time that the families arrived.

Another sensitive area was the actual feeding of German scientists. In other words, against the background of the times which was a few months after the hostilities in Germany, for American soldiers to be serving KP duty and serving German scientists meals - I felt was an explosive thing that would get us unwarrented publicity. With the help of the ~~program~~ PROVOST marshall at Fort Bliss, I was able to recruit one of the finest mess teams I had ever had the prividege of having under my command. They were from the Africa Corps. It was strange. During the period they were with us the only difficulty we had was an alliance which they formed among their own military personnel which took on all civilians - German and American.

Another policy which we had in effect, not entirely in the department of army policy, but one to which we adhered to very strictly was the fact that there was no publicity about our organization, whatsoever. In the long run this proved to be correct way to do it because on the night of Dec. 26, when we had an open house for the press, there was adverse publicity for many months, based on such simple statements such as someone of the German group saying they preferred the German way of preparing chicken over the American way - splattered all over the El Paso Herald Post.

IMPRESSION DEPT. - CHARACTERISTICS OF THE ORIGINAL PEENEMUNDE GANG

1) Von Braun's ambition, long before I met him, was to see the backside of the moon, to explore the moon.

2) The persistence and loyalty of the group in accomplishing any assigned project was certainly the group's outstanding qualification

3) Individual technical competance but their experience and ability in knowing each other and having worked together for many years as a group with a system oriented concept.

These are the ingredients that went into the successful accomplishment of the lunar mission for the US.

(Also see J. Miller interview

Exemplified when:

I was once given a deadline for the presentation of a program to the office of the Chief of Ordnance. It was a budgetary

for several days around the clock, literally so that when I got on the plane, the last piece of work I had in my hand was not yet dry - but the project package was complete. This was within a relatively short time of our being together. In other words, once the word went out, time, personal convenience, nothing ever stood in the way of the group as a whole, including all individual members of putting out for the program.

One of our favorite expressions was - Wir haben das Project geschaft - We have swung the projedt - or we've upheld our end.

A telegram from Toftoy concerning the rocket to carry 6900 lb. warhead using known components and at earliest possible date led to adopt the North American power plant.

There was reluctance among the group to utilize the North American power plant for we had developed a field plant which was serviceable. We had the members who treated not only the plant itself, but the power plant as a system and therefore to integrate someone else's power plant into our design is presenting another hurdle in a formidable task. Our men were accustomed to work with their men, the men who were designing.

Due to lack of knowledge of turbulent or lameter flow in boundary layer, a concrete warhead was actually considered as a means of resisting heat upon reentry. We did not know - the decision of the North American power plant was not Black and white but it was made.

I recall that von Braun and I went from Huntsville via Chatanooga on Southern Railway to (Washington on the Redstone Project). Even on the train going up to make our presentation, Braun still expressed his reservations about the North American power plant. We made our presentations and there were questions which followed. Admiral Gallery raised the following question: Why, since you are the only group that's ever developed a tactical system, are you buying somebody else's power plant? Von Braun immediately and without hesitation gave him all our answers plus a few of his own which I had never heard before.

HAMILL - 8

Discusses Redstone - why 2 stages - pro and con.

I'm sure von Braun always thought that he could at least get a baseball to the moon with something that gave him this much thrust.

The Redstone did not cancel the Hermes II Project. In fact it went on with Hermes B-I. Our philosophy at this time was that we had had so many ups and downs during our development period, that I could foresee that if we were successful on a given project, and didn't have a couple in reserve, so that our designers wouldn't lay idle, we tried to keep three projects going, with a variation for priorities so that if one, indeed, went out, we wouldn't be sitting with no money and nothing to do.

XXX

HAMILL

~~MEANWHILE - BACK IN THE ARTILLERY FIRE CONTROLL AND SUBHARINE I HE BE~~

The V-2s were part of artillery in the Ordnance perspective. So Col. Toftoy called me in sometime in spring 1945 and told me that because of the extension of our communication and the rapid advancement of American forces, after passing the Ruhr pocket, it would be necessary to ~~get~~ set up an Ordnance Technical Intelligence forward operation, and that apparently, the best location would be at Fulda, Germany which was ~~the~~ headquarters ~~of~~ for the advanced section communication zone. He had selected me to head this operation for him and told me that the principal target was the underground factory at Nordhausen and the evacuation of the tank plant at Kassel. Two companies were allocated for this operation. Col. Joel Holmes was ~~present~~ there at the time. Both he and Toftoy indicated to me that I was going up with my SHAEF card, so I should get in and out as quickly as possible. One of the companies was being moved up from southern France under SHAEF orders, the other from Normandy.

T1

x 50 of Kassel

100 KM S.W. of Nordhausen

Members of the impressed labor force as well as Germans were utilized Maj. Bill Bromly Lynch stayed on site all the time, my base of operation was Fulda and I visited the plant at Nordhausen several times