

OTTAWA NEW SCIENCES CLUB,
95 Centre Street,
Aylmer East, Quebec.

September 27, 1967.

Dr. Eric Smith (also to Dr. Hugh McQueen - same address)
Metal Physics Section
Physical Metallurgy Division
Dept. of Energy Mines & Resources
568 Booth Street,
OTTAWA, Ont.

Dear Dr. Smith:

It has been suggested by Professor John Jonas of McGill University that I get in touch with you with regard to the roughly 3,000-lb. chunk of "hardware" at present in the possession of the above Club, details of which are described in the enclosed copy of an article entitled "The Mysterious Chunk of Hardware at Ottawa" which was published in the Spring, 1966 issue of our Club journal.

To fill you in with a few further background details, since the publication of the above article, further tests have been made on samples of the metal, the results of which have only added to the mystery. After a recent chemical analysis carried out in Montreal, the following conclusions were reached and comments made on the results :-

Findings

1. The corrosion on the part was slight and only superficial.
2. The specific gravity was very high.
3. The hardness was Rockwell B 94.

4. Chemical Analysis

Carbon 0.16% Manganese 11.3 Sulphur 0.017 NI -- CR -- MO -- SI 0.12
FE Ferrous 88.403.

(Apparently the report also includes a metallographic analysis with photos, but these are not yet in our possession due to the absence on vacation of the man who made the test and analysis)

Conclusion

The chemical analysis does not correspond to any commercial manganese steels as they contain either more carbon and silicon or some nickel and molybdenum. The alloy work hardened very heavily during the process of cutting which is inherent to such an alloy.

The slipped lines were more pronounced once nital reagent was used. Since deep electropolishing was used in this instance, it indicates that the material went through heavy impact that caused the different planes to slip.

Comments

1. For a regular manganese steel, the carbon content should be at least 1.6% not 0.16% and the sulphur should be in the neighbourhood of .2%.
2. The fact that this composition does not correspond to any known commercial manganese steel, is in itself very interesting, but it does not exclude the possibility of unpublished new materials being used by either U.S.S.R. or U.S.A. in their space probes.