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Ref No SAIC/38
3 Jun 45

SEVENTH ARMY INTERROGATION CENTER
APO 758 US ARMY

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: S E C R E T :
:Auth: CG, 7th Army :
:Init: P. H. D. :
:Date: 3 June 1945 :
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NOTES ON GERMAN WEAPONS DEVELOPMENTS

(Cf also Report Ref No SAIC/12, 17 May 45)

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I. PREAMBLE

The following information was obtained from Dr Edgar RUPPELT, Dr Alfred NORDT, Dr Ernst KNUST, and Nils LARSSON, all of the PIBRANS, Czechoslovakia, SKODA Works Rocket Experimental Station. While all of them gave a certain amount of information, LARSSON, the head of the group, can be considered the main source.

LARSSON, Nils, is a 27-year-old Swedish engineer whose special field was the development of new weapons, especially in the rocket category. In summer 40 a proposed A/T weapon of his design was accepted by the Swedish military authorities. He attended a military technical school for some time and in winter 42/43 met the Norwegian Military Attaché, Lt Col SMITH-KIELLAND, and through him, the American and British Military Attachés in STOCKHOLM. He attempted to leave Sweden to work for the United Nations, he claims, and when this proved impossible due to difficulties in transportation, he got in touch with an American intelligence official, a "Col ANDREWS", and a representative of the British Secret Service, a "Mr GREEN", who instructed him to go to Germany and keep in close touch with the latest developments in rockets and other weapons. Source claims to have obtained definite instructions as to his proposed mission in Germany.

Through a representative of the German Military Attaché, a 1st Lt "MÜLLER-LIEBENAU", source obtained permission to enter Germany as specialist in rocket development.

Source worked at first, starting on 1 Jul 43, for the firm MAGET in BERLIN/TEGEL. In order to avoid troubles with the German Police, his case was cleared by the German authorities through the at the time unimportant SS HPTSTUF (Capt) SKORZENY. Due to SKORZENY's subsequent rise in power and importance, it was possible for source to gain access to the top German agencies involved in the development of new weapons.

After short periods of work in various smaller agencies involved in rocket experiments, source was sent to the VERSUCHS-ANSTALT (Research Center) GROSSENDORF, on the HELA Peninsula, about May 44. Here source had occasion to acquaint himself with the latest developments in the rocket field, as well as to get to know the names of the leading scientists involved in the experiments and research work. From here, source claims, he sent reports through a contact-man in BERLIN as well as through his wife in STOCKHOLM. Furthermore, source made contact with the leading scientists of the Torpedo Research Center GOTENHAFEN (GDYNIA), which was a sub-post of the MARINE REICHSVERSUCHANSTALT (REICH Naval Experimental Station), KIEL.

In winter 44/45 the GROSSENDORF Center was evacuated to PIBRANS, Czechoslovakia, where, together with the Research Post of the PIBRANS SKODA Plant, it formed a new elaborate Research Center under Eng Rolf ENGEL, former head of the GROSSENDORF Center. In Apr 45, when Germany's collapse was near, this Center was dissolved and the personnel were given permission to leave Czechoslovakia. Source left for Southern Germany, securing on his way important scientific data as well as some secret Police documents applying to the plant.

Source appears to have had occasion to form an overall picture not only of the latest developments in the rocket field, but in the general line of research on other new secret weapons as well. Due to his travels and his access to data in the top German research centers, he knows a remarkable number of names connected with latest German scientific developments. He wants, with the help of American and British influence, re-instate his "good name" in Sweden where, it seems, he is regarded as a traitor because of his departure for Germany. Whatever his reasons, he is cooperative and helpful. He has an excellent memory, and his information is considered reliable.

Rating: B-2 Date of Information: Beg. May 45 Interrogator: M.N.

NOTE: The following report should be regarded as basis for further specialized interrogation. It is believed that sources would be able to furnish detailed technical data on many of the instruments described as well as on the experiments carried out. It should be noted that source LARSSON was Specialist in Charge (SACHBEARBEITER) of some of the developments.

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II. GERMAN AGENCIES SUPERVISING RESEARCH AND DEVELOPMENT OF NEW WEAPONS

a) REICHSMINISTERIUM FUER RUESTUNG UND KRIEGSPRODUKTION (Ministry for Armament and War Production), formerly REICHSMINISTERIUM FUER BEWAFFNUNG UND MUNITION (Ministry for Armament and Munition); abbreviations: RfRuk, Ruk. The Ministry, headed by REICHSMINISTER SPEER, was divided as follows:

i) AMT FUER TECHNIK (Technical Office), headed by Dipl Ing SAUER; head of admin office was Dipl Ing FELDMANN. This office was in turn divided into two AMTSGRUPPEN (sections): AMTSGRUPPE ENTWICKLUNG (Sec Development), headed by Col GEIST, assisted by Officer in Charge of A/T Weapons (SACHBEARBEITER FUER PAK) HPTM (Capt) SPRENGER and Officer in Charge of General Orders (SACHBEARBEITER FUER ALLGEMEINE AUFTRAEGE) RITTM (Capt) SCHUMANN; and AMTSGRUPPE FERTIGUNG (Sec Production), headed by Lt Col SCHAEDE. Officer in Charge of Arms Production (SACHBEARBEITER MUN-FERTIGUNG) in this Section was HPTM (Capt) FRENZEL.

ii) RUESTUNGSLIEFERUNGSAMT (Arms Supply Office), headed by Dr SCHIEBER.

iii) AMT FUER ZIVILPRODUKTION (Office for Civilian Production), headed by Director SEEBAUER.

iv) ZENTRALAMT (Central Office), chief of which was OBERBUERGERMEISTER LIEBEL.

v) PLANUNGSAMT (Plans Office), headed by Dr KERRL.

Aside from the organization mentioned above, the Ministry is divided into several HAUPTAUSSCHUESSE (Departments) which in turn are divided into SONDERRINGE and SONDERAUSSCHUESSE (Special Sections). These Depts are:

i) HAUPTAUSSCHUSS WAFFEN (Dept Weapons), headed by GENDIREKTOR TIX, and the leading specialist of which was DIR WEISSENBORN. Deputy Chief was Dr RUETER.

ii) HAUPTAUSSCHUSS MUNITION (Dept Ammunition).

iii) " PANZER (Dept Armor).

iv) " FAHRZEUGE (Dept M/T).

v) " NACHRICHTENMITTEL (Dept Signal Equipment).

vi) " WERKZEUGMASCHINEN (Dept Tools).

vii) " TREIBSTOFFE (Dept Fuels).

viii) " BEUTEMATERIAL (Dept Captured Materiel).

b) HEERESWAFFENAMT OKH (Army Arms Office), headed by GEN D ART (Lt Gen) LEEB, who replaced Gen BECKER. Research and development of new weapons was supervised by the WAFFENPRUEFUNGSAMT (Wa Pruef) (Weapons Testing Office). This Office, head of which was Gen Dr Ing SCHNEIDER, was subdivided into several sections, each working on a specialized limited subject. Only the following sections are known to source:

i) Wa Pruef 1 (BuM) working on new weapons. Head of this section was Col VENDT, specialist in charge (SACHBEARBEITER) was HPTM (Capt) HAMPEL.

ii) Wa Pruef 4 was in charge of new A/T weapons.

iii) Wa Pruef 11 was in charge of Rockets.

c) AMT FUER FORSCHUNG UND TECHNISCHE ENTWICKLUNG, OKM, (Office for Research and Technical Developments, Navy High Command) was the leading agency supervising naval research. Source thinks that Admiral JAHN (?) might have been head of this office. Other organizations engaged in naval research and known to source were:

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i) INSTITUT FUER MARINETECHNISCHE ENTWICKLUNG (Institute for Naval Technical Development), HELA Peninsula, headed by Prof Dr WALTER.

ii) TORPEDO VERSUCHSANSTALT (Torpedo Research Center), GOTENHAFEN. KAP Z SEE (Navy Captain) PRALL was the head of the Center. In charge of the development of special torpedos was Dr SCHMIDT, and in charge of development of the "ROCHEN" ("Roe"- see III, A, 5, a, below) was Dipl Ing WONDRAK.

d) FORSCHUNGSFUEHRUNG DES REICHLUFTFAHRTMINISTERIUMS UND DES OBERBEFEHLS-HABERS DER LUFTWAFFE (Research Office of the Air Ministry and GAF High Command) was the main agency for research and development of air and AA weapons. The official abbreviation for this office was "FoFu u. ObdL." It was headed by Prof GEORGI. The AMT FUER TECHNISCHE LUFTTRUESTUNG (Office for Technical Air Armament) (Abbreviation: TLR) was the agency which was directly concerned with the production of the accepted new weapons, source believes, while the main concern of the FORSCHUNGSFUEHRUNG was research and experiments. The following departments are believed by source to have been subordinate to the TLR:

i) AMT FUER BORDBEWAFFNUNG (Office for Aircraft Armament), under OBSTING (Col) MIX.

ii) AMT FUER FLAKENTWICKLUNG (Office for AA Development), under OBST (Col) KRONE (who was also head of the AA dept (FLAKLEITER) in HEERESWAFFEN-AMT Wa Prüf) as dept head and OBSTLT (Lt Col) HALDER as technical expert. OBSTLT (Lt Col) HOFFMANN was Officer in Charge (SACHBEARBEITER) of Final Tests with new weapons.

Under the FORSCHUNGSFUEHRUNG source recalls the following departments:

i) RHEINTOCHTERENTWICKLUNG ("RHINE Daughter" Development - see III, A, 5, b, below). The man in charge of these experiments (REFERENT) was Prof Dr ORTHMANN.

ii) R-ENTWICKLUNG (Rocket Development), headed by Maj HARRAS. Specialists in Charge (SACHBEARBEITER) were HPTM (Capt) TILLING and FL STABSING (GAF Maj) HESSE.

iii) PULVERENTWICKLUNG (Powder Development); REFERENT in FoFu for this dept was Dr BUNDE.

Responsible for contracts in connection with rocket weapons was OBST (Col) HALBERSTADT. The following Research Posts, subordinate to the Air Ministry, are known to source:

i) LUFTFORSCHUNGSANSTALT (Air Research Post) HERMANN GOERING, BRAUN-SCHWEIG. (LFA). Head of this post was Prof Dr Ernst SCHMIDT.

ii) LUFTFORSCHUNGSANSTALT MUNICH, headed by MINISTERIALDIRIGENT (Equiv to Brig Gen) BAEUMKER.

Attached to the LFA were:

i) INSTITUT FUER TREIB- UND SCHMIERSTOFFE (Institute for Fuels and Lubricants) STRASBOURG, headed by Dr FROMMHERZ.

ii) INSTITUT FUER TREIBSTOFFE (Institute for Fuels), HEIDELBERG.

iii) LUFTWAFFENERPROBUNGSANSTALT (GAF Research Center) ROECHLIN/Uckermark.

iv) DEUTSCHE VERSUCHS-ANSTALT FUER LUFTFAHRT (DVL), ADLERSHOF (German Research Center for Aeronautics); president of this institution was Dipl Ing SEEWALD.

v) TL-ENTWICKLUNGSSTELLE BEI BMW (Post for Jet-Propelled Planes Development at BMW Factory), ALLACH/MUNICH, headed by Dipl Ing ZOBOROWSKI.

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e) REICHSFORSCHUNGSRAT (REICH Research Council), known as the RFR. President of the RFR was Hermann GOERING. Technical Chief was Dr Ing GOERNERT, Personal REFERENT of GOERING, MINISTERIALDIRIGENT (Equiv to Brig Gen), and SA BRIF (Brig Gen). Prof Dr OSENBERG was head of the Planning Division (PLANUNGSAMT). The following institutions subordinate to this office are known to source:

i) INSTITUT FUER SPRENGSTOFFPHYSIK (Institute for Physics of Explosives), headed by Prof Dr SCHUMANN. Specialist in Charge (SACHBEARBEITER) for new developments in the explosives field was Dr BEVERSDORFF.

ii) In charge of rocket projectiles (BEVOLLMAECHTIGTER FUER STRAHLVORTRIEB) was Prof Dr SCHMIDT.

f) RUESTUNGSKOMMISSIONEN MIT FUEHRERVOLLMACHT (Armament Commissions with FUEHRER Authority)

i) WAFFENKOMMISSION (Weapons Commission), headed by the head of the MAUSER Works.

ii) MUNITIONSKOMMISSION (Munitions Commission). This Commission was headed by Prof Dr Ing WOLFF, who was also supervisor (AUFSICHTSRAT) and technical director of the DEUTSCHE WAFFEN UND MUNITIONSWERKE, as well as German-appointed supervisor of the French SCHNEIDER-CREUSOT Concern. Chief of the Research Dept was Prof DIETRICH. In charge of the GERLICH A/T gun development was Director REGELIN.

iii) PULVERKOMMISSION (Powder Commission), headed by the General Director of DYNAMIT AG Dr Paul MUELLER. Specialist in interior ballistics and powders in this dept was REGIERUNGSBAURAT Dr POEPL, who also was in Wa Prüf 1. HPTM (Capt) Dr HIMMELHEBER, specialist of small assemblies for V-1, was head of the section for research in wood.

iv) SONDERKOMMISSION FUER R-ENTWICKLUNG BEIM RfRuK (Special Commission for Rocket Development in the SPEER Ministry) was headed by FL STABSING (GAF Maj) ZEYSS.

v) SONDERAUSSCHUSS FUER PULVER BEIM RfRuK (Special Section for Powder in SPEER Ministry) was headed by Director Dr WUNDER.

g) SS FUEHRUNGSHAUPTAMT, TECHNISCHES AMT VIII (SS Main Hq, Technical Dept VIII) was the SS agency responsible for technical developments. Its official abbreviation was SS FHA/TA VIII, and it was headed by BRIF (Brig Gen) Prof Dr Ing SCHWAB. Formerly SS BRIF (Brig Gen) GAERTNER was head of this office, but lately he was given the post of Dept Head (AMTSCHEF) for Special Technical Assignments (TECHNISCHE SONDERAUFTRAEGE) in SS Main Hq. Specialists for weapons and munitions in the TA VIII were STANDAF (Col) ZIMMERMANN and HPTSTUF (Capt) HENNEBERG.

III. GERMAN RESEARCH ON NEW WEAPONS

(Note: Some recent developments are known to sources by name only, but they have been included to present a more complete picture of the latest work on secret weapons; other weapons, already well known, are included for the same purpose.)

A. ROCKET WEAPONS

1. Projectors

Generally, source points out, the lack of accuracy was the main cause for the construction of multiple rocket projectors. The number of barrels connected into one projector varies from 48, in the case of the 8 cm rocket projector, to six, in the six-barrelled 50 cm rocket projector.

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Tactically, rockets were employed against area targets only. There was a tendency to develop the rocket along the general lines of arty, i.e. to increase the caliber of the projectiles, while trying to increase their accuracy.

Many of the rockets and rocket projectors were used in related research fields, e.g. to test electrical equipment during flight, develop new fuzes (Influence Fuze), etc.

a) M 8 Projector

This projector, research on which was supervised by the SS WAFFENAMT (Ordnance Office) through SS HPTSTUF (Capt) HANNEBERG, was developed in the WAFFENWERKE BRUENN AG and in the GROSSENDORF, Pomerania, Research Center under Ing Rolf ENGEL. The specialists in charge of the research and experiments were Dr KALSCHUEER, Prof Dr BOEDENWADT, and Ing PROKOP. The projector has 48 barrels on a SP chassis. The rockets are 8 cm in diameter, have flight stabilizers and percussion fuzes. The maximum range of the rockets is 7 km. The powder charge weighs 1 kg and is divided among seven tubes, each 22 x 6 x 280 mm. The rocket carries a 600 g explosive charge. The projectors and rockets were past the experimental stage at the conclusion of hostilities. 25 projectors and 200,000 rockets were manufactured. Another version of this projector, the "elongated M 8" (VERLAENGERTER M 8) was also developed.

b) Other Projectors

The following other projectors and rockets are known to sources. The number in each case indicates the diameter of the rocket, in cm:

- i) DOV 15
- ii) DOV 21
- iii) DOV 35
- iv) DOV 50

(Note: The projectors, above, are the well-known NEBELWERFER).

2. Rocket AA Weapons

Two general types of employment of AA weapons based on the rocket principle were to be used. The employment of a multiple-rocket projector was thought advisable for low-flying aircraft, while mass employment of single-rocket devices was to be used against high-flying bomber formations.

a) ORKAN FLA

This weapon, ordered by the OKL, ARBEITSSTAB (Staff) DORNBERGER and supervised by FL STABSING (GAF Maj) ZEYSS, was being developed in the Research Center of the WAFFEN-UNION in PIBRANS, Czechoslovakia. OBLT (1st Lt) FISCHER and Dr TEICHMANN were the specialists in charge of the experiments and research. The projector, consisting of 24 rails on a rotating chassis, was to be used against low-flying planes. The rockets have a cal of 55 mm, percussion fuzes, and flight stabilizers. They attain a distance of 5 km in 3 sec. The powder charge is placed in a single tube 48 x 15 x 1,100 mm and weighs 1.7 kg; the weight of the explosive charge carried by the rocket is 500 g. The experiments on the weapon were concluded, and it was planned to manufacture the first 50,000 rockets for combat employment.

b) TAIFUN

Two types of this weapon are known to sources, TAIFUN P and TAIFUN F.

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c) ZUGSPITZE

This weapon was in the planning stage only at the time of cessation of hostilities. Ing LARSSON (source) was in charge of research on this weapon at the PIBRANS, Czechoslovakia, Research Center under Ing THOMAS. The weapon was to be employed on a mass basis against high-flying bomber formations. The caliber of the rockets was 12 cm, and they were provided with time fuzes and flight stabilizers. The rockets attained a distance of 10 km in 6 seconds. The powder was placed in a one-tube arrangement, consisting of four sections of decreasing diameter. The dimensions of these sections were respectively: 120 x 20 x 875 mm; 100 x 20 x 875 mm; 80 x 20 x 875 mm; and 60 x 20 x 875 mm. The total weight of the powder was 70 kg. Each rocket carried a 7.5 kg explosive charge.

d) FOEHN - is another multiple-rocket projector used for AA purposes.

3. Rocket A/T Weapons

Two types of A/T rocket weapons (PAR-WAFFEN) can be distinguished, one in which the projectile is a "pure" rocket (e.g. the PANZERFAUST); and one in which an ordinary A/T projectile is accelerated by the use of rocket devices (e.g. PAR V).

a) PAR V

The experiments and research on PAR V were supervised by OKL and by Wa Prüf 11; the official in charge on the part of these agencies (REFERENT) was Maj HARRAS. The experiments were carried out and completed at the GROSSENDORF Experimental Center (headed by Ing Rolf ENGEL), under the technical supervision of Ing THOMAS. The PAR V is used in connection with ordinary 88 mm AA or A/T shells, fired from a 88 mm A/T gun. The rocket fuel combustion chamber is welded onto the ordinary shell. The muzzle velocity of the thus prepared projectile is 800 m/sec, its final velocity 1,4000 m/sec. The rocket powder weighs 550 g and is in a seven-tube arrangement (18 x 6 x 250 mm tubes).

Other A/T rocket weapons:

b) PAR II

c) PÜPPCHEN

d) PANZERFAUST

e) PANZERSCHRECK

4. Rocket Weapons Aboard Aircraft

Rocket weapons to be used aboard aircraft were developed both for air targets, e.g. 55mm ORKAN B rocket projector, and for ground objectives, primarily enemy armor. The LUFTFAUST was developed for employment in such cases, as was the PANZERBLITZ.

5. Controlled Rocket Weapons

a) ROCHEN ("Roe")

This is a rocket projectile which is controlled by means of impulses transmitted through a wire unwinding during its flight (see F, 2, below). The OKM (Navy High Command) was the agency interested in the development of this weapon, and Director SCHMIDT of the TVA (Torpedo Research Center), GOTESHAFFEN was supervising the experiments. The research and experiments were carried out in the TVA GOTESHAFFEN and in the GROSSENDORF Research Center under the supervision of KAP Z SEE (Navy Captain) VON PRALL. SACH-BEARBEITER (specialists in charge) were Ing WONDRAK and Dr KALSCHUEER. The

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ROCHEN was to be used against naval and land targets. The projectile is 2 m long and approx 1 m wide. It has both a rocket starting mechanism (the DOV 21 is used for this purpose) and a rocket propelling device. The weight of the projectile before it is fired is 320 kg, of which 100 kg are the "useful weight". Its flight can be controlled to a distance of 4 - 7 km, through a polarisation relay. The weight of the powder is 16 kg, the combustion time 3 tons-sec. The device was ready for experiments when hostilities ceased.

b) RHEINTOCHTER ("RHINE Daughter") (Source: Dr NORDT)

This is a controlled heavy AA missile, developed by RHEINMETAL-BORSIG, BERLIN/MARIENFELDE, under the management of Dr KLEIN, for the OKL. Supervisor of the project on the part of the OKL was Prof Dr ORTHMANN, and specialist in charge during the experiments and research work was OBERING MUELLER. The shell, containing an explosive charge of approx 100 kg, was to be used against bomber formations. It is controlled by means of an infra-red device, and has an accustically controlled fuel ignition cut-out. The device consists of two parts, a starting device and a propelling device, each with a thrust of 25-30 tons and a fuel combustion time of approx 2 sec. After the ignition of the propelling device, the empty starting device is automatically dropped. It was planned to substitute the propelling device by a long-burning powder device, with a fuel combustion time of 30 sec, or by using a liquid propellant (SCHMETTERLING and WASSERFALL). Sources state that the steering problems of the "RHINE Daughter" had not been solved, as of beg May 45. Research was carried on up to the last minute.

c) DRACHEN ("Dragon").

d) ROTKAEPFCHEN ("Red Riding Hood").

e) SCHMETTERLING ("Butterfly").

f) WASSERFALL ("Waterfall").

g) FRITZ - X

This device, the experimental stage of which was completed, but manufacture of which was stopped, was developed for the OKL by RHEINMETALL-BORSIG, BERLIN/MARIENFELDE, under the supervision of Dr KLEIN. A rocket device was added to a 500 - 1,000 kg bomb in order to increase its penetration power. The rocket fuel combustion was shut off from the aircraft through remote control. The weight of the powder was 25 kg, in a seven-tube arrangement. The tubes were 450 x 85 x 25 mm.

h) REGENSCHIRM ("Umbrella")

Dr NORDT (source) developed this device in the PIBRANS Experimental Station. OKL was the interested agency. The device is an addition to g, above. A parachute opens at the moment a certain acceleration of the bomb is reached; the falling time of the bomb is thereby increased, allowing the fuel combustion to be shut off at the proper moment. This increased bombing accuracy. The device was ready for experiments beg May 45.

6. One-Man Rocket Weapons

In this group of rocket weapons the difficult problem of remote control was solved by providing for a single operator within the device. Thus these devices are really something between a projectile and a rocket aircraft. These midget "aircraft" attain considerable speeds (950 mph), are simply constructed, and are armed with small-caliber rocket weapons developed for mounting aboard aircraft (e.g. ORKAN B).

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a) NATTER ("Adder")

The NATTER's dimensions are:

Length: 2 m.

Largest Diameter: 1 m.

Starting Weight: 200 kg.

Flight Efficiency: 10 km in 1 minute.

The NATTER is armed with the 55 mm ORKAN B rocket projector. The device was ready for flight testing in May 45.

b) KAUPER - is another rocket-propelled one-man "aircraft".

7. Long Range Rocket Missiles

The V-series weapons are the representatives of this class. Also, future developments for communication purposes can be expected in rockets of this category.

a) V-1.

b) A-4, which was the prototype of V-2.

c) V-2.

d) TL (TURBOLADER) - for jet-propelled planes.

e) V-101.

This weapon, in the planning stages only, was being developed in the PIBRANS Experimental Center by Dr BOEDENWADT, Dr TEICHMANN, Dr KALSCHUEER, and Ing THOMAS. It is a giant rocket of a total weight of 140 tons, of which 100 tons were to be taken up by the fuel. It was to have a length of 30 m and a diameter of 2.8 m. It was to attain a velocity of 2,000 km per hour at an altitude of 200 km. Its maximum range was calculated to be 1,800 km. It was to be fired by a catapult mechanism, also rocket-operated. Source LARSSON claims that he would be able to prepare a complete report, with drawings, of this weapon.

8. "Detonation Rocket Weapons"

Contrary to the normal rockets, where the projectile is propelled forward by the rearward push of the gases during the explosions, the "detonation rockets" move through the utilization of the rearward impulses caused by the detonations themselves. For practical purposes this principle is applicable only at extremely high velocities. The DERA is the only rocket in which this principle was used. Ing LARSSON (source) was the specialist in charge of research on this rocket at the GROSSENDORF Experimental Station, under Ing THOMAS. Source explains that the successive detonation impulses are properly directed by means of a parabolic surface. Normal rocket mechanisms are used to attain a certain minimum velocity, at which time the "detonation" mechanism begins to function.

9. Auxiliary Rocket Instruments

a) Starting Devices

Generally, these auxiliary rocket devices were developed to shorten the starting distance for aircraft and to counteract the necessity for oversize aircraft motors, which were only necessary for the start.

i) 7-KREISER

The SS WAFFENAMT was the agency interested in the development of this starting device, and SS HPTSTUF (Capt) HENNEBERG was supervising the work on it as representative of that office. The experiments were carried out and completed at the GROSSENDORF Experimental Station, under the technical supervision of Dr KALSCHUEER.

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Six M 8 devices are arranged in a circular pattern in this device, sources claim. The device develops a thrust of 1.5 tons, and impulses of 560 kg/sec. It contains a 6 kg powder charge. The burning time of the fuel is .4 sec.

ii) R 501.

iii) R 502.

b) Propelling Devices

These are small rocket-propelling devices which are employed as separate elements in special cases (e.g. in the ROCHEN Device). Sources know of the SCHMITTING Device and LANGZEITBRENNER (Long-Time Burner).

B. ROCKET POWDERS AND PROPELLANTS

1. Colloidal Powders

a) Diglycol Powder

This powder, research on which was supervised by Wa Prüf 11, was developed by DAG, DUENEBERG, headed by Dr LEUNIG. It was compounded from nitrocellulose, a stabilizer, and nitrodiglycol, which were mixed under water without any solvent. After adding potassium nitrate the powder was processed in mills and presses, giving it the desired shape. The powder has a heat of reaction (explosion) of 730 kcal. Experiments on the powder had been concluded and production was to be carried out in the DAG, WASAG, and DSC Plants. The powder was to be used in rocket projectors.

b) NGL Powder

2. GIESSLING Powders

a) W II 324 Powder

This powder, developed by WOLFF & Co, WALSRÖDE, headed by Dr ACHILLES, and under supervision of Prof Dr WOLFF of the Powder Commission, was compounded from trinitrotoluene, nitrocellulose, nitrodiglycol, and stabilizer. The powder liquifies upon application of heat, thus facilitating production of larger powder bodies. The heat of reaction (explosion) of the powder is 850 kcal. Experiments were concluded beg May 45 and WOLFF & Co, WALSRÖDE, was to produce 500 tons per month for use in rocket starting devices and rocket projectors.

b) W II 8-35

3. Heterogen Powders

a) Yellow Powder (GELBPULVER)

This powder was developed by DAG, SCHLEBUSCH under Dr. BERTHMANN. The powder was compounded from picric acid and potassium nitrate. Its burning qualities are similar to that of black powder i.e. a high linear burning velocity. However, it has a higher energy content. Experiments on the powder had been concluded prior to the end of hostilities.

b) PER Powder

This powder was developed in the PIBRANS Experimental Station, under Dr TEICHMANN. Its developments were supervised by FL STABSING (GAF Maj) ZEYSS, of the OKL. The powder was synthesized from a plastic material and an inorganic oxygen carrier. Depending on this plastic material, the powder could be molded or poured into shape. The burning proceeds uniformly at atmospheric pressure and up. The linear burning velocity at one atm is 1 mm/sec. The burning velocity increases proportionately to the increase of pressure.

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c) Black Powder

4. Liquid Rocket Propellants

a) Single-Component Fuels

MYROL is the only liquid rocket fuel known to sources in this group.

b) Multiple-Component Fuels

In this group the inflammable liquid is mixed either with pure oxygen, or with an oxygen carrier. The following are known to sources:

- i) Ethyl alcohol plus oxygen ($C_2H_5OH + O_2$).
- ii) Ethyl alcohol plus nitric acid ($C_2H_5OH + HNO_3$).
- iii) Methyl alcohol plus nitric acid ($CH_3OH + HNO_3$).
- iv) Ethyl alcohol, nitric acid, and TOKAN.

C. ARTILLERY DEVELOPMENTS

Generally, two lines of development in the field artillery weapons could be seen: first, an attempt to increase the accuracy and penetrating power of the projectiles at increased ranges, which was to be accomplished by increasing the muzzle velocity and by the application of new flight stabilizing methods (TROMSDORF Effect); secondly, an attempt to lower the weight of the projectile by compensating for the recoil, and the application of electric igniters. Thus, like in the case of naval artillery, multiple-gun turrets appeared for combat of moving ground targets.

1. Armored Artillery

The METEOR is an example of artillery developed along the lines described above. The developments of this gun were supervised by Dr BEVERSDORFF of the REICHSFORSCHUNGSRAT (REICH Research Council) and by OBST (Col) VENDT of Wa Prüf 1. It was developed in the PIBRANS Experimental Station under Ing Rolf ENGEL; it is an invention of source LARSSON, he claims.

In the METEOR a triple-gun turret is mounted on a SP chassis. The caliber of the gun is 10-15cm, it has a smooth barrel constructed according to the GERLICH Principle (tapered barrel), in proportion 2:1. The breach block opens after a certain pressure is attained, and the part of the gases thus released causes recoilless functioning of the gun. The flight of the projectile is stabilized by means of a hole bored along its axis and provided with guiding disks (TROMSDORF Effect). The propelling charge is ignited by a device operating on the principles of electro-magnetic induction. The experimental METEOR model was being constructed at the SKODA Works at the time of cessation of hostilities.

2. AA Artillery

Auxiliary devices only are known to sources in this group. Of these the TREIBSPIEGEL, a device permitting the firing of a smaller-caliber shell from a larger-caliber gun, was manufactured by RHEINMETAL-BORSIG, GUBEN Factory. The muzzle velocity of the sub-caliber shells is considerable. Thus, for example, a 56 mm shell fired from a 88 mm AA gun with the help of the TREIBSPIEGEL is 1,200 m/sec. Work on this device was supervised by OBSTLT (Lt Col) HALDER of the OKL/GL FLAK and by OBST (Col) VENDT of Wa Prüf 1. Director VOGELSANG was head of the GUBEN RHEINMETALL-BORSIG Factory, and Dipl Ing MUELLER specialist in charge of the project.

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3. A/T Artillery

The GERLICH (tapered bore) 75/56 mm gun is the only one of the non-rocket developments known to sources in this field.

D. NAVAL DEVELOPMENTS

Developments on submarines as well as on naval torpedos were the main concern of the naval experimental stations. In the submarine field, the midget fin-propelled submarine was produced. Experiments with the rocket torpedo with intermittent drive, with the "noise torpedo", and with the wire-controlled torpedo, are known by sources to have been carried on. The wire-controlled torpedo was developed by Prof Dr WALTHER in the KIEL and HELA Experimental Stations. It worked on the same principle as the ROCHEN (see III, A, 5, A, above), through a spinner (see F, 2, below). The torpedo is propelled by a liquid-propellant rocket turbine applied to a fin-propelling device.

E. AIRCRAFT DEVELOPMENTS

Aside from the jet aircraft developments (The TL - TURBOLADER; R-JAEGER - rocket fighter; the SAENGERSCHE STRAHLROHR device), source claims that his group at the PIBRANS Experimental Station started work on a new aircraft, called the ROTT. This was to be a double-purpose aircraft. For speeds up to 700 m/sec an OTTO motor and propeller was to be used, while for higher speeds a liquid-fuel rocket device would take over, with the OTTO motor acting as supercharger and compressor for the rocket device. Sources claim that by using the rocket device as auxiliary starting device for the aircraft, an OTTO motor of smaller efficiency could be used.

F. MEASURING AND AUXILIARY DEVICES

1. Radar Devices

Sources mention the DARMSTADT Device and Y-Device as the latest developments in this field.

2. Wire Control Device

This is the spinner used in the ROCHEN and wire controlled torpedo. It was developed in the TVA (Torpedo Experimental Station) GOTENHAFEN (GDYNIA) the head of which was KAP Z SEE (Navy Captain) VON PRALL, by Dir SCHMIDT and Dipl Ing WONDRAK, and several series of the device were already manufactured. The missile is controlled through polarization relays over a wire which unrolls during its traveling. The range of the device (and thus of the missile) is said to be from 7 to 12 km.

3. Remote-Control Devices

Generally, the devices send out high frequency signals, modulated light signals, infra-red, or acoustic signals. Sources know of a modulated-light device which was being developed at the PIBRANS Experimental Station by Dr SIMON and Dr TRENKA, under the supervision of OBLT (1st Lt) FISCHER, of OKL/GL FLAK. The device is said to have passed the experimental stage, as of beg May 45.

3 June 1945

SEVENTH ARMY INTERROGATION CENTER

Paul Kubala
PAUL KUBALA,
Maj, MI,
Commanding.

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