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L.A. ASTLEY-BELL.

Telephone: AVENUE 4681

ST. HELEN'S COU
GREAT ST. HELE
LONDON E.C.3.

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SECRET

Reference: P9.7

Dear Thompson,

GERMANY: USE OF CRUDE OIL AS A FINISHED PRODUCT

With reference to your letter of the 15th November under the above heading, I got our experts on to this and think I cannot do better than quote their reply, which I think you will find of use:-

"I have had a study made of the characteristics of the particular Austrian and Hungarian crudes which are mentioned in Thompson's letter of the 15th and, based on the information given in the handbooks referred to therein, it seems to me reasonable to assess the possibilities of these crudes as follows.

"As far as high-speed Diesel engines are concerned, the Conradson Carbon is generally accepted as an indication that engine wear will be within a tolerable limit; specifications usually quote a maximum of 0.2%; on the crudes with which we are concerned the following carbon values are reported:-

Zistersdorf, Austria	.....	1.7 - 4.3%
Gelsalberg "	.....	1.8 - 2.7%
Budafapuszta, Hungary	.....	0.9%

This, I think, rules out the use of any of the crudes for that type of engine.

"For slow-speed engines, these high Conradson Carbons would also cause heavy wear, but not perhaps to a prohibitive extent. The Zistersdorf crude apparently yields a Gas oil of very low Diesel Index (about 20), which suggests that the crude itself would be an unsatisfactory engine fuel. The Budafapuszta crude has a high pour point (45°F) and this would almost prohibit its use except for stationary engines with heated fuel storage and suitably protected fuel piping.

"Zistersdorf and Gelsolberg crudes have in general only about 50% distilling below 320° C., but Budafapuszta crude, with its high proportion of light ends of high self-ignition temperature would be a difficult fuel to ignite a in a compression ignition engine. Moreover, it would tend to burn, if at all, during injection with a consequent low power output.

"It is assumed that the fact that most of the crudes concerned have flashpoints far below the customary Diesel fuel minima of 150°F., and therefore are potentially rather dangerous in use from the fire point-of-view, would be regarded as of minor importance, except in the case of Marine Fuels. This would be an added disadvantage in the case of Marine Diesel fuels, and would be a more serious matter still if it were attempted to use crudes as Marine steam-raising fuels.

"The Zistersdorf and Gelsolberg types of crude appear to be mixed-base, with a good yield of industrial lubricants if subjected to refining. The Budafapuszta crude shows exceptional yields of good gasoline and Gas Oil, so that one would expect it to be chosen for refining, rather than used unrefined, even when refining capacity is scarce; this may well be why it is being imported into Germany proper."

Yours sincerely,

/S/ L.A. ARNAX-BELL.

O.F. Thompson Esq.,
Lansdowne House,
W.1.