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CENTRAL INTELLIGENCE AGENCY

REPORT

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THIS IS UNEVALUATED INFORMATION

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Comment:

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Friedrischek (fnu) is possibly Otmar Friedrischek.

Dr. Siewert (fnu) is Gerhard Heinrich Siewert.

Thiessen is Peter Adolf Thiessen.

Dr. Bartel is Hans Bartel.

Ziehl is Ludwig Gustav Ziehl.

Dr. Ziegler is possibly Juergen Arthur Ziegler.

Menke is Wilhelm Menke.

Dr. Hohorst is Wilhelm Behrend Hohorst.

Dr. Pany is Johann Emmanuel Pany.

Dittwals is possibly H.O. Dittwald.

Rintelen is Kurt Carl Franz Rintelen.

Dr. Uerlings (fnu) is possibly Hubert Uerlings.

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STATE	x	NAVY		NSRB	DISTRIBUTION								
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Ilinaskaya is Ilinskaya

Dr. Lehmann (fnu) is Hans Emil Lehmann.

Mottau (fnu) is possibly Heinz Ernst Mottau.

Dr. Steenbeck is Max Steenbeck.

Frauelein von Bergen is probably Frau Emmy von Bergen.

Dr. Dames (fnu) is Wilhelm Karl Dames.

Multhaupt possibly is Manfred Josef Multhaupt.

Siegling (fnu) is possibly Max Werner Siegling.

Heinz Franke is Heinz Max Franke.

Harren (fnu) is Dr. Franz Harren.

Schlichting is probably Clemens Schlichting.

Kudicke is probably Heinz Heinrich Kudicke.

Gross (fnu) is possibly Erich Wilhelm Gross.

Herbert Doss is Herbert Willy Doss.

Hollasch is probably Herbert Gustav Hollasch.

Max Wied is Maximillian Hermann Wied.
Dr. Delvendahl is Dr. Delvendahl

Ilinskaya Camp for Ilinaskaya Camp

Kuybyshev for Kuibyshev

Lomeardius (fnu) is probably Lampadius (fnu)

Attachments are as follows:

Annex 1. Sketch of Nickel Carbonyl Furnace, frontal and lateral vi
Annex 1a. Sketch of Nickel Carbonyl Furnace
Annex 2. Sketches of Nickel Wire Mesh Tubes
Annex 3. Sketch of T-shaped Distribution Piece
Annex 4. Sketch of Copper Tube
Annex 5. Sketch of Ion Source
Annex 6. Sketch of U-shaped Tube
Annex 7. Sketch of Van de Graaff Equipment

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COUNTRY USSR -3- REPORT

TOPIC Atomic Energy Research Work at Institute "C" Headed by Manfred von Ardenne

EVALUATION PLACE OBTAINED 25X1

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REFERENCES

PAGES 2 ENCLOSURES (NO. & TYPE) 8 - sketches with legends on ditto 25X1

REMARKS 25X1

1. the institute was engaged in the fission of uranium. 25X1
The problem was approached from three different angles:

a. Electromagnetic fission - House "D" 25X1

V. Ardenne
Dr. Froehlich
Dr. Uerlings 25X1
Engineer Schmahl
Engineer Roggenbruck

b. Chemical fission 25X1

Professor Thiessen
Chemist Riehl

c. Ultracentrifugal experiments - House "L"

Mr. Groenbeck

Once in 1948, there were talks about " a small-scale experiment successfully performed last night". On this occasion a minute quantity of fission materials had been found.
Bonuses were given to all three working groups, most of the bonusses went to the chemist.

2. 25X1

3. A kind of broom or "Wick" consisting of fine nickel wire were manufactured at the workshop, which are believed to have been delivered to Dr. Lehmann or Dr. Bartels. Mention was made of a lead container for hydrofluoric acid for Bartel's laboratory. Electrical V-belt-drive two-cylinder vacuum pumps were also mentioned. one disassembled pump, was about 25X1
80 cm high. 25X1
25X1

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[redacted] 25X1

[redacted]

However, the equipment developed at the Hertz institute proved to be better and was awarded the prize.

[redacted] 25X1

[redacted] 25X1

Annex 1

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Nickel Carbonyl Furnace; frontal and lateral view.

Scale 1:10

1 - Water-cooled nozzle for nickel carbonyl inlet

2 - Asbestos-isolated heating coils, about 2/10 mm in diameter, heating capacity 600-800 W.

3 - Sight glasses

4 - Gas inlet

5 - Water jacket for cooling

6 - Water inlet

7 - Water discharge

8 - Outlet slide valve

9 - soot discharge

10 - Screwed-on cover

11 - Tripod

12 - Furnace body consisting of brass 1.2 mm thick, with soft-soldered seam; about 2 meters high and about 30 cm in diameter.

Description of the nickel carbonyl furnace.

25X1 a cylindrical device resebling a bathroom water heater. The cylinder was about 30 cm in diameter, 2 meters high, and rested on a tripod set up in the workshop. A brass sheet about 1,2 mm thick was used, the seam was soft-soldered. The upper section of the cylinder was isolated with asbestos sheets onto which the heating coils were placed. The latter had a diameter of about 2 mm and a heating capacity of 600 - 800 W. They were covered in turn with asbestos to preclude any contact with the coils.

Below the heating section of the furnace two sight glasses allowed observation of the forming of the soot. Below one of the sight glasses the gas inlet tube was soldered into the furnace and made air-tight with putty. No information is available about the type of gas used. 25X1 gas was fed into the furnace to prevent the entry of air when removing the soot. The container was not pressurized, no vacuum pumps were connected to it and it had no internal fittings.

The middle portion of the furnace was equipped with a cooling water jacket with water inlet and water discharge tubes. The lower part of the furnace was equipped with an outlet slide valve for the removal of soot. A small conical portion below this valve was designed for the collection of material and was to be opened by unscrewing the winged nuts holding the base plate. The first three furnaces were equipped with one water-cooled nickel carbonyl nozzle. The pipe was made of copper, about 6 mm in diameter and of 3 mm inside diameter. A continuous flow of nickel carbonyl ran from a funnel-shaped container to the nozzle.

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Annex 1 [redacted]

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25X1

Nickel carbonyl furnace for the Kuibyshev works.

During the period under review, a bigger type furnace was built for the Kuybyshev works. A trip made by Ziehl and Walter Harz to Kuybyshev is believed to have been related to the manufacture of the furnace. This new equipment was about 1 meter in diameter and resembled an advertising pillar. Due to its size, the furnace had to be manufactured in four different sections, which were flanged together. This furnace was equipped with three nozzles. A scaffold was erected to facilitate control and maintenance of the nozzles.

Procedure.

Nickel carbonyl is a brown fluid which flew by gravity from the funnel-shaped container to the nozzles and through them dripped into the furnace. The nozzle pipes were water-cooled. The furnace was not pressurized and had no internal fittings. When in operation, the upper section of the furnace was electrically heated. A steady fall of soot flakes was to be observed through the sight glasses. The central section of the furnace was water-cooled. The final product obtained from the collector was pitchblack soot.

Use of the nickel soot.

[redacted] this soot was mixed with a fluid to be sprayed onto nickel wire mesh.

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I Tubes of Nickel Wire Mesh

Legend: 1 - Pure nickel coating with scratchings

2 - Nickel mesh

3 - Overlapping electrically welded seam

Description of the nickel mesh tubes:

The tubes consisted of fine nickel mesh similar in structure to a fine milk sieve. The mesh was delivered in rolls [redacted] 25X1 25X1

Engineer Lange (fnu) was engaged in the manufacture of nickel mesh tubes; this work was done in the main workshop with the aid of special shears. Fraeulein Stripling (fnu) welded the tubes with the aid of a seam-welding machine, which had been manufactured at the main workshop. In a very fast procedure the tubes were welded over their entire length with an overlap of about 2 mm.
The tubes were about 700 mm long, about 20 mm in diameter, and very thin-walled. No details were available about the wall thickness, the thickness of the nickel coating, the size of the pores and the permeability.
The soot manufactured in the nickel carbonyl furnace was mixed with a fluid of an undetermined composition and sprayed onto the nickel mesh. The workmen wore protective masks and always looked as black as negroes. No details were available about the drying and sintering procedure; the tubes were, however, of good consistency. They were manufactured in considerable quantities since there was continuous demand for them. No information was available about the place of destination of the tubes. [redacted] the tubes were used in the centrifuges, this assumption could, however, not be supported. 25X1

II Aluminum Tubes

During the period under observation, large quantities of thin-walled aluminum tubes were manufactured in the turning section. These tubes were 1.20 - 1.50 meters long, the diameter was about 50 mm, the wall thickness about 0.2 - 0.4 mm. Orders for 20 - 30 tubes were placed at a time. They were believed to consist of duralumin. At an earlier stage, the tubes were manufactured from metal blocks. Later, duralumin tubes of 1 cm wall thickness were used.
After the discharge of lathe operator Eichhorn (fnu) , operator Kurt Jakob took over. He was later substituted by "little Treff". This man is still at the institute engaged in the manufacture of aluminum tubes.
[redacted] the tubes were used in the centrifuge. Due to the excessive rotational speed of the centrifuge the tubes frequently ruptured. 25X1

T-shaped Distribution Piece.

The T-shaped piece was manufactured of copper sheet 5 mm thick. Its diameter was about 300 mm, its length about 500 - 600 mm. Flanges of copper were welded onto the ends and soldered over. The flanges were provided with boreholes for screws.

The T-shaped piece and the flanges were electrically welded. Five such pieces were manufactured in 1943.

Copper wire electrodes in a tinplate shell were used in the welding procedure. These shells had been manufactured in the main workshop. These electrodes proved very useful. The welding seams were soft-soldered to make them vacuum-tight.

The T-shaped pieces were ordered for House "D", where the large separating magnet was located and where work was done under Dr. Froehlich. these T-shaped pieces were used in a vacuum equipment. 25X1

Legend: 1 = hard-soldering

25X1

Tubes with Necked-down End.

The tubes were ordered by House "D", around 1947, and were manufactured in 5 separate sections. The tubes were made of 5-mm copper sheet, about 1,300 - 1,500 mm long, with a diameter of 200 - 210 mm, necked down at one end to about 170 mm. Both ends were provided with welded-on flanges. Presumably these tubes were used in House "D" for vacuum purposes.

Legend: 1 - welded and soldered, vacuum-tight

Ion Source

a box which was designated as ion source in the workshop for applied physics headed by Willi Rogenbruck. 25X1
This was a brass sheet box (2) 20 cm square and about 12 - 13 cm high, with a wall thickness of about 15 mm. The box was provided with a sight glass. (1) A small crucible (3), allegedly made of tungsten, the size of a teaspoon was located inside the box, which was vaccum tight and sealed by a rubber gasket (5) inserted into a groove (4). The cover was fastened with screws.

U-shaped Tube.

This U-tube consisted of copper and had a diameter of about 600mm.
The two arms were about 45 cm high.
Two or three such parts were manufactured.
Copper flanges were welded to both ends of the tube.
that these tubes were used in fluorine experiments conducted by Ziehl.

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Experiments with fluorine were conducted by Ziehl. The main workshop had manufactured an exhauster equipment for his laboratory.
Ziehl had received several bonuses in appreciation of his work.

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His co-worker was Dr. Ziegler, a metallurgist.
Dr. Grampesch (fnu) sent several parts to the workshop to be welded.

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25X1

Annex 7

25X1

"Van de Graaff" Equipment.

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25X1

The framework of the "van de Graaff" house was finished in 1949. It was 18 x 10 meters and 12 meters high and was believed to be designed as a two-story building.

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a water container was to be installed on top of the building and a water basin next to the house.

The equipment in question was to be of eliptical shape, resembling a loaf of bread. D - 6 meters, d - 3.5 meters, and about 1 meter thick

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25X1

The workpiece had to be perfectly rounded without any pointed parts.

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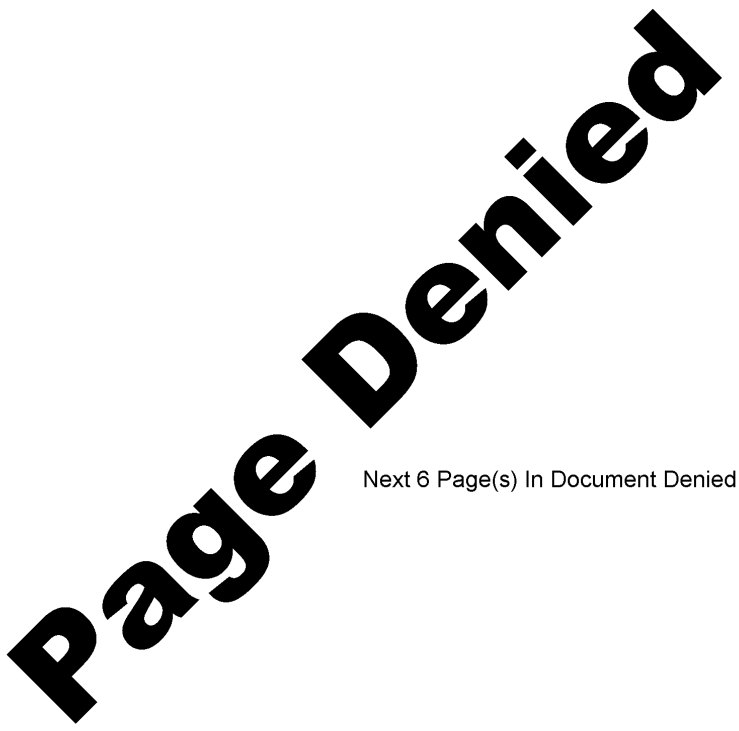
25X1



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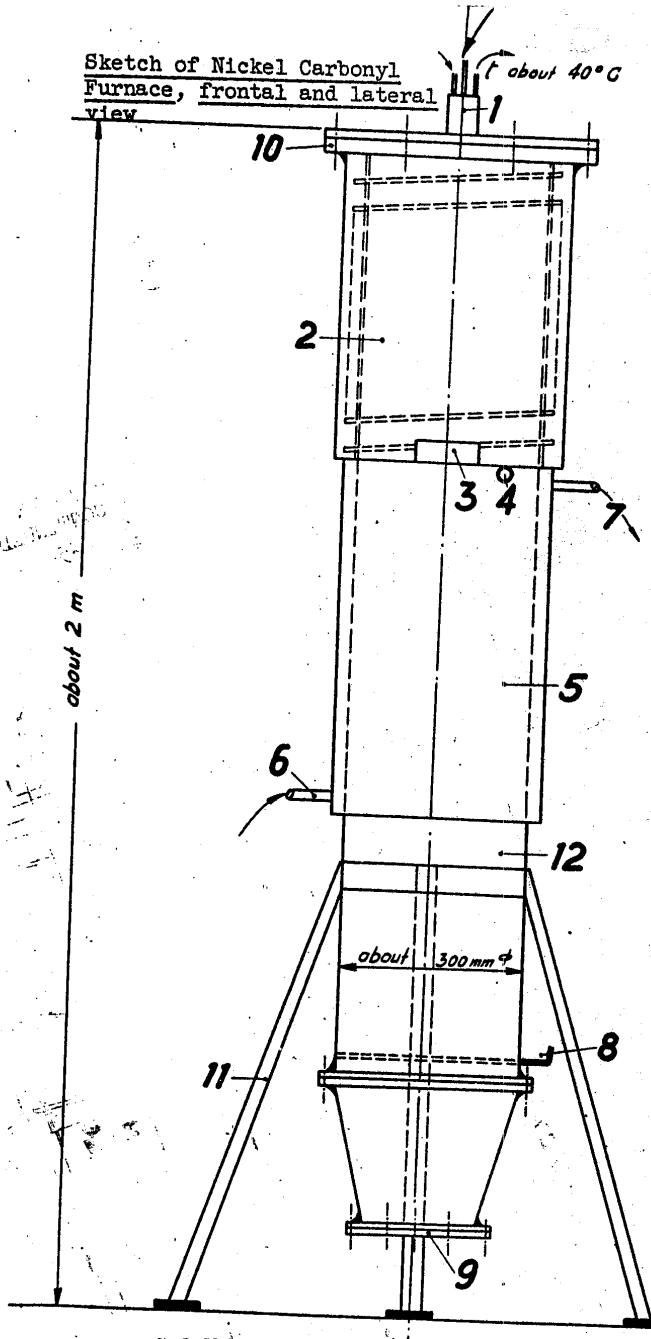
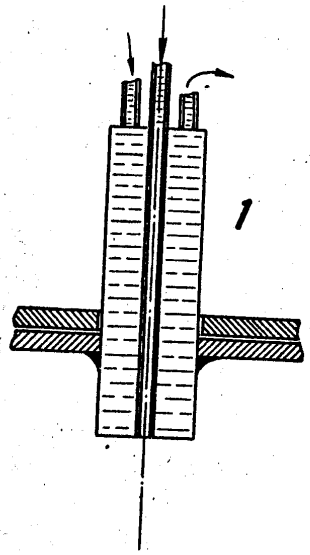
Sketch of Nickel Carbonyl Furnace, frontal and lateral view

Annex 1





scale about 1 : 10

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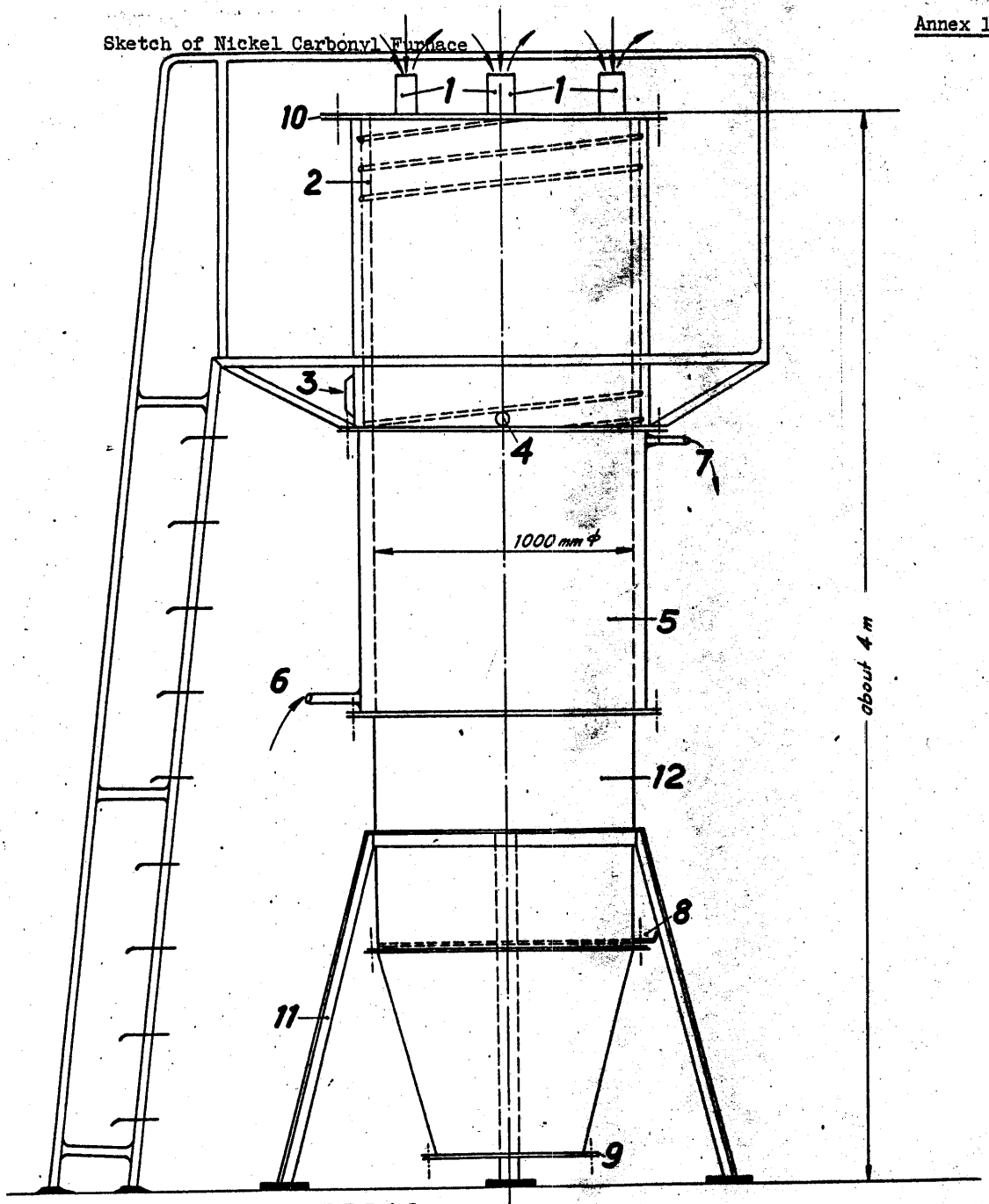
Annex 1 a

Sketch of Nickel Carbonyl Furnace



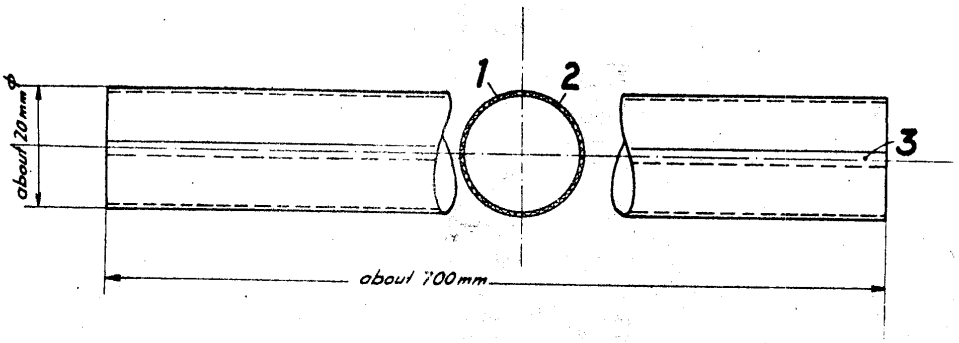
C-O-N-F-I-D-E-N-T-I-A-L

25X1

Scale about 1:20

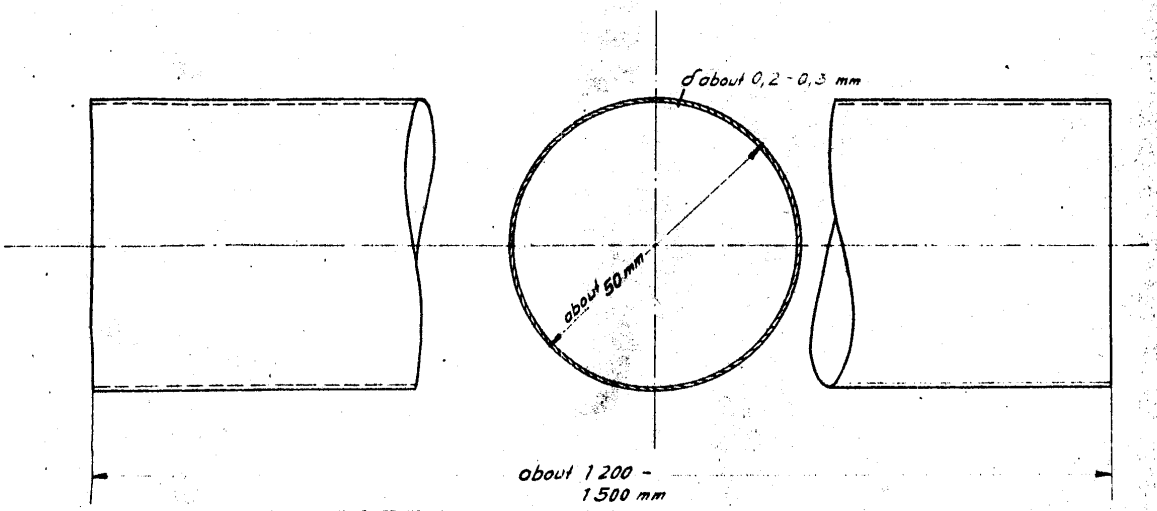
Sketches of Nickel Wire Mesh Tubes I

Annex 2



Scale 1:1

Sketches of Aluminum Tubes II



C-O-N-F-I-D-E-N-T-I-A-L

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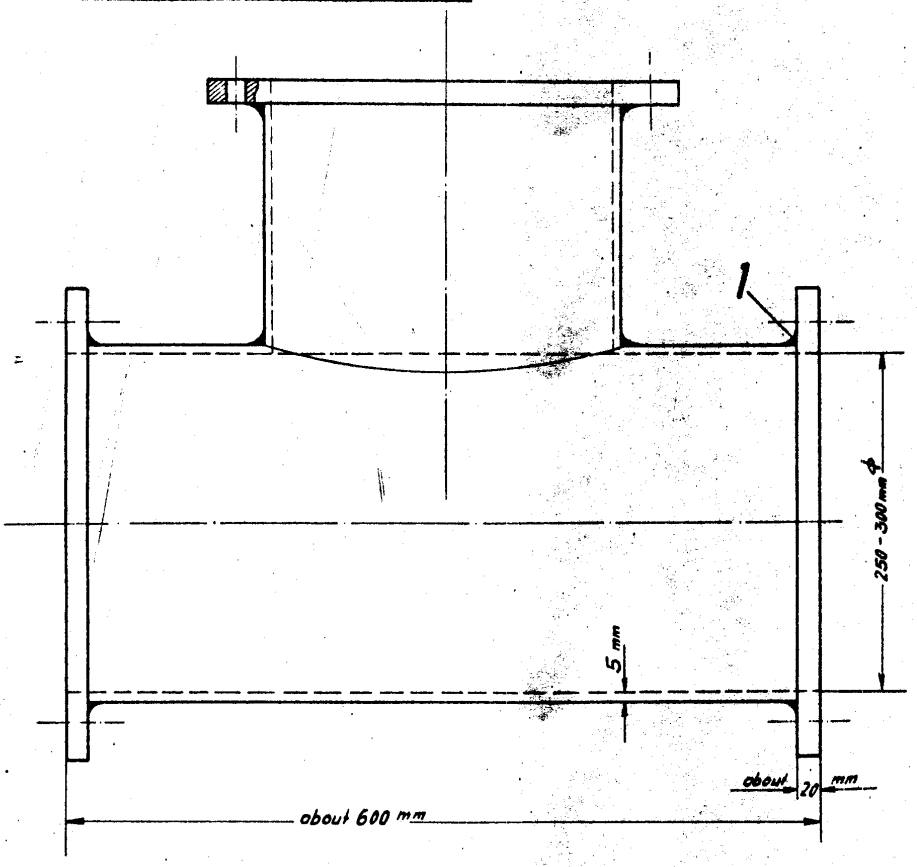
Scale 1:1

Sketch of T-shaped Distribution Piece



scale 1:5

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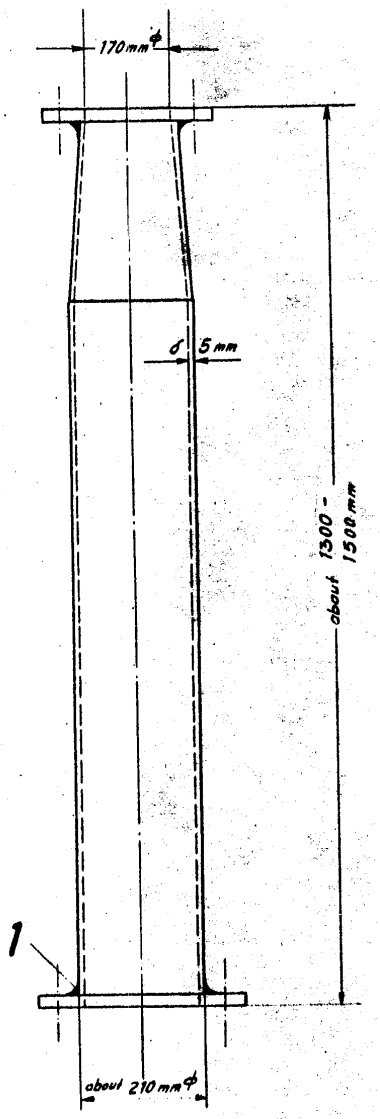
Annex 4

Sketch of Copper Tube



scale 1 : 10

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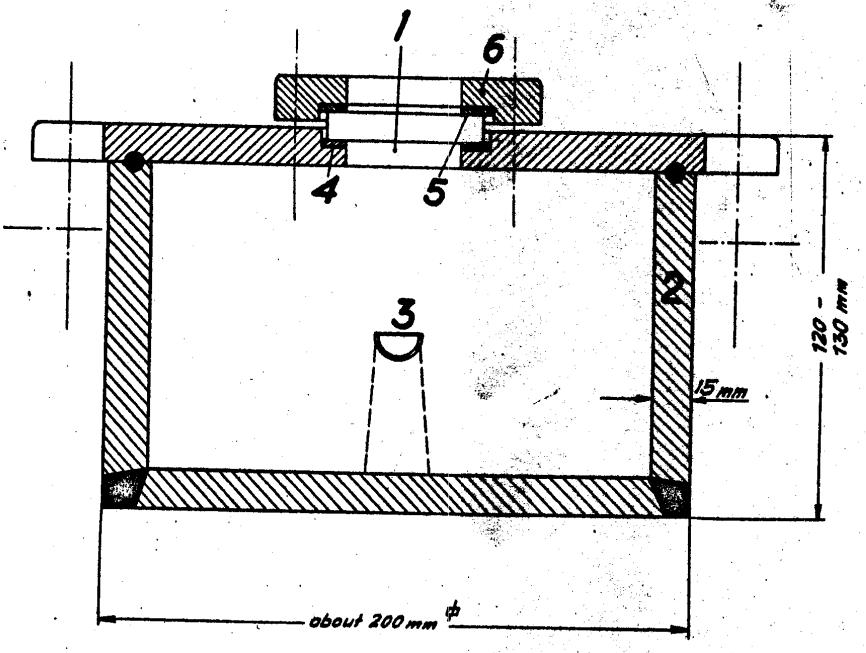
Annex 5

Sketch of Ion Source



scale 1 : 2

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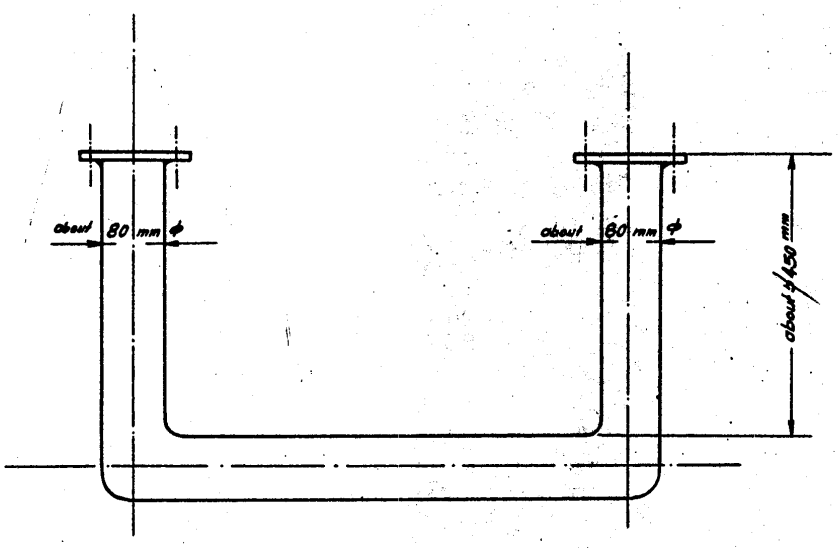
Annex 6

Sketch of U-shaped Tube



not to scale

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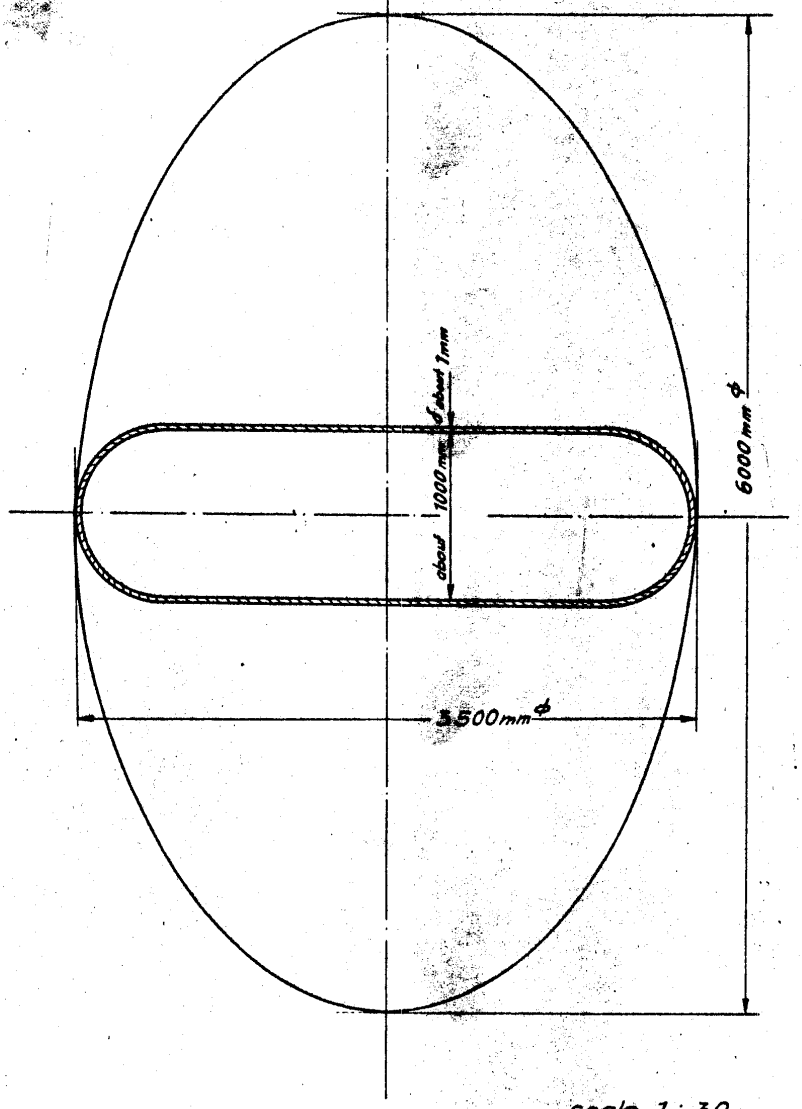
Annex 7

Sketch of Van de Graaff Equipment



Scale 1 : 30

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