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Evaluation Report No. 153
28 June 1945

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COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE

Interrogation of Herr Stiele von Heydekampf
Target Nos. 18/2, 19/7, 19/71.

LOCATION : Kassel

Stiele Von Heydekampf worked in the U.S.A. for Babcock and Wilcox, Bayonne, N.J. 1930 and Baldwin Southwark 1930-1933. He returned to Germany and was employed by Opel in the capacity of Materials Control Supervisor. Subsequently he was made manager of the Brandenburg Opel Truck plant. In 1938 Mr. Henschel asked him to join the Henschel Co. but he did not accept the offer. He joined the Nazi Party in 1940 at the request of the Brandenburg Gauleiter who, according to von Heydekampf, felt that the General Manager of such an important plant as Opel should belong to the Nazi Party.

In 1942 Mr. Henschel was forced by the Nazi Government to give up the management of the Henschel and Sohn plant in Kassel as it was felt that the company's production record was not satisfactory. Heydekampf was selected as General Manager as a result of his production record at Brandenburg.

In December 1943 Von Heydekampf was appointed President of the Panzer Kommission to succeed Dr. Porsche.

Dr. Porsche had been for some time in disfavor with both the Army and the Speer Ministry owing to the unsatisfactory performance of tanks of his design. The many changes he demanded and the fact that when a new weapon was requested by the Army he proposed a completely new and unorthodox design without regard to the use of existing production facilities or past experience were retarding production.

The 1945 organization of the agencies concerned with Tank design and production together with a partial list of their membership may be inspected at CIOS.

In February 1945 Von Heydekampf responsibilities were increased by his further appointment as head of the Hauptausschuss directing production of tanks, combat transport vehicles, and R.R. locomotives. By this move Von Heydekampf came into control of tank production thru the Hauptausschuss and was also influential in design thru the Panzer Kommission.

During the time that Von Heydekampf was president there were only three formal meetings of the Panzer Kommission; the first of these meetings was a dinner given by Hitler in December 1943 at which time Von Heydekampf was introduced to the Kommission. The duties of the Kommission were to review the requirements of the Heereswaffenamt, examine proposals submitted by industry and make recommendations for their disposal. In lieu of formal meetings of the Kommission most of its business was transacted personally and through mail by Von Heydekampf.

Von Heydekampf was primarily a production man. Under his direction the P.K. largely lost its mission of originating design and became a "watch dog" over design changes and new projects that might seriously reduce production.

Von Heydekampf indicated that the German Tank program was mainly shaped as a result of three major influences:

1. The Desire for Powerful Guns and Thick Armor.

The development of 30 - 35 ton tanks was begun in 1938. Such vehicles were being tested in 1940 and 1941 with production anticipated for 1942. With the invasion of Russia in 1941 when the original Russian T-34 Tank was encountered, the German Army Staff decided to abandon the current development program and demanded production of still heavier Tanks. As a result the Tiger I and Panther designs and production

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were pushed more rapidly than any previous projects. In Heydekampf's opinion the program was pushed too rapidly with the result that many mechanical difficulties were encountered in service.

The design of these vehicles was much influenced by the T-34 which was held in high opinion by the German military. Von Heydekampf said that the three features of the T-34 which particularly impressed the Army as being valuable were:

- a. Extensively protruding gun which the Germans had previously considered impracticable.
- b. Sloping armor all around.
- c. Large wheels.

The Tiger I was the outcome of design competition between the Henschel Tiger and the Porsche Tiger. Pilot models of each were shown to Hitler on his Birthday 19 April 1942 and subsequently tested. The Porsche Tiger was very unsatisfactory in a great many respects and was rejected by the Army. However, owing to Porsche's influence with Hitler, 90 hulls were ordered, and eventually became the Ferdinand (Porsche's first name) S.P. gun mount which later also proved to be a failure. After the Henschel Tiger I had been used for a short time so many troubles were encountered that a redesign was ordered along the lines of the Panther, which was developed a few months after the Tiger I. The Tiger II resulted.

In 1942 while Porsche was still President of the P.K. and very influential due to his close friendship with Hitler, he pushed the design of still heavier tanks. Porsche got an order to design a tank of approximately 150 tons weight which was designated the Maus. This development was not generally favored and progressed so slowly that a vehicle had not been completed by V-E Day. It was Heydekampf's opinion that the Tiger II tank was close to the limit of weight for steering, mobility and size having in mind the limitations of R.R. transportation. Further there were doubts in the minds of the tank people that a tank of the Tiger size was the most suitable.

2. The Trend Toward Gun Carriages of Limited Traverse.

General Guderian representing the Armored Forces wanted vehicles with full 360° traverse gun turrets. Other branches of the Army favored limited traverse mounts because larger guns could be mounted on vehicles of a given weight. This latter viewpoint won out because it was supported by Hitler under the influence of Saur. Consequently the number of lighter tanks equipped with limited traverse guns constantly increased.

3. Economic Considerations.

There was a steady increase in demand and production of tanks throughout the war. For approximately two years both design and production facilities were diverted from aviation effort to tank effort. This development was due partially to the increasing shortage of fuel but according to Heydekampf tank activity would have increased even had there been no shortage of aviation fuel.

The 1945 Tank program was formulated on the basis of the foregoing trends.

TANK PRODUCTION PROJECTED FOR MIDYEAR 1945

38 - T)	2000 units per month		
38 - D)			
Panther		300	"	"
JAGD Panther		150	"	"
Tiger II		150	"	"
JAGD Tiger		50	"	"

Both the 38 T and the 38 - D were to be built as limited traverse mounts and were to weigh 14 tons (metric). The 38 - T was quite similar to the original

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Czech model. The 38 - D was to be built in Germany using the 12 cylinder Tatra diesel engine. Both vehicles were to use the 75 mm L/48 gun a number of which were to employ rigidly mounted guns. Development work was in process for the rigid mounting of the 75 mm L/71 gun eventually.

The PzKw III went out of production in 1943. The PzKw IV was scheduled to go out of production in mid year of 1945 and the program for the production of the PzKw III/IV was dropped in the Fall of 1944. All facilities freed by these cancellations were to be devoted to the production of the 38 - D. The 38-T was to be built in limited numbers with a lighter hull for use as a re-con vehicle.

This program was given highest priority and was practically the only active development program during 1944.

The larger vehicles in the 1945 program continued virtually unchanged.

WAFFENTRÄGER (Weapons Carrier)

The Waffenträger is not a tank but the design and production was being handled by the same agencies. Over a period of two years efforts had been made to develop a full track vehicle for use as motorized field artillery. The major characteristics were full tracks, 360° gun traverse with provisions for high elevation, very light armor protection (8 - 10 mm) and suitable for mounting a large variety of weapons.

Two vehicles of this type were developed and were scheduled for production mid-year 1945 to reach a production rate of 300 - 350 per month by Fall 1945.

After various schemes had been considered it was decided the vehicles were to be completely built of 38 - T and 38 - D components except for the frames and hull. They were front drives the engines placed to one side at the front with the driver along side. The hull was so low that the driver could only operate the vehicle with his head above the hull top plate. The whole rear end was an open platform on which the gun was mounted and part of the ammunition carried. The smaller vehicle had four wheels per side, and was to carry the 88 mm gun or the 105 howitzer and probably others. This smaller vehicle was to weigh approximately 14 tons (metric). The components required were to be taken out of the 38 - T or 38 - D program.

Ardelt at Eberswalde, (East of Berlin) in competition with various other firms designed the vehicle that was accepted by the Army and built pilots. Subsequently Krupp was charged with responsibility for the production design and Egen of Krupp was put in direct charge and located at Ardelt up to March 1945 when it is thought he returned to Essen. The large one had six wheels per side and was to carry the 128 mm gun and the 150 mm howitzer.

DEVELOPMENT PROGRAM

There was a program of development of components and completed vehicles which was the responsibility of Kniepkamp.

Kniepkamp directed this work thru Waffenprüfam 6 (Division of Ordnance Dept. charged with responsibility for armored force vehicles) which had been removed from Berlin to Zietenkaserne (Barracks) at Gottingen and still later to Bernburg/Elbe. The head of this department, representing the military, was Col. Holzhauser.

ENGINE PROGRAM

Diesel engines were gaining favor. Before the outset of the war the army had standardized on gasoline engines because the fuel industry had said that synthetic diesel fuel was difficult to produce. Subsequent to 1942 the Army was advised that this condition had changed and that diesel fuels would be more readily available than gasoline. From that time the Army pushed the development of diesel engines. The Germans were also impressed by the performance of diesel engines in the Russian Tanks (large tanks using converted aircraft engines). The general feeling, apparently, was that the diesel engine was a superior power plant but had the draw-back of difficult cold starting.

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Hitler and Porsche favored air cooled engines especially for operation in cold climates such as Russian Territory. Heydekampf and most engineers in the industry preferred water cooled engines. The comparative space requirements of the two types was never satisfactorily settled. Heydekampf felt that air cooled engines did not save space.

The Following Engines were Under Development.

Maybach H L 230 was to be improved in reliability with respect to cooling (2 pumps) coolant distribution, bearings, cylinder head seals (soft steel gasket). The output was to be increased in two steps. First from 650 h.p. (metric) to 800 h.p. by direct fuel injection, increased compression ratio. Pilot engines had been built and tested and were scheduled for production use in the Tiger II by mid year of 1945. The second stage was to be an increase of output from 800 h.p. to 900 h.p. by supercharging. An engine was built and run.

This work was under the personal direction of Dr. Maybach at Friedrichshafen. The injection equipment was developed by Bosch.

Argus, Berlin, developed a 12 or 16 cylinder, air-cooled diesel engine which developed 800 h.p. This engine was influenced by the Russian diesels and was suggested by Hitler. The engine was actually built and run.

Simmering, Vienna, built and tested air-cooled diesel engines of 800 h.p. of Porsche design. This engine was known as the "Simmering - Porsche" engine.

Klückner - Humboldt - Deutz designed an 8 cylinder water-cooled diesel engine to develop 800 h.p. Work was done under the direction of Dr. Flatz either at Cologne or at Oberursel near Frankfurt am Main. No engines were built.

Following the examination of Russian Diesel engines, Daimler Benz were given a diesel engine project based on a converted aviation engine. This project was dropped. Dpl. Ing. Maennig was in charge of this work at Marienfelde Berlin.

The P. Kommission did not think that air cooled engines could be developed for this war.

The Maybach development was favored for immediate production due to the fact that installation was required for existing Panther and Tiger tanks.

Engine accessibility was less emphasized than space saving.

TRANSMISSIONS

It was difficult to get any definite idea of the direction that transmission development was taking. Kniepkamp had initiated development on hydraulic torque converters and this was receiving the support of Von Heydekampf. The two firms handling this work were Voith of Heidenheim and A.E.G. (Foettinger) Berlin.

Zahnrad Fabrik, Friedrichshafen, were continuing development work on automatic shift mechanical gear boxes and were working on an electro magnetic gear shift arrangement. (Cotel) This unit was on test about two years ago.

A further development by Puls Getriebe was under consideration for the Tiger II. This transmission employs a number of epicyclic trains. One box had been sent to Paderborn for test purposes. This gear box has been evacuated thru O.T.I.T. channels. Herr Puls is a well known engineer having his experimental establishment in Leipzig. He was employed in England for some time prior to the war.

Those projects under development by Dr. Porsche employed petrol or diesel electric transmission and this is indeed a feature of most of the Porsche projects. This system does not have any support from the Army or P.K. in general.

A hydraulic steering system was worked out by M.A.N. for the Panther tank. This operated well on trials but it was completed at a date that made it too late to put in production.

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Generally, hydraulic systems were considered to have a promising future but the urgency of tank production made their development difficult.

LONG TERM DEVELOPMENT PROGRAM

A complete series of tanks and components development was started within the last 2 years under direction of Kniepkamp.

The following tanks were being studied and were to be built but were not considered production pilots:

E-10 was being designed by Waffenprüfam 6 directly and was to fall in the 38 - T class.

E-25 was being designed by Argus at Berlin and Karlsruhe and was considered as falling in the M III and M IV class.

E-50 was being designed by Argus and was considered in the Panther Tiger class.

E-100 was a heavy tank (140 tons approx) being designed by Adler, Frankfurt am Main, largely in competition with the Maus. Heydekampf, Kniepkamp and Guderian were of the opinion that tanks of their size did not have a bright future.

The first three (E-10, E-25, E-50) were to be rear drive, the E-100 front drive.

Heydekampf stated that rear drive was favored by the army from a combat point of view to reduce vulnerability.

Although submerging equipment was not made since early '43 (50 Tiger I tanks were equipped) the demand for submerging ability for the Tiger II tank was not relaxed until mid year 1944. Requirements for wading to a depth of 180 cm. were continued. The reason given for abandonment of total submerging was that they had expected that rivers would have to be waded but it was found that the standard 16 ton Engineer Bridge (German) would carry the Tiger II.

The size of German Heavy Tanks was limited in two ways (1) By the cross section limitations of R.R. transport. The Tiger reached the limit of gauge for two way traffic and required narrow transportation track. The Maus exceeded the two way traffic limit but could be transported by stopping on-coming traffic. (2) By the limit of length - width ratio which could be steered.

Gas proofing of tanks up to and including prussic acid gas was requested about mid year 1944. All equipment was to be installed except filters, as soon as available.

Heydekampf stated that armor castings were favored for heavy tanks but that facilities were not available for producing them.

He thought that the British and American traversing gears were good. An "elegant" solution in his words.

Heydekampf considered that the German suspension was good and problems had been largely overcome. Torsion bars were considered expensive to produce but satisfactory springing medium.

Col. Schaede presented the idea of the rigid mounted gun at the Hitler Dinner in December 1943. Col. Schaede was also the individual who proposed the curved barrel machine gun.

Heydekampf stated that as the Military situation deteriorated so the level of mounting larger calibre guns increased in tempo. This trend was favored by the Artillery Arm but not by the Armored Command.

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The three branches of the Hauptausschuss under Heydekampf were dispersed during the latter part of March or early April as follows:

Panzer	Zorge) Hartz
Secretariat	Braunlage	
Railroad Equip.	Rubeland	

Ing. Krömer was in charge of the Panzer at Zorge.

Heydekampf characterizes air cooled engines for tanks as being bulky, complicated and with poor valve accessibility. However, Hitler, Saur and Porsche always strongly favored air cooled engines.

Two engines were used in the Ferdinand because the single large, air cooled diesel engine that Porsche designed was not a success.

Heydekampf stated that despite the shortage of alloys no serious decrease of quality of product was occasioned. Great efforts were made to use low alloy steels and to correct any troubles by design changes, but alloys were allocated when other methods failed.

The use of resilient wheels resulted in improved wheel life as compared with rubber tired wheels and did not shorten track life or occasion trouble with bearings. The increase in noise had to be accepted.

A new lighter, narrower and improved turret for the Panther was designed and pilots constructed by Daimler-Benz, Berlin, under the direction of Dr. Wunderlich.

For the tests of rigid gun mounts the Army established a life requirement of the mounting of 1000 rounds.

No provision for protection against ammunition fires was anticipated as far as Heydekampf knew.

It was his opinion that there was some deterioration in armor plate due to the fact that progressively more open hearth steel had to be used in place of electric furnace steel.

The Büssing 8 wheeled armored car with Tatra Diesel engine was to be continued in production at the rate of 100 per month and represented the only Recon. vehicle to be continued except a special model of the 38 - T as previously mentioned. Both the 4 and 6 wheeled armored car production had been discontinued.

German Pneumatic tired trucks had proved unsatisfactory in Russia under poor road conditions. Therefore, the production of tracked and semi-tracked vehicles such as the Raupenschlepper and the Maultier was undertaken. These latter vehicles had poor performance and many mechanical failures and were dropped. The final plan was to build 4 x 4 and 6 x 6 pneumatic tired trucks with large section single tires replacing dual tires. The half track tractors were popular with the Army and were to be continued in production.

It was Army policy to give a minimum of information to contractors of component parts in order to maintain secrecy. However, secrecy was not well maintained according to Heydekampf due to indiscretions of highly placed persons, particularly Saur.

Heydekampf said that the tank program was extravagant in man hours due to:

- (1) Lack of mass production knowledge and facilities in the heavy industries chosen for tank production.
- (2) The design program was never rationalized which resulted in the production of too wide a range of models.
- (3) In some instances designs were unnecessarily complicated.

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As an example it was his opinion that all passenger cars and trucks could have been powered with a maximum of only 4 or 5 engines.

He stated that the tanks program had suffered seriously by being given to the heavy equipment manufactures and that it would have been much better had it been given to Ford and Opel, mainly because of their production experience. This was not done however, owing to the American association of these two companies.

The Army was favorably impressed with the gun stabilizer on American Tanks and work was in process to develop stabilizing equipment first for gun sights and secondly for guns themselves. Col. Henrici of Wehrmacht 6 was possibly entrusted with sighting developments.

A large amount of development work was in progress on the general problem of night vision. Lt. Col. Haenel is probably the man dealing with the Infra Red night vision development. (See list of Panzer Kommission members).

A Panther tank was fitted with stabilizing equipment for both sighting and gun stabilizing in elevation. According to Heydekampf the firing trials showed 2 to 1 improvement with a stabilized sighting or gun (?) system and a 3 to 1 improvement with gun and sighting stabilization.

From D day on German Industry was very sceptical of any tank production program but continued to operate with an outward show of endeavor although they considered the war lost. Speer was the only man who dared to convey this impression to Hitler and in doing so he fell from favor.

Heydekampf confessed the opinion that the Panther represented the most successful German tank design of the war. This design was credited to Kniepkampf as a final consolidation of tank development considered as likely to have effect during the war.

The following items were selected by the Panzer Kommission for immediate development:

1. Rigidly mounted guns
2. 38 - T and 38 - D program
3. Perfection of Tiger II and Panther designs
4. Engine developments
5. Optical stabilization - Prof. Erich Muller
6. Development of anti-aircraft tanks - Kugelblitz (?)
7. Night seeing equipment - Infra Red

This consolidation of development was entrusted to Ing. Krömer.

Stieler von Heydekampf claimed to have little or no knowledge exchange of ideas with the Japanese Government. If there was any such arrangement, then it was with the Heereswaffenamt and he had no knowledge of it. He did, however, know of a visit of the Japanese Embassy Officials to Henschel at Kassel at which time the Tiger I and the Panther were demonstrated. A Japanese Colonel by the name of Ishida was the principal tank expert at this demonstration and ultimately arrangements were made to ship a Tiger I tank to Japan. Whether or not this tank ever arrived at its destination is a matter that Heydekampf could not answer. The demonstration was held on 30 July 1943.

PANZER KOMMISSION

Dr. STIELER von HEYDEKAMPF - President (Henschel & Sohn)
Prof. SPEER (Reichminister for Armaments)
General GUDERIAN (Inspector General of Tanks)
General THOMALE (Chief of Staff to Guderian)
Dr. ROHLAND (Head of Ruhrstab)
Dr. F. PORSCHE (Volkswagen & Expt Engineer Stuttgart)
Director HACKER (Director of Steyr & Nibelungen)
Dipl. Ing. Dorn (Armament Designer, Krupp)

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Prof. ERICH MULLER (Chief of Armament Design, Krupp)
Dipl. Ing. WIERICKE (Designer MAN)
Colonel HOLZAUER (Development Komm. - Speer Ministry)
Lt. Col. HAENEL (Secretary, Panzer Kommission)
Prof. BENZINGER
Colonel GEIST
Dr. MAYBACH (Chief Designer - Maybach Motorenbau)
Dr. FLATZ (Klockner Humbolt Deutz)

The above are the principal members of the Panzer Kommission although there may have been a few additional names.

Col. Schaede and Ing. Rau are also reputed to have attended meetings.

J. G. HOLMES	Lt. Col.	Min. of Sup.	CIO5 GP V
D. H. CARTER	Lt. Col.	Min. of Sup.	CIO5 GP V
W. SCHUSTER	Captain	Ordance	CIO5 GP V
ROBERT SCHILLING	Civ.	Ordance	CIO5 GP V
M. A. THORNE	Civ.	Ordance	CIO5 GP V

5 - 6 June 1945.