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COUNTRY USSR

DATE DISTR. 17 Nov. 53

SUBJECT The Metal Testing Workshop of the Noril'sk Nickel Combine

NO. OF PAGES 13

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[Redacted]

NO. OF ENCLS. (LISTED BELOW)

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[Redacted]

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

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[Large Redacted Block]

1. The Metal Testing Workshop (Opytnyy metallurgicheskly tsekh--OMTs) of the Noril'sk Nickel Combine in Noril'sk N 69-20, E 88-06 was an experimental shop for developing new methods in smelting and for testing of various metals and alloys. [Redacted] the OMTs technicians made periodic tests of the products of operations <sup>50X1</sup> carried out by the various plants and factories of the Combine, and from time to time technicians from various installations of the Combine would conduct tests in the Workshop with various materials. [Redacted]

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[Redacted] Metal Testing Workshop. /See Annex A (Sketches 1 and 2) [Redacted] sketch of the Metal Testing Workshop and a list of the equipment found in each room. OMTs operated on three shifts six days a week, and a skeleton crew was maintained on Sundays. At the head of the Metal Testing Workshop was a Russian, KIRENKO, who [Redacted] had worked there at the time, had received a Stalin Prize of 150,000 rubles in 1947 or 1948 [Redacted]

2. The Metal Testing Workshop employed 220 people, 150 free workers, and 70 prisoners. Of this number, however, only 80 (55 free workers and 25 prisoners) actually worked in the Workshop itself. The other 140 people worked in laboratories of the following installations of the

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- a. [redacted] from time to time slag was received from the Large Smeltery [redacted]. It was melted in a stove and permitted to cool. It was then broken into pieces and various samples taken for testing purposes.
- b. Other experiments included adding various amounts of manganese to copper and to nickel.
6. Generally speaking, the work of both prisoners and free workers working with the various stoves was performed in a slipshod manner. This was due to several factors: indifference on the part of the workers, lack of experience, and, at times, to the necessity of fulfilling a planned production quota. Following are two illustrations which are rather typical of the manner in which work was performed in the Metal Testing Workshop:
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- a. [redacted] smelting copper shavings for a period of three months. The copper shavings were outdoors and, since it was very cold, one worker would watch for the foreman while another took prepared copper anodes and placed them in the stove instead of going outdoors for the copper shavings. Later, when the anodes were detected missing, quite a furor was raised, but they could not be accounted for. During this operation one batch of copper was supposed to be produced in one eight-hour shift. Since the workers were more interested in fulfilling this quota than in producing good quality copper, 70% of the copper turned out during this three month period was declared to be inferior and not useable. A shop foreman and a free worker were accused of being responsible for this and given jail sentences.
- b. On several occasions, in the eagerness to fulfill production quotas, stoves were permitted to be used until the bricks gave way and the molten metal flowed out onto the floor. This caused a delay in production until the stoves were repaired and the floor cleared of molten metal.

## Annexes:

- 50X1 A, Sketch 1: [redacted] sketch of the first floor of the Metal Testing Workshop.
- 50X1 A, Sketch 2: [redacted] sketch of the second floor of the Metal Testing Workshop.
- 50X1 B: [redacted] sketch of the "kriptolovaya" stove in the Metal Testing Workshop.
- 50X1 C: [redacted] sketch of the Reverberatory Stove in the Metal Testing Workshop.
- 50X1 D: [redacted] sketch of the Arc Furnace found in the Metal Testing Workshop.

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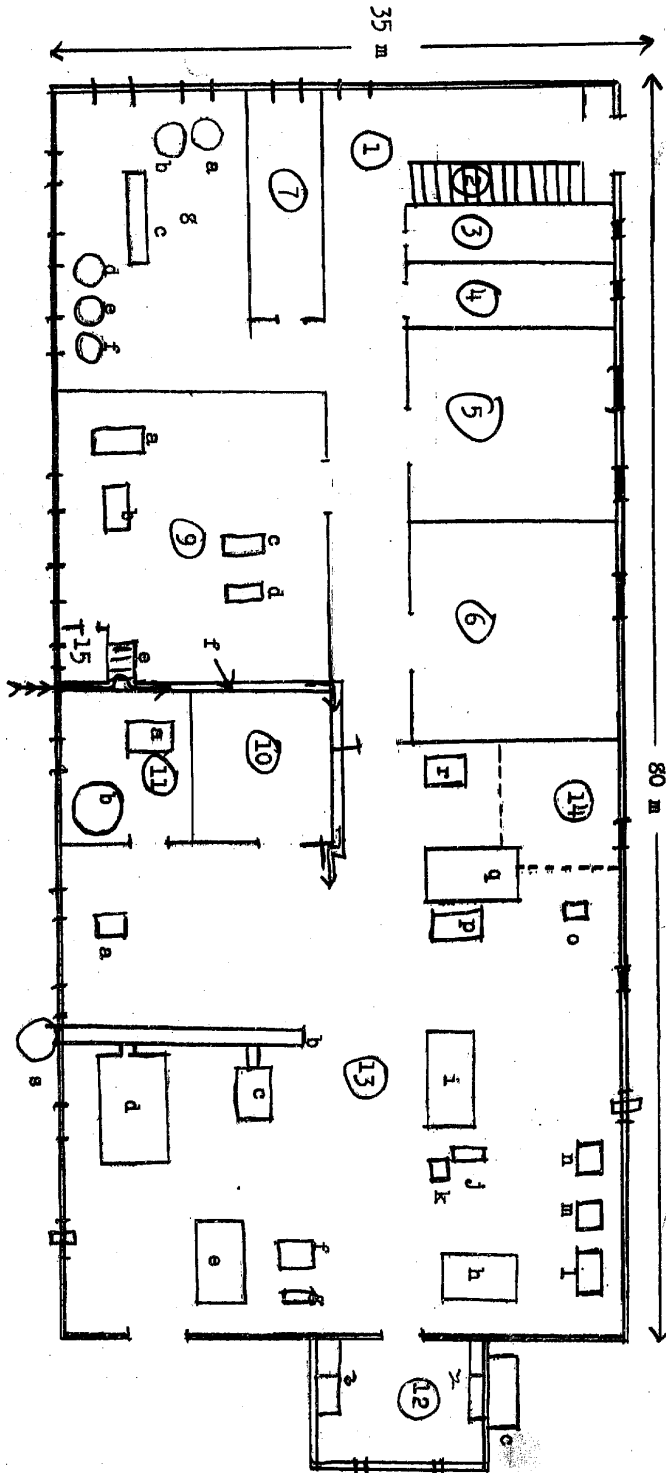
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Annex A, Sketch 1:  sketch of the first floor of the Metal Testing Workshop



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Legend to Annex A, (Sketch) 1, First Floor Metal Testing Workshop

1. Hallway.
2. Staircase.
3. Men's toilet.
4. Women's toilet.
5. Room for OMTs foremen (mastera).
6. Room for mechanics and an expeditor.
7. Storage room for the electrical repair shop; also contained the controls for the water system.
8. Experimental shop, containing the following equipment:
  - a. Experimental vat; wooden and rubber-lined, 1½ m. high x 1 m. in diameter.
  - b. Experimental vat; wooden and rubber-lined, 1½ m. high x 1 m. in diameter.
  - c. Mixing cylinder; iron and rubber-lined, 4 m. long by 25 cm. in diameter; I saw crystals being mixed here.
  - d. Experimental vat, similar  to the other two described. 50X1
  - e. Experimental vat, similar  to the other two described. 50X1
  - f. Experimental vat, similar  to the other two described. 50X1

Various solutions and liquids were tested in this room,  put into wide-scale operation.  New processes were initiated here before being processes in various plants and factories of the Combine were tested here. This room was not always in operation and would stand idle for one to one and a half months at a time. When operating, there were two workers and a foreman (master ) on each shift.
9. Repair shop servicing the Metal Testing Workshop, containing the following equipment:
  - a. A very old milling machine which did not work well and which broke down frequently.
  - b. A very old lathe which was, however, fairly reliable and serviceable.
  - c. Air compressor which serviced all of the Metal Testing Workshop.
  - d. Air compressor which serviced all of the Metal Testing Workshop.
  - e. Warm air blower for Room 13.
  - f. Warm air duct, 20 cm. x 20 cm., leading from the warm air blower.
10. Electrical mechanic's repair shop.
11. Petroleum storage, containing the following:

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## Annex A, Sketch 1 (Cont'd)

## LEGEND

- a. A steel oil drum with a 100 lit. capacity.
  - b. A steel oil drum with a 300 lit. capacity.
12. Electrician's shop, containing:
- a. Electrical controls for the stoves in Room 13.
  - b. Electrical controls for the stoves in Room 13.
  - c. Electrical transformer just outside.
13. Furnace room (Pechnoy zal) containing the following equipment:
- a. Air compressor for the converter (c) and the reverberatory stove (d).
  - b. Stovepipe.
  - 50X1 c. A converter similar to, but smaller than, the one found in the Large Smeltery (Bol'shoy plavil'nyy tsekh) [redacted] and capable of temperatures up to 1,200° C. Not a very good converter and there being little need for it, it was used only one or two months a year.
  - 50X1 d. A reverberatory stove, the only one [redacted] in the Noril'sk Nickel Combine, and capable of producing temperatures up to 1,200° C. It was not always needed and was used only about three months a year. [See Annex C for [redacted] sketch of this stove.] 50X1
  - e. An arc furnace (dugovaya pech'), capable of producing temperatures up to 1,400° C, but used only a week or two during the year. [See Annex D for [redacted] sketch of this furnace.] 50X1
  - f. An electric stove which was used frequently; capable of producing temperatures up to 1,600° C.
  - g. A small ammeter for stoves (e) and (f).
  - 50X1 h. The smaller of two stoves, each of which was known [redacted] as a "kriptolovaya" stove; capable of producing temperatures up to 1,400° C. [See Annex B for [redacted] sketch of this stove.] 50X1
  - i. The larger of two stoves; known [redacted] as a "kriptolovaya" 50X1 stove; capable of producing temperatures up to 2,000° C.
  - j. A small transformer for stove (i).
  - 50X1 k. A sifter of US make, and fairly new. [redacted] 50X1  
[redacted] It had several levels of sieves, with openings ranging in size from 65 to a square centimeter to 200 per square centimeter. [redacted] it was used to sift granular metal for sifting analysis. Samples of granular metal were taken at each level for some kind of tests.

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Annex A, Sketch 1 (Cont'd)

LEGEND

- l. A ball mill for granulating various substances.
  - m. A crusher (drobilka).
  - n. A roller crusher (rolikovaya drobilka).
  - o. An oxyacetylene welder and an arc welder.
  - p. A compartment kiln (kamernaya pech').
  - q. A muffle stove (mufel'naya pech').
  - r. A compartment kiln.
  - s. Ventilators.
14. A section of the furnace room where a Chinese made bottles out of burned-out light bulbs.

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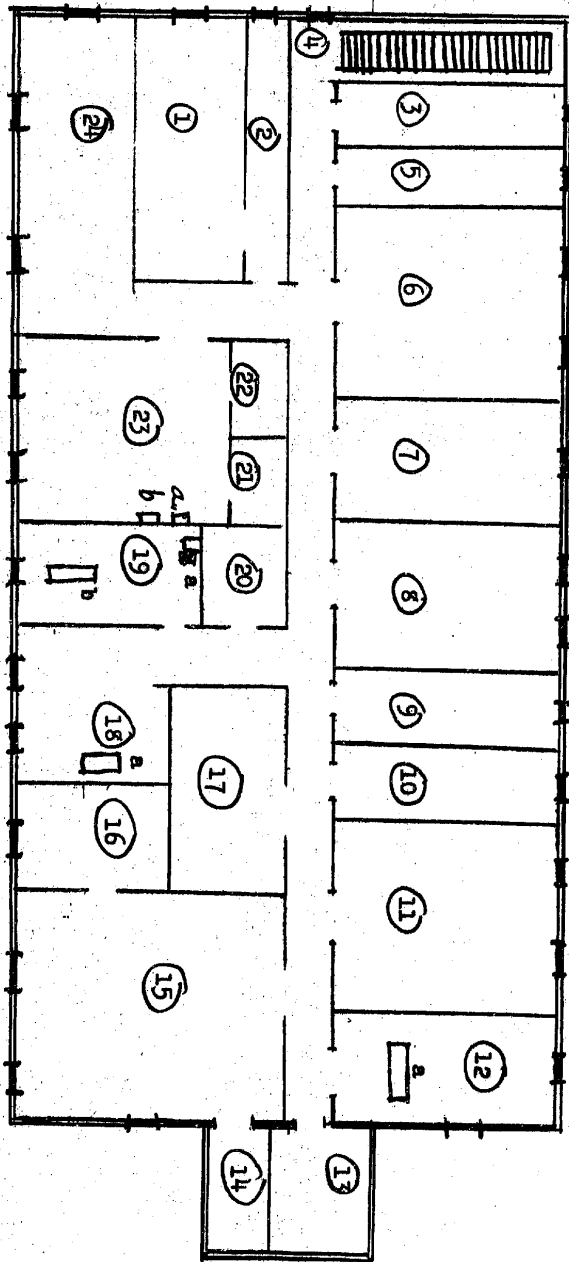
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Annex A, Sketch 2:  sketch of the second floor of the Metal Testing Workshop



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## Legend to Annex A, Sketch 2, Second Floor, Metal Testing Workshop

1. Director's office.
2. Office of the director's secretary.
3. Shower and wash room.
4. Hallway.
5. Carpenter's shop (stolyarnaya).
6. Bookkeeping office.
7. Office of the Chief Engineer and Assistant Director.
8. Library.
9. Workshop for engineer-constructor and drafting.
10. Workshop for engineer-constructor and drafting.
11. Experimental electrolysis laboratory. This laboratory contained chemical equipment and chemicals, including liquid oxygen. It also had numerous small electrolysis baths which measured approximately 10 cm. long by 8 cm. wide by 6 cm. deep.
12. This was some kind of testing room. It had an electrical apparatus (a) which measured about 2 m. long by 1½ m. wide by 1½ m. high and cost [redacted] 10,000 rubles. [redacted] when in operation there were sparks and a small red flame. [redacted] it tested the structure of metals. 50X1
13. Electrician's room.
14. Electric room with switches. [redacted] it also contained some kind of anodes in small glass containers for use in Room 15. 50X1
15. Experimental electrolysis laboratory. In addition to assorted chemical equipment, it contained a number of electrolysis baths, measuring approximately 70 cm. long by 40 cm. wide and 30 cm. deep. There were also some barrels containing some kind of solution. [redacted] this laboratory conducted tests with nickel, copper, and, [redacted] platinum. 50X1
16. Office of the head of both experimental electrolysis laboratories.
17. Storage room for the Metal Testing Workshop. Such items as chemicals, chemical equipment, and protective clothing were stored here. 50X1
18. Office of the chief of the furnace room on the first floor. [redacted] this room had several analytical balances and an apparatus which was referred to as a magnetic analysis apparatus (a). 50X1
19. This room contained the following equipment:
  - a. Metal polishing and buffing machine.
  - b. A device which [redacted] was a combination of a photographic and microscopic apparatus. 50X1

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Annex A, Sketch 2 (Cont'd)

LEGEND

20. Photography dark room.
21. Dressing room for laboratory workers.
22. Storage room for acids and other chemicals.
23. Analytical laboratory, containing chemical equipment and two small electric stoves (a and b).
24. Office of the chief of the analytical laboratory.

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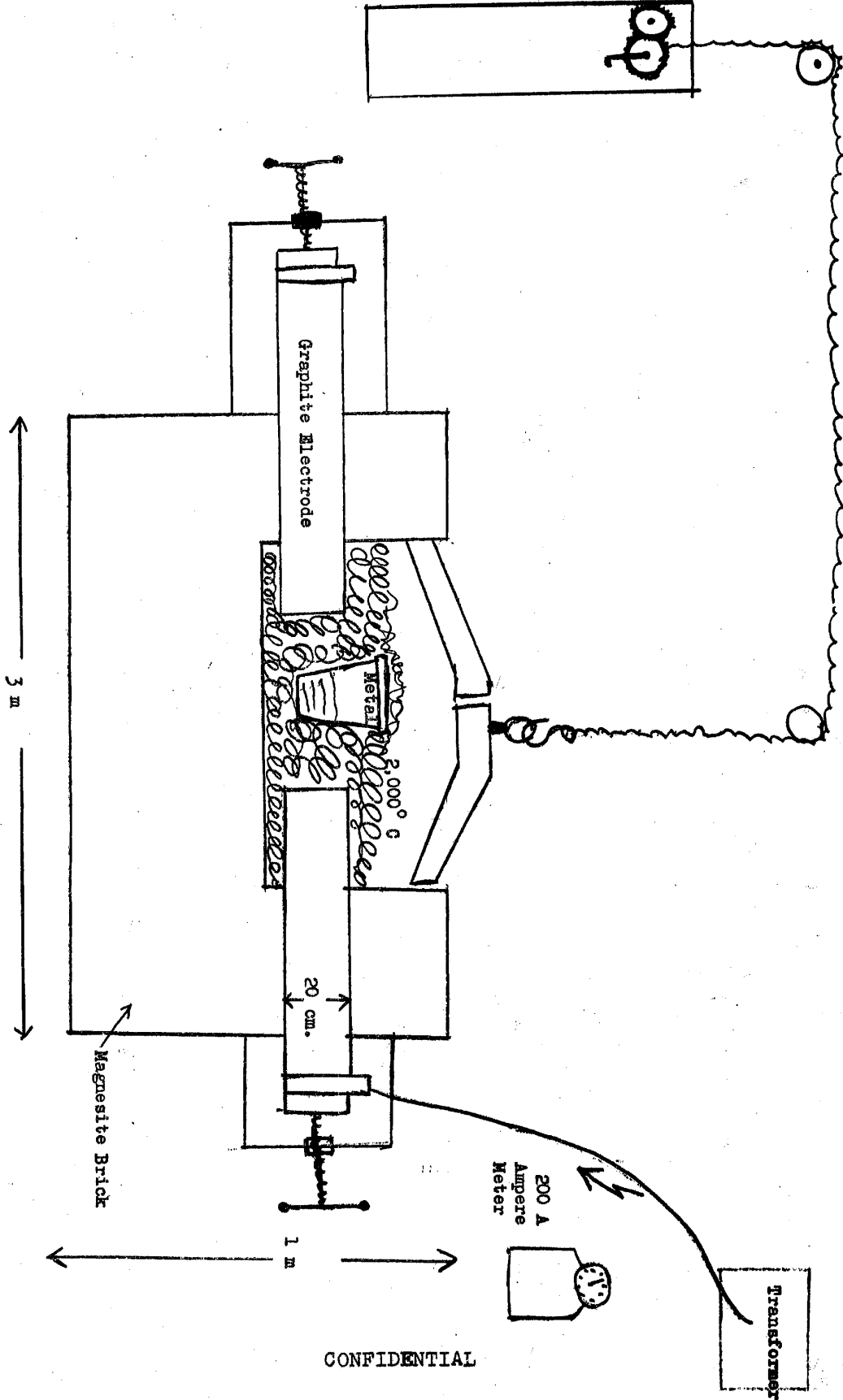


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Annex B:  sketch of the "kriptolovaya" stove in the Metal Testing Workshop



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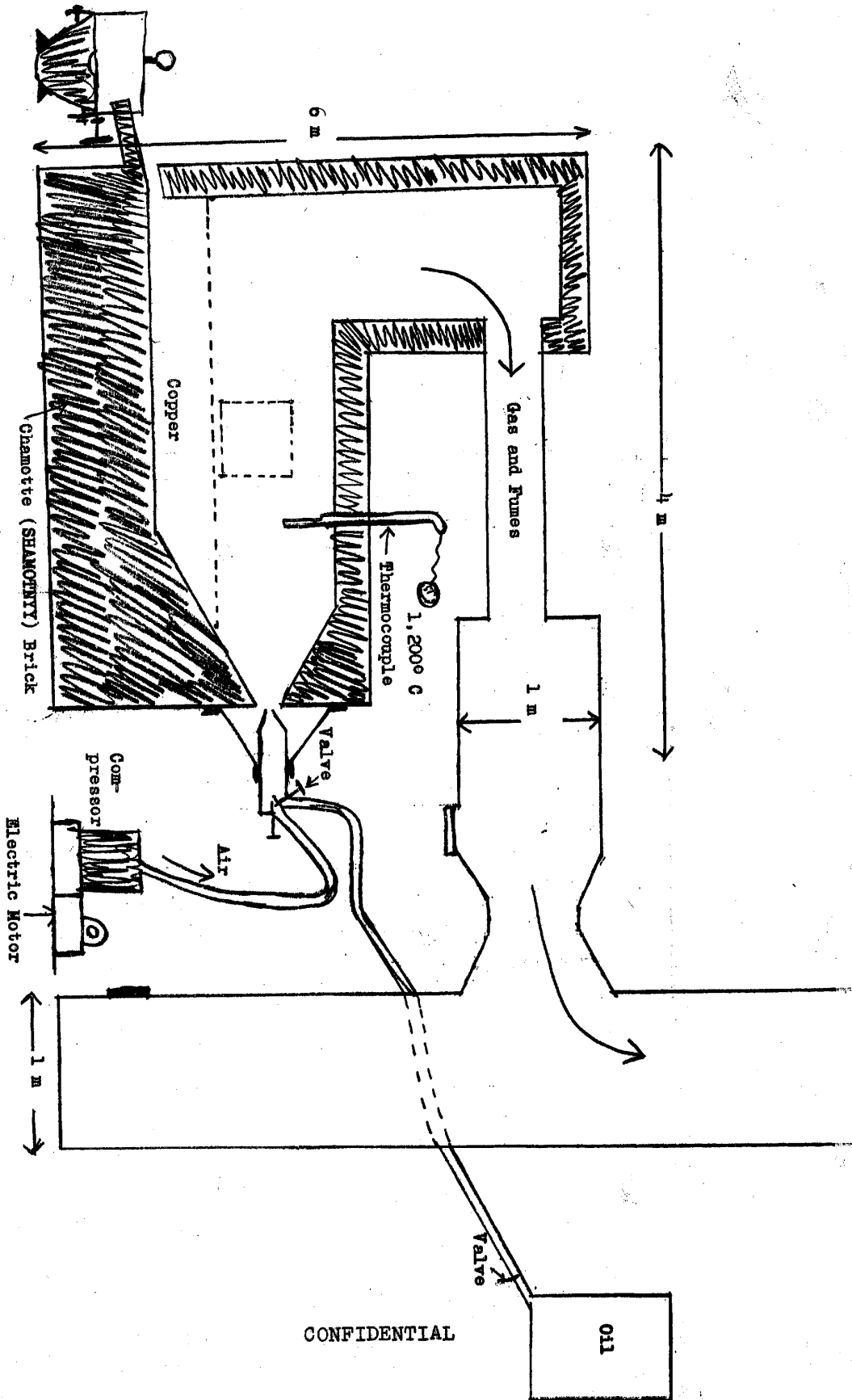
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Annex C:  sketch of the Reverberatory Stove in the Metal Testing Workshop



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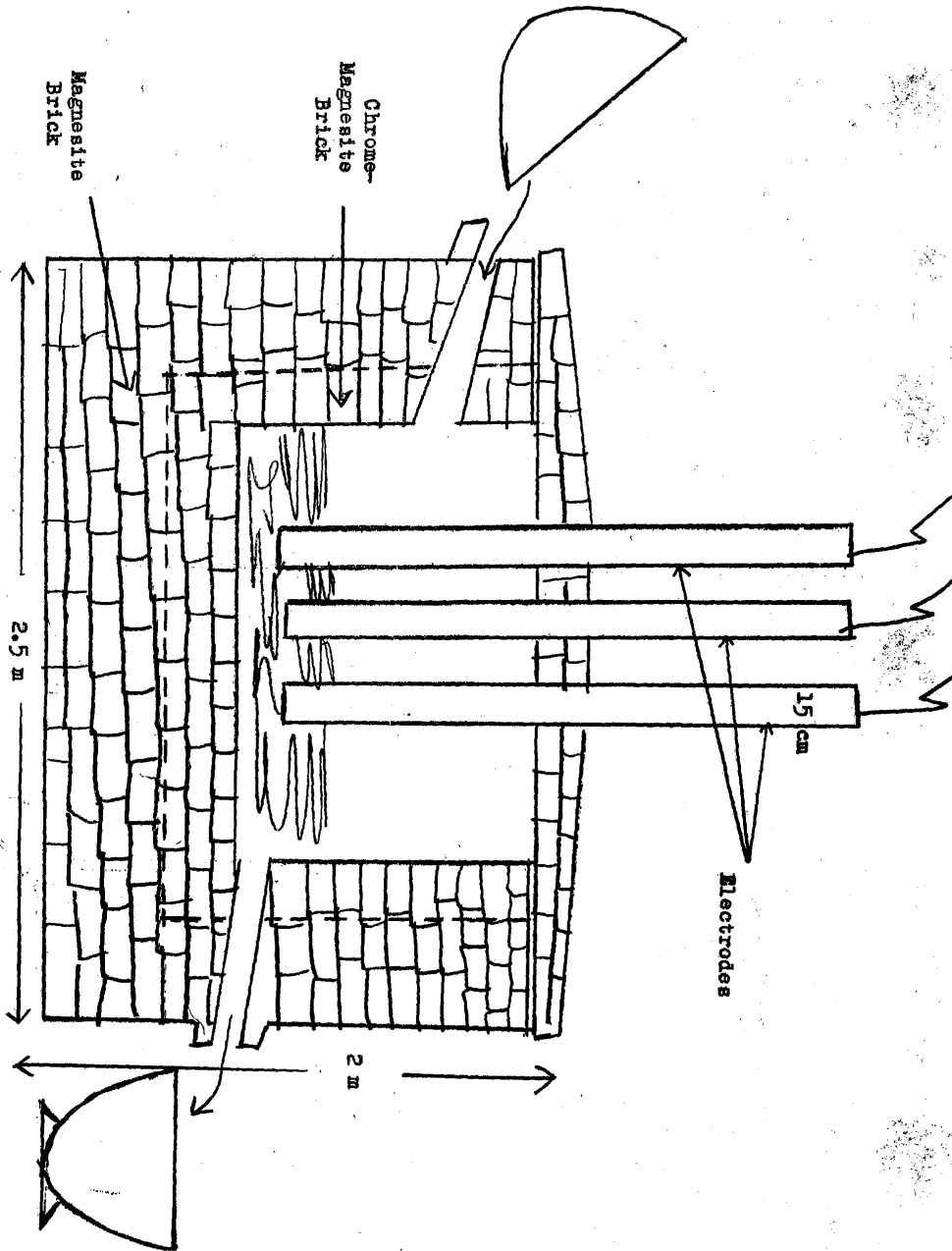


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Annex D:  sketch of the Arc Furnace found in the Metal Testing Workshop



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