

ENEMY OIL COMMITTEE

THE AXIS OIL POSITION

Notes on Discussions with Mr. O. F. Thompson
of the Hartley Committee, Washington
February 7-February 19, 1944.

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Discussions of the

WESTERN AXIS OIL POSITION

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on European Axis Oil Position.

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Notes on Meeting of February 7, 1944, 11:00 A.M.
Room 6618, New Interior Building.

Present: Messrs. G. T. Thompson, S. Milby, J. D. Murch,
E. A. Butterworth, B. H. Grove, Walter Levy,
and W. T. Meyer.

1) The proposed schedule of meetings to be held by Mr. Thompson with the European and Far Eastern Axis sections of the Enemy Oil Committee was distributed.

2) Institutional and Strategic Planning. In regard to this subject, Mr. Levy explained that it was felt that a more detailed knowledge of the German organizational setup would prove useful in rehabilitation and relief work. Mr. Thompson thought it would also be interesting to reconstruct the history of the probable Axis refining programs versus requirements, especially for such products as aviation gasoline and Diesel oil.

3) Tied Stocks. Mr. Thompson said he would like also to discuss the figure of 4,000,000 tons covering "Tied Stocks". He wondered whether an attempt should not be made to calculate the tied stock figure on a more exact basis. Mr. Butterworth mentioned that the American Committee avoided using a statistical figure for stocks, so far as possible, as they had found it led people to draw misleading conclusions. After four years of war, it was felt that the European picture did not permit building up a stock figure on the basis of statistics of supplies and requirements. Mr. Levy thought that it would be better to calculate what the minimum stocks would have to be to handle the current volume of consumption.

4) Civilian Consumption. With regard to this subject, it was thought that the first step should be to attempt to agree on definitions of products and geographical areas. Mr. Levy pointed out that the two-thirds fraction of gasoline used in special Diesel fuel SDK had been included in the American figures under the "Light Motor Fuel" column. The same procedure had been followed in regard to gasoline mixed with kerosene for use in tractors in Italy.

5) After some discussion it was agreed that under Diesel oil consumption should be shown all liquids used in Diesel engines. (See minutes of meeting on synthetic oil, February 8, 1944.)

6) It was also agreed that fuel oil would cover only burning oil. It was recommended that in the future British estimates that proportion of asphalt, wax and pitch not used as liquid fuel or lubricants should be excluded from the fuel oil column and thrown into "Refinery Fuels and Losses".

7) In regard to the definitions of countries it was explained that the American breakdown is based on present political boundaries, as suggested in the London Meetings of last June. Mr. Kilbey undertook to wire Mr. Herbert for a statement as to whether the American definition of countries was satisfactory. In regard to the details of consumption in individual countries, the number of passenger cars, trucks, etc., it was agreed that Mr. Thompson and Mr. Levy would discuss these in a special meeting. (See minutes of meeting, February 10, 1944.)

8) Post War Requirements. Mr. Levy raised the question as to whether the method used by the Allied Post War Requirements Bureau was sound, as they are apparently using 1938 figures as a basis. Since conditions have changed radically he felt the 1943 figures would be a more realistic basis. Mr. Thompson felt that post war requirements lay outside the purview of his Committee.

Notes on Meeting of February 8, 1944, 10:00 A.M.
Room 6071, New Interior Building.

Present: Messrs. C. F. Thompson, Sidney Kilbey, J. D. Murch,
B. H. Grove, Walter Levy, H. K. Nieuwenhuis,
Harry Noel, E. B. Peck, and W. T. Meyer, Sec.

9) The subject for discussion was the preliminary American estimates contained in EOC-68-3 of December 20th, 1943, on "Oil from Coal".

10) Aviation Gasoline Production. Mr. Thompson read the A.D.I.K. report which gave the estimated Axis requirements of aviation gasoline and indicated that actual production in January of 1943 amounted to 150,000 tons per month instead of the 200,000 tons called for. The same source quoted production of aviation gasoline in September 1943 at 200,000 tons per month. The head of the Aviation Fuel Supply Section of the G.A.F. also felt that monthly production at the end of 1944 would only be 300,000 tons, with little hope of reaching the 400,000 tons called for.

11) Dr. Peck stated that information indicates that aromatic gasoline from hydro plants is deficient in light ends and must be blended up with alkylate and light ends from other sources such as Roumania. The A.D.I.K. report mentioned that only 40% of supplies from Roumania were acceptable for aviation purposes. Dr. Peck also mentioned in this connection that Jersey had estimated Roumanian production of aviation gasoline at about 125,000 tons per annum.

12) In connection with Mr. Peel's tentative theory regarding the increasing naphthene content of aviation gasoline, Dr. Peck suggested that the Germans may run more the naphthene type hydro plant operation in order to produce more light fractions and butanes for alkylate.

13) The A.D.I.K. report having mentioned that one hydro plant has been turned over partially or completely to aviation fuel production, Mr. Thompson asked which plant this might be. It was not felt possible to identify this plant precisely but Poelitz is perhaps most probable.

14) Mr. Thompson also asked what plants are considered the main aviation gasoline producers. Dr. Peck was of the opinion that hydro plants furnished the aromatic base stocks, to which were added alkylate and light ends, among which would be straight run naphthas of low end point. He named Leuna and Poelitz in

that order of importance. These plants have enough stalls to make aviation gasoline. While Leuna itself may not have enough stalls it could do so if worked as a unit with the Bratag plants. Leuna is the technical headquarters for aviation gasoline production, hydrogenation, alkylation and possibly other processes, and possesses the technical files and reserve equipment. Poelitz probably has the greatest aviation gasoline production. Gelsenkirchen and Scholven were the next most probable plants. He thought a close watch should be kept for developments at the Blechhammer plants, as the activity there should reflect the overall position with respect to oil supplies and in particular aviation gasoline.

15) Dr. Peck mentioned that the effect of going all out for aviation gasoline is to reduce total output of all oil products. The balance between our estimates of hydro production from the number of stalls on the one hand and hydrogen compressors on the other points to operations for heavier products.

16) In regard to the Astra alkylate plant Mr. Thompson thought this was not completed at the time of the August 1st raid and also that some equipment for the plant was destroyed on railway sidings. Dr. Peck said the plants were easily built, indeed the alkylate route appeared to be the easiest way for Germany to increase aviation gasoline production. Perhaps there was trouble with sulphuric acid supplies and acid recovery. Mr. Nieuwenhuis thought the bottleneck might be an absorption plant, which is very costly. Mr. Boel also mentioned that 12.5% of the non-paraffinous crude from Roumania seems high for an aviation cut. There was no sign of cracked stocks being used for aviation gasoline.

17) Synthetic Lubes from Wax. Mr. Thompson asked what information the Americans had on the production in Germany of synthetic lubes from wax as referred to on page 5 of EOC 68-3. Dr. Peck said that the Germans seemed to be unable to work up the potential supply of high grade bright stocks from crude and relied on the synthetic route. Furthermore analyses of some German aviation lube oils have proved that the bright stock fraction is definitely synthetic. This was determined by the fact that synthetics give no optical rotation. He mentioned Lützkendorf as a plant that might be used for this purpose. It has only two stalls and a small number of stalls means that they are making heavy products. It was the general opinion that edible oils were now being made from wax.

18) "Unknown" Plants. Mr. Nieuwenhuis said that we had no definitive intelligence on new synthetic plants, so allowance was made for "unknown" plants. Dr. Peck said that unknown hydro plants were discussed at the London conferences and dropped on the theory that no hydro plants would be built unless they were very large, in which case there would be intelligence reports. Fischer-Tropsch Plants on the other hand might be built in smaller units and an allowance

was made for such plants. The argument that no new F.T. plants had been constructed because of an indicated cobalt shortage could be dismissed because, as Mr. Thompson pointed out, the Valdarno F. T. plant had been projected to use iron catalyst.

19) Auschwitz was mentioned and Mr. Thompson said that 13 out of 14 intelligence reports on this plant referred to rubber. In regard to carbide production, Dr. Peck mentioned that the by-product in this process is carbon monoxide, which might be used in F. T. plants. It was felt that air cover on this plant should be secured.

20) The American allowance for unknown production in 1943 was 200,000 tons for F.T. plants; the British 230,000 tons. The American allowance for 1944 was 300,000 tons which was the same as the British allowance.

21) Capacity of Known Plants. On the question whether the estimate of synthetic production is conservative, Dr. Peck said that the unfinished stalls at known plants was a critical question and suggested that the known plants might actually be running at greater efficiency than assumed. This might be due: a) to the possibility that coal hydro plants might be running on tars, and b) to advances in technology during the war. In regard to estimating the capacity of the hydro plants in general, Dr. Peck suggested that more definitive estimates of hydrogen production and compression capacity might reflect a more efficient utilization of the stalls than is now accepted. This might put the unfinished stalls in a different light. As an example of new technology, a large increase in the percentage of catalyst used in liquid phase operations might also increase output. Peck and Nieuwenhuis thought the overall picture on synthetic plants was conservative on the low side.

22) L. T. C. Plants. All agreed that we are on weak ground as regards L.T.C. plants. The total production of L.T.C. tars has been put at 3.5 million tons as against a production at the beginning of the war of less than one million tons; this seems to take care of plenty of expansion in L.T.C. operations. Only half a million tons are worked up directly, while the rest is feed stock to hydro plants. The American figure of direct products from L.T.C. tars in 1943 is 330,000 tons as against the British figure of 560,000 tons. The latter figure arises from directly working up 700,000 tons per year instead of 500,000 tons as agreed in London last summer.

23) It was mentioned that samples show Diesel oil as straight L.T.C. product blended with F.T. product, which latter has a blending value as high as 110 octane.

24) It was agreed the L.T.C. plants were likely to be located

mainly in Central Germany and East Prussia.

Re: R. C. L. F. 1947. It was felt that the Russian figure of 5.50 million tons of U. S. coal is probably more correct than the 4.5 million tons used in the American figure.

Notes on Meeting of February 8, 1944, 2:00 P.M.
Room 6071, New Interior Building.

Present: Messrs. G. E. Thompson, Sidney Kilbey, J. D. Murch,
R. H. Grove, Walter Levy, H. K. Nieuwenhuis,
Henry Soel, E. B. Peck, Donald E. Mackay,
and W. T. Meyer, Sec.

26) Discussion of EOC 68-3 "Oil from Coal" was continued.

27) Definition of Products. The question was discussed whether estimated product breakdown of the consumption and production figures should be made on a "usage" basis or on a "normal specification" basis. It was realized that so far as consumption estimates are concerned, both intelligence and estimates could much better be made on the "usage" basis, whereas for the production estimates the "normal specification" was the more practicable basis. It was therefore decided that the consumption estimates should be shown on the "usage" basis and the production estimates on the "normal specification" basis, with a footnote indicating the conversion from the one basis to the other for the purpose of reconciliations.

28) Nomenclature of Plants. Agreed, that to avoid confusion, plants should be designated by their location names.

29) Estimates of Throughput. Dr. Peck felt that, if possible, greater account should be taken of compressor capacities rather than stalls in estimating throughputs. The fact that work on the construction of a stall had ceased might imply only a change in operating programme, the plant running to a heavier product from a single phase operation.

30) Scholven and Gelsenkirchen. Mr. Thompson noted that in the present American estimates the capacities of Scholven and Gelsenkirchen had been reversed. Mr. Nieuwenhuis explained that upon reconsideration of the data sheet for the German Bergius Plants put out by the British, it was felt that of the two plants Scholven had the larger capacity. This conclusion was mainly based on Scholven's greater number of stalls (16 versus 12) and greater compressor capacity (2 compressor houses respectively 409 x 220 and 429 x 66 versus one compressor house 600 x 87). This does not affect the overall total.

31) Poelitz. No comment.

32) Blaschhammer South. The British average annual rate for the first six months of 1944 is 500,000 tons as compared with a rate of

345,000 for November-December, 1943. The American estimate of production during the first six months of 1944 is 240,000 tons, corresponding to an average annual rate for that period of 480,000 tons.

33) Blechhammer North. The British average annual rate for the first six months of 1944 is 250,000 tons as compared with a rate of 300,000 for November-December. The American estimate of production during the first six months of 1944 is 225,000 tons, corresponding to an average annual rate for that period of 450,000 tons.

34) Dr. Peck thought that both the Blechhammer plants should be rated at full capacity, as he felt that they are one of the mainstays of the German program; also they have compressor capacity and other equipment and only require the installation of some more stalls. He even thought that the ultimate capacity figure of 750,000 tons for Blechhammer South might be low. Since the latest air cover on these plants is about half a year old it was felt that this point could not be settled satisfactorily at the present juncture. It was strongly felt that air cover of the Blechhammer plants should be given a high priority.

35) Walsheim. These figures were agreed in London.

36) Melvin, Bethune. Mr. Thompson concurred with the American estimates.

37) Boehlen. Both the British and American figures agree on 350,000 tons per year as the 1944 rating, based on 7 stalls. Mr. Thompson mentioned the possibility of a high pressure Fischer-Tropsch plant coming into operation at this plant in the near future.

38) Magdeburg. The British figure for 1944 is the same as the 1943 figure, namely 250,000 tons per year, against an American figure of 300,000 tons per year for 1944. A C.I.U. report indicated that by August 1943 only one of the two new stalls had been fully equipped, which made a total of five stalls operating. The Americans had allowed for this in their 1943 production figure (250,000 tons) but had assumed that by January 1st 1944 the sixth stall would be fully equipped and in operation.

39) Zeitz. C.I.U. calculated 520,000 tons per year based on six stalls operating. Four more stalls, started early in 1942 were still without high pressure equipment by July 1943, by which time construction had also begun on a quadruple set of stalls with a new injection. (?) The Americans postulated six stalls through 1943 plus two additional ones in January 1944 and another two in March 1944. This resulted in production increasing from 300,000 tons for 1943 to a rate of 500,000 tons by March.

40) Bruex. Hartley estimate production for 1943 at 400,000 tons; the Americans at 450,000 tons. The difference rests on the respective assumptions as to construction progress. The American figure for the first half of 1944 is at an average annual rate of 750,000 tons. Mr. Thompson stated that London felt that the plant would have probably attained an output rate of 600,000 tons by December and that the rate of production at the end of June might be 700,000; if, however, all 8 stalls were in operation when cover was obtained in April last, and not just 5 which were clearly in operation, these figures should be increased by 50,000 tons. It was agreed that the eventual capacity of the plant might be as high as 1,250,000 tons per year.

41) A. G. für Kraft. Mr. Thompson stated that notwithstanding further efforts no confirmation had been obtained of the existence of this plant. Mr. Nieuwenhuis mentioned that according to a notice in "Oel und Kohle" the A. G. für Kraft had been organized in 1940 by the Saechsische Werke to take over and operate an oil-from-coal plant then under construction. The question as to whether or not to drop this plant from the estimates was left for decision until after the notice from "Oel und Kohle" had been scrutinized once more. Mr. Thompson questioned whether this alleged plant may have had some connection with the large L.T.C. plant at Mülbis; this plant included refining equipment. It was also associated with the new coalfield at Espenhain.

42) Wesseling. This plant has been complete since 1942, and the Americans did not understand the reports that it does not seem to be operating normally. Mr. Thompson said that whereas previous air cover appeared to confirm ground reports of a low level of activity, the plant appeared to be fully active when covered in November.

43) General. Mr. Nieuwenhuis pointed out that until factual data prove otherwise, the Americans felt the only basis that can be used to assess the output of synthetic plants is the normal assumed rate of construction progress under war conditions. Further air cover is therefore considered essential. Doctor Peck particularly felt that Bruex and the Blechhammers would be barometers of the German oil position, in the sense that if it were found the Germans were rushing these plants to completion, it would indicate that their oil position was critical.

44) War Factors. Although no definite percentage could be calculated, the British feeling is that air raids have had a sensible effect on general industrial activity (mainly due to absenteeism in the heavily attacked areas) and would therefore be reflected by a reduction in the output of existing plants and would furthermore retard the coming into operation of new plants inasmuch as it would have slowed up delivery of equipment to oil plants. Mr. Nieuwenhuis felt that a reduction as high as 15% of the annual output of plants

in directly affected areas was too high. Mr. Levy felt that output in high priority plants would have been maintained at any cost, especially in plants where the ratio of personnel was not high. Mr. Grove felt that the loss of output in the Ruhr plants was within the margin of error of calculated production capacity.

45) Mr. Thompson said the British would welcome any studies in the United States on the subject of the effect of air raids on industrial production. The American representatives stated that while they were presently preparing a study, this subject was very difficult since there were so few tangible and concrete data to go by. They felt that the British were in a much better position to make such a study, based on the experience of their industry in bombings such as those of Coventry, Liverpool, etc.

Notes on Meeting of February 9, 1944, 2:00 P.M.
Room 6618, New Interior Building.

Present: Messrs. O. E. Thompson, Sidney Kilbey, J. D. Murch,
R. H. Grove, Walter Levy, H. K. Nieuwenhuis,
Henry Noel, E. B. Peck, Donald K. MacKay,
and W. T. Meyer, Sec.

46) Crude Oil Refineries. The subject for discussion was
EOC 63-2, covering crude oil refineries in Europe.

47) Mr. Noel stated that the report covered practically every refinery in Europe, with the exception of a very small plant in Latvia and three others at Rustchuk, Bulgaria. It therefore includes all the refining cushion the Axis could muster by reactivating dormant refineries. The capacities indicated are the crude handling capacities in tons per year, allowing for shut-down time; in other words, figuring 330 to 340 operating days per year.

48) Pernis. Asked why Pernis was shown at ~~1.2~~ million tons, Mr. Noel said this was based on two letters from the Shell.

49) Surplus Crude Austria/Hungary. Mr. Thompson asked how the surplus crude from Austria and Hungary had been handled. Mr. Noel said it had been assumed that excess Hungarian crude was being refined in Austria while excess Austrian crude was being crowded out to Czechoslovakia. The crude production rate used for these countries was the average 1943 rate.

50) Pipelines Austria-Czechoslovakia. All parties agreed in assuming that the pipeline from Zistersdorf to Kolin is in operation and also that a pipeline connection exists between the Danube and the Elbe. Mr. Thompson mentioned that it had recently been reported that Bruer had been linked up with these new pipelines.

51) Lobau. Mr. Thompson asked about the Lobau Refinery and Mr. Noel said that air cover had shown one pipe still which might have a capacity of 200,000 tons per year, but tankage seemed to be limited to 47,000 tons. Mr. Thompson mentioned that later air cover indicated the presence of semi-buried tanks which might have a capacity of about 200,000 tons. In reply to a question, Mr. Noel added that the refinery is in a position to operate today, although it is not completed.

52) Vienna Basin Crude. In regard to the quality of the crude available at Lobau, Mr. Grove mentioned that this was paraffine base crude with a maximum of 10% gasoline. Mr. Noel doubted they were running to maximum lube oil and thought they were topping the crude

and making distillates for working up at Solin, etc. Mr. Grove also mentioned that the new production in the Vienna Basin is probably of the light Zisterdorf type from the deep sands; the Zisterdorf shallow wells produce an asphaltic base crude. The new production was definitely not coming from the Flysch, as had been assumed in London.

53) Lube Oil Output. Mr. Noel said that estimates of lube oil production from crude refineries had been cut down because the experts on the synthetic plants feel that lube oil is now being produced at certain synthetic oil plants. In other words, lube oil production facilities exceed consumption requirements.

54) Roumanian Crude Exports. Mr. Thompson asked where the crude exported from Roumania was going and whether it was going to the Apollo Refinery in Bratislava. Mr. Grove said that before the war Roumanian crude had been shipped to Czechoslovakia, but it was believed the Apollo Refinery was operating on Austrian and Czechoslovakian crude from the Vienna Basin. He said that Roumanian crude had been reported going to Poland. He also thought the pre-war project of a canal linking the Danube and the Oder must have been completed (March Canal). Mr. Thompson thought the opinion in London on this was "not completed".

55) Dismantled French Refineries. Mr. Thompson asked how refining equipment removed from French refineries had been treated. Mr. Noel said that the French refineries had been shown at their full pre-war capacity with footnotes to indicate where dismantling or bomb damage had occurred. No definite advice had been received as to the ultimate disposal of the dismantled equipment and it was assumed that it was either on the shelf or might have been used in synthetic plants or in repairing bomb damage, possibly in Roumania.

56) Refining Capacity-Hungary. Mr. Grove asked if an allowance had been made for expansion for refinery capacity in Hungary. Mr. Noel said that the Petrardo Refineries capacity had been upped to 100,000 tons while 20,000 tons were allowed for the rehabilitation of small plants.

57) Petroleum Coke. Mr. Thompson asked what refineries were thought to be producing products of great importance for the German war effort. He mentioned the production of petroleum coke from three Roumanian refineries and said that the estimated German requirements for the aluminum industry were possibly of the order of 70,000 tons per annum. Dr. Peck thought the Germans might not be limited to the use of petroleum coke as they can use coal tar coke.

58) Special Naphthas. Mr. Thompson inquired whether the Americans had any information or theories regarding the special cut

of naptha going from Koenigs to Moosbierbaum. The quantity involved was 5000 tons per month or about one-half of available supply to Europe. The British thought that Moosbierbaum was something more than a blending plant and wondered to what use this place and naptha might be put. On the assumption that it was used for industrial purposes they had deducted this quantity from the German supply of available motor fuels. Mr. Levy said pre-war German consumption of special naphthas amounted to 300,000 tons. 1943 requirements were estimated at 220,000 tons. While the quantities for civilian use might have been cut considerably the quantities for certain war industries would have increased. Dr. Jack felt that careful consideration should be given to petroleum products needed by the German chemical industry.

NOTES ON INFORMAL DISCUSSION OF EUROPEAN AXIS CIVILIAN
CONSUMPTION OF LIQUID FUELS AND LUBRICANTS*

O.S.S. Office, 23rd & E St., N.W.

5 P.M., February 10, 1944

Present: Messrs. M. F. Thompson, A. Ritchie, Sidney Alexander,
Walter Levy, B. H. Grove.

59) Motor Trucks. - Discussion began with an attempt to assess the German position with regard to motor trucks. Consideration of this topic centered about the position in the Greater Reich, and it was agreed that no significant additions had been made to the Reich civilian truck pool through the acquisition of trucks confiscated in occupied or conquered countries. Mr. Alexander reviewed the results of study of abandoned German units in North Africa. Data drawn from study of several hundred such trucks indicate that: nearly all units are gasoline motored; much the greater number are of Opel or Ford manufacture. It was considered improbable that there was much hidden prewar truck production. Mr. Alexander expressed the current American estimate of German truck production as about 100,000 units per year.

60) Messrs. Levy and Alexander indicated that of the total truck pool with which Germany entered the war, 120,000 units were requisitioned by the army at the outset; in the next two years, 60,000 trucks were returned to German civil economy from new production; thereafter new production has been essentially all for military use. The current truck pool is therefore the prewar pool less the 60,000 units not lost from military confiscation in the first 2 years of war less any subsequent requisitions and less the number worn out during the past four years. It would appear that the resulting figure should be substantially less than the prewar pool, as indicated by the current American estimate, whereas the corresponding British estimate places the present pool at nearly the same figure as the prewar pool.

61) The problem of motor vehicles for Todt and NSKK will be discussed at the meeting on Military Consumption. It may be pointed out, however, that Todt and probably NSKK rely to a considerable extent on the use of locally available motor vehicles. In terms of fuel consumption the use of such vehicles by Todt and NSKK would mean that the unit requirements of such vehicles increases from a very small figure (the prevalent rate of unit consumption in that particular country) to a very high rate because it may be assumed that the vehicles working for

* See attached comparisons of British and American estimates.

Todd are used intensively. The unit consumption of a Todd vehicle is thus actually a differential between the requirements of a vehicle utilized intensively and that of a vehicle used at a level prevalent in occupied Europe.

62) Mr. Levy next pointed out that the Americans believe that the majority of units still using liquid fuels are light trucks, whereas the British believe the reverse. As a result, the annual fuel consumption per unit is higher in the British estimates. Various intelligence was cited in favor of the American view, chiefly to show that long distance hauling by truck has been greatly restricted (closing of filling stations and abandonment of maintenance on Reichsautobahnen; use of NSKK service and railroads for this purpose); that distribution of consumer's goods by motor trucks is much reduced (regulations for use of trams, etc. for this purpose, cancelling of truck licenses for most wholesalers), and it was suggested that the overall effect of any rationing system was to reduce unit consumption, although in varying degrees. Aside from their lower estimate of unit consumption because of the belief that chiefly light trucks are currently operating on liquid fuel, the American estimates allow for the foregoing factors by assuming unit consumption at about 70 percent of the prewar rate, whereas the British estimates continue to assume the prewar rate of unit consumption. It was mentioned that in contrast to the British, U. S. also assumes that the present unit consumption of motorcycles and private cars is lower than before the war.

63) Mr. Levy further pointed out that if the British should ultimately come to accept the American figure of 115,000 units thus far converted to use solid fuels, in place of their current assumption of 240,000 such vehicles, the British would also have to assume that 225,000 trucks are still running on liquid fuel. This, with their much higher unit consumption estimate, would necessitate a very large increase in the estimated German liquid motor fuel consumption.

64) In summary, it was the American view that a very considerable body of evidence suggested that of the total trucks in civilian use, most were light vehicles not used in long distance hauling, and operating at a lower than prewar rate. Mr. Ritchie indicated that the British view was that as a result of the high index of industrial activity, and the inflexible position resulting from the general shortage of consumer goods, truck activity must be high, particularly in urban areas, to insure rapid distribution of consumer goods and to handle the huge war production.

65) Diesel Trucks. - Attention was next given to Diesel trucks. Mr. Levy indicated that the basic British data on the number of units with which Germany entered the war is based on a report by the British Motor Manufacturer's Assoc., which report is in part erroneous. Official statistics indicate the number of Diesel units in Germany at the outset of the war as being around 70,000. Mr. Alexander suggested that the absence of Diesel units in captured trucks in North Africa did not support Mr. Levy's contention that the Army requisitioned heavy Diesel

trucks in preference to gasoline types. It was agreed that supply problems in North Africa may have made the Germans desirous of handling a minimum of fuel types, and so limited their truck units to gasoline vehicles; also, there has been little or no evidence of Diesel truck production during the past few years, and such trucks may be disappearing from lack of replacement. The American unit consumption estimate for Diesel engined trucks is also lower than the British (assuming that most of them are medium sized and not heavy trucks). It was agreed to check as to whether there are technical limitations making it impossible to convert some types of Diesel truck. (First step, to check list appearing in M.E.W. Notes on Oil Intelligence, No. 48, page 4).

66) A brief consideration of the possibility of using tire production as a limiting factor in motor vehicle use led to little hope of anything significant from this evidence.

67) Danube Shipping. - Various uses and countries were next considered in rapid review. The probability was pointed out that the British estimates for Danube shipping have included a considerable allowance for bunkering in the German figures, and then included this same allowance in the allocation for inland waterway consumption under the heading of Roumania.

68) Inland Shipping. - In the 1941 Hartley report, consumption by German inland shipping was estimated close to the prewar rate at 141,000 tons per year; subsequently this figure was reduced on the assumption of a conversion program for shipping. Both Americans and British are agreed that this conversion has not taken place to any significant extent, yet the 1943 Hartley report carries inland shipping at 84,000 tons, i.e., at the reduced rate postulated on the conversion program.

69) Agricultural Consumption. - Our respective estimates of consumption for agricultural purposes in Germany differ both as to the number of units involved, and in areas included within the boundaries of Germany. The U.S. estimate in contrast to the British includes agricultural oil requirements other than for tractors.

70) Industrial Consumption. - Our respective estimates of the use of industrial black oils are in good agreement. Additionally, however, the American estimates show 220,000 tons per year for industrial gasoline, against 300,000 tons per year in prewar Germany (solvents, cleaning, small gasoline-powered units such as portable saw mills, etc.). The British apparently make no allowance for such consumption. It was pointed out that the American consumption figure does not take explicit cognizance of special new uses for gasoline such as those which may be associated with Mooshierbaum. This latter is deducted from both the production and consumption sides in the Hartley report. It was concluded preferable to record such special production and consumption, rather than deduct it at the source, both to indicate that it had been given specific cognizance, and to prevent ultimately overlooking it, as had been done in the British reports in the case of exports to neutrals from Roumania.

71) Engine Testing. - The British estimates of gasoline consumed in testing airplane engines are much higher than the American, and are based on recent information from a reliable source.

Mr. Levy pointed out that if checked by an estimate of engine consumption multiplied by the number of engines being produced in the aircraft industry (on which British and Americans are in close agreement) the British figure could not be substantiated, and the source must be presumed in error. Mr. Thompson agreed that if this could be demonstrated on the basis of the aircraft production figure now accepted by the British, there would be little alternative but to reduce the British allowance for engine testing.

72) Kerosene. - With respect to kerosene, the American figures for agricultural use of this product are reduced in consequence of an allowance for gasoline blending; without this, the American figure is 80,000 tons per year, and in substantial agreement with the British estimate. The American allowance for household use of kerosene assumes a rate of about 80 percent prewar level, and with the adjustment above, is fairly close to the British figure.

73) Railways. - With respect to railways, the British figures are lumped in the general totals for industrial fuel consumption. The American figures include an allowance for bottled gas, which is known to be used on rail cars, and for Diesel oil, particularly used for switch engines and some special high speed autorails. It is known that Diesel engines for railroad use were constructed until about six months ago.

74) Converted Vehicles. - With respect to converted motor vehicles, the American figures make some allowance for light oils used in starting and for uphill climbing of converted vehicles. Figures also include calculations for lubricants consumed by converted motor vehicles. The total figures for industrial lubricant consumption were reviewed and it was agreed that the Swedish experience, representing a highly active economy with a minimum use of natural products would form an excellent index as to the probable accuracy of our estimates for Axis countries.

75) Lubricants. - The principal difficulties in the American and British totals for European lubricant consumption seem to hinge about a factor for lube oils equal to 5 percent of light fuel consumption as used by the Americans, or 5 percent, as used by the British. It is agreed that steps should be taken to determine which of these factors can best be supported.

76) Occupied and Satellite Countries. - The discussion then referred to a comparison of the British and U. S. estimates of requirements in all the remaining countries of Axis Europe. Mr. Thompson noted down a few of the basic differences in these 2 sets of estimates. It might, however, be mentioned that the U. S. reports for 1942 and 1943 contain detailed description of the facts underlying the U. S. estimates. The reasons for the differences between the British and U. S. estimates can thus be ascertained by a study of those U. S. reports. There is also a U. S. report on 1938 requirements (Text and Table) which we believe is available to M.E.W. in London, and which may serve as a background.

Table 1

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WORLD AND DOMESTIC AND CIVILIAN CONSUMPTION OF LIQUID FUELS AND LUBRICANTS IN WEST EUROPE, 1943*

Comparison between British and U. S. Estimates.

(Thousand metric tons)

		Light Motor Fuel ¹	Kerosene	Lubricants	Gas Oil	Fuel Oil ²	Total
Germany	British	723	156	637	1,116	508	3,483
	U. S.	1,113	115	545	907	275	2,730
Austria and Slovakia	British	50	10	30	60	25	175
	U. S.	110	22	23	9	5	110
Italy	British	125	95	70	100	110	500
	U. S.	115	30	60	55	225	435
Luxembourg	British	60	48	24	60	48	240
	U. S.	70	62	17	36	45	250
Scandinavia	British	140	305	30	150	1,250	1,775
	U. S.	125	300	30	120	1,150	1,725
Malta	British	6	3	2	5	3	19
	U. S.	8	17	6	12	2	45
Ireland	British	12	10	5	5	--	32
	U. S.	25	10	11	4	--	50
France	British	224	12	48	62	12	358
	U. S.	130	10	55	60	45	300
Belgium	British	18	6	10	15	5	54
	U. S.	25	1	16	31	9	82
Netherlands	British	18	13	12	21	10	74
	U. S.	10	10	15	20	5	58
Denmark	British	18	10	7	32	5	72
	U. S.	8	10	10	35	1	64
Norway	British	31	8	7	76	3	125
	U. S.	15	7	8	15	25	70
Baltic States ³	British	--	11	6	--	--	25
	U. S.	12	8	4	4	13	41
General Govern- ment of Poland ⁴	British	48	36	24	36	12	156
	U. S.	19	16	9	5	6	55
Occupied Russia	British	40	45	25	65	50	225
	U. S.	135	60	25	45	35	300

		Light Motor Fuel ¹	Kerosene	Lubricants	Gas Oil	Fuel Oil ²	Total
Serbia & Croatia ³							
	British	6	3	2	7	5	23
	U. S.	8	6	6	3	7	35
Greece							
	British	23	3	6	13	12	52
	U. S.	6	3	4	10	7	30
TOTAL							
	British	1540	779	908	2123	2138	7488
	U. S.	1935	735	849	1936	1855	6430

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- ¹ Excludes liquid fuel equivalent of gaseous and solid substitute fuels.
² Corresponds to British: Motor spirit and Blenders plus Aviation Spirit.
³ Corresponds to British: Fuel oil and Asphalt.
⁴ Corresponds to British: Greater Germany.
⁵ Corresponds to British: Czechoslovakia.
⁶ Corresponds to British: Italy and Albania.
⁷ Corresponds to British: Estonia, Latvia, and Lithuania.
⁸ Corresponds to British: German Poland and Danzig.
⁹ Corresponds to British: Yugoslavia.

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		U.S.		U.K.		France		Other		Total	
		Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas
Domestic	Transportation	100	100	100	100	100	100	100	100	100	100
	Industry	100	100	100	100	100	100	100	100	100	100
Foreign	Transportation	100	100	100	100	100	100	100	100	100	100
	Industry	100	100	100	100	100	100	100	100	100	100
Total	Transportation	200	200	200	200	200	200	200	200	200	200
	Industry	200	200	200	200	200	200	200	200	200	200
Grand Total		400	400	400	400	400	400	400	400	400	400

a. Aviation gasoline includes requirements for air transportation between Germany and Occupied Countries.
 b. Does not include 14,000 tons of Aviation Spirit.

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Table 3

NUMBER OF LIQUID FUELLED TRUCKS IN USE IN AXIS EUROPE AS OF JULY 1943

(In thousand units)

	<u>Gasoline Engined</u>	<u>Diesel Engined</u>	<u>Total U. S.</u>	<u>Total¹ British</u>
Germany	113.0	10.0	123.0 ²	100.0
Protectorate & Slovakia	6.0	.2	6.2	10.7
Italy	20.0	3.0	23.0	21.8
Hungary	6.0	1.0	7.0	4.1
Rumania	10.0	.5	10.5	8.7
Bulgaria	1.5	.3	1.8	.7
Finland	4.0	.2	4.2	5.0 ³
France	40.0	3.0	43.0	44.4
Belgium	9.0	2.0	11.0	5.0
Holland	3.0	--	3.0	.6
Denmark	3.0	--	3.0	.5
Norway	8.0	--	8.0	13.5
Baltic States	3.0	--	3.0	⁴
General Government of Poland	3.0	--	3.0	--
Occupied Russia	20.0	--	20.0	--
Yugoslavia	1.5	1.5	3.0	2.1
Greece	1.5	--	1.5	1.8
TOTAL	252.5	21.7	274.2	218.9

¹ Refers to Commercial Vehicles.² Excluding some 25,000 trucks driven by electric motors.³ Includes Baltic States.⁴ Included with Finland.

		Polish	Other	Total
Germany	Direct	230.0 ^a	220.0 ^b	350.0 ^c
		115.0	115.0 ^d	230.0 ^c
				8.5
				7.0
				38.0
				40.0
				1.0
				2.5
				8
				2.0
				13.5 ^c
				2.2
				115.0
				122.0
				21.7
				20.4
				21.2
				22.0
				20.6
				20.7
				16.0
				20.0
				5
				2.2
				3.8
				12.0
				1.1
				1.5
				3
				7
				4
				5
				613.9
				610.2
TOTAL	British	678.7	175.7	613.9
	U.S.	335.1	177.8	610.2

^a Including 25.00 "Gas Direct" to Poland

^b Baltic States included with Finland

^c Includes bottled gas

^d Compared to British Gas Corporation

Notes on Meeting 10:00 A.M., February 12, 1944

Room 6618, New Interior Building, Washington.

Present: Messrs. O. E. Thompson, Sidney Kilbey, John D. Murch,
E. H. Grove, Walter Levy, Robert Tufts, Lt. G. M. Dill,
Lt. Col. H. P. Whitcamp, Dr. Arthur F. Keller, Lt. Col.
Frank E. Wilder, W. T. Meyer, Sec.

Dr. Carlson was unable to attend.

77) The subject for discussion was the American estimates of Axis military consumption (EOC 68-6 to 8). The attached summary of British and American estimates was distributed for ready reference.

78) Ground Forces. - Mr. Levy mentioned that the assessment of grades of activities such as intense fighting, etc. was a rather subjective one.

79) Mr. Thompson asked how the vehicular strength of various divisions had been determined. Mr. Tufts replied that they had relied for this on the order-of-battle people in NIS. Mr. Levy said that the total divisional truck strength amounted to 375,000 for the German Ground Forces. About 75,000 trucks had been calculated for the Air Force, making a total of 450,000 altogether.

80) Mr. Thompson stated that the War Office, in calculating divisional vehicular strength, arbitrarily assumed that consumption saved by unit losses was offset by the consumption of new units coming forward in replacement. Mr. Levy said that the German T.O. (Table of Organization) strength per division is higher than the figure he had used.

81) Mr. Grove asked if the consumption per vehicle agreed with the British estimate. Mr. Tufts and Mr. Levy said that the consumption rate per mile agreed, as it was based on the German manual, but there are some differences in assumed mileages. The U. S. estimates are based on different mileages per day for the various kinds of military vehicles, such as motorcycles, trucks, tanks, etc., (see EOC 68-7 on Ground Force consumption).

82) Mr. Thompson asked whether intelligence from Italy on Ground Force consumption had been utilized. Mr. Levy said such intelligence had not yet been made available to him.

83) Mr. Tufts pointed out that there is a difference in estimated lube oil consumption. Mr. Levy said that U. S. experience in Africa had indicated a consumption of 2.8 percent by weight, which Col. Whitcamp

confirmed. In regard to producer gas vehicles, the Americans have allowed 5 percent; Mr. Thompson believed that the War Office estimates assumed that the lube oil consumption of these vehicles was at the same rate as if they were driven on liquid fuel. Both parties had allowed a 20 percent factor for winter consumption.

84) Mr. Thompson asked the American opinion on the number of conversions to producer gas. The British had calculated that about 85,000 Army trucks would have been converted by January 1, 1944, which would represent about the maximum conversion of non-operational vehicles. Mr. Levy was in some doubt as to whether the full conversion program could be completed until some time in 1944, but agreed that the total would most likely be between 50 and 100,000 trucks. All agreed that the number of converted vehicles in the eastern areas is relatively small. Mr. Thompson said those in France could switch back to gasoline on short notice. The British estimate replacement of producer gas vehicles every three years. Mr. Levy felt there would be serious bottleneck in manufacturing facilities and in the manpower required to cut and haul wood for fuel. Mr. Thompson asked if Mr. Levy would be good enough to prepare a brief memo on the conversion picture.

85) Second Front Considerations. - Mr. Thompson asked how the American estimates for the first half of 1944 had been calculated. Mr. Levy said they had assumed that the present divisions in western Europe would be activated on the basis of a little higher than the average activities in Russia. Mr. Thompson said the War Office had figured on a new battle started in the middle of the period involving forty-five divisions. The total consumption of the six months worked out to slightly less than the last six months of 1943. This was because the picture at the end of the year was one of great activity on the eastern front, which had been presumed to continue until the spring thaw and then fall off. This falling off had been the experience in previous years.

86) Mr. Thompson inquired whether the Americans envisaged any reduction in motorization strength on the eastern front. They considered it would remain about the same.

87) Mr. Thompson said the conclusion seemed to be that in the event of an invasion in the middle of the first six months, the increase in consumption would be about 150,000 tons ~~per month~~. This was agreed to.

88) Navy. - Mr. Thompson said the Admiralty had calculated German Naval consumption on a straight line with the past, on the assumption that the increased consumption due to intense activity during an invasion would soon be offset by many sinkings. The Americans had assumed an increase in the activity of small craft and pointed out that the Germans have no battle fleet now and the consumption of large ships' bulk small in the total. Lt. Dill said they had calculated that without an invasion consumption would be less than in 1943 and with an invasion might be somewhat higher. The reduction was due to the loss of Italian

vessels. In any case, he had no objection to modifying the American estimates in order to reach an agreement with the British.

88) Air Force. - Mr. Levy said the Americans had not taken into consideration in their calculations the result of attrition during second front operations.

89) Mr. Thompson said that the overall estimates are in general agreement regarding 1943 consumption.

91) 1943 Estimates.

Todt. - It was agreed that the Todt organization is used for every conceivable urgent construction job in Europe. Both sides agreed to use a figure of 1,400,000 men employed. Mr. Levy said he had calculated one unit of motorized equipment per 25 men, consuming five to six tons per year. Mr. Thompson said in the experience of British contractors, fuel consumption varies widely according to the type of work. Mr. Levy agreed with the British viewpoint that Todt uses many civilian vehicles and that the consumption, while in such use, would be much higher than in civilian use. It was felt that American construction experience could not serve as a guide in view of the heavy mechanization here; however, it should not be overlooked that the Germans use large concrete mixers as well as bulldozers for fortification and airport work and that they seem to have done a quick job in clearing away bombing debris. It was suggested that the interrogation of prisoners of war might be undertaken in order to determine the degree of mechanization of the Todt organization.

92) A.S.W.S. - It was agreed that this organization has a large number of vehicles and that many of these are of large size.

93) In regard to the overall figures for military consumption in 1943, Mr. Levy said that both estimates indicate that Axis military requirements in 1943 were of the order of 9,000,000 tons. He also said he would like to receive the British estimates monthly in the future.

94) Air Force. - Mr. Thompson advised that the British have revised upward their previous estimates of Air Force consumption in 1943. Their original figures had not allowed for the increase in engine sizes, nor the increase in auxiliary services, now figured at 1400 planes.

95) A.A. Consumption. - Mr. Thompson inquired whether the Americans had considered the consumption of Flak units. Mr. Levy said the estimate was based on German organization intelligence. Mr. Thompson then asked whether it was known if searchlight units have diesel generators. Mr. Levy said in England there is a heavy consumption of Diesel oil for this purpose. It was felt that the Germans probably followed the German practice of tying in to local sources of power where possible, especially as electric power in Germany is produced from coal. Mr. Thompson wondered whether the fact that flak posts are generally located in the open country would not lead to heavy consumption due to trucking of supplies. Mr. Levy felt that this was a service that could be handled by producer gas vehicles.

95) Navy. - Mr. Thompson asked if the Americans had adopted the figures of the Berthoud report. Mr. Tufts pointed out that there were some inconsistencies in the report, and Mr. Grove said they had felt the report was important in that it confirmed their previous estimates of Italian consumption.

97) Mr. Thompson said the British were not very happy regarding their estimates covering small craft, both as to strength and consumption. Lt. Dill said this was similar to the Tost problem, since the Navy utilized almost all fishing craft and harbor vessels. Mr. Thompson asked if it were thought that the number of small craft were increasing. Lt. Dill was inclined to say no, and thought the U.S.N. would be reluctant to increase their figures. He thought building activity would be low, as such craft would have a low priority rating. He said he thought it would be useful for Mr. Thompson to have a talk with Mr. Bennett, who was responsible for estimates of German naval strength; Mr. Thompson said he would welcome this.

98) Lt. Dill said the estimates of high sea activity were based on British intelligence, whereas port consumption was based on American experience. It was pointed out that the British figures for destroyer cruising consumption was 110 tons per day, as against the American figure of 60 tons. It was suggested that the British figure should be further checked.

99) Mr. Thompson asked about harbor craft consumption. Lt. Dill said this was included under "Shore Establishments". Regarding consumption of coastal defenses, he said this had been based on personnel.

100) Tied Stocks. - Mr. Thompson said he felt the figure of 4,000,000 tons for the "distributional minimum" was high. Intelligence indicated that the German stock position at the beginning of 1943 was bad and at the end it was worse. He said he was anxious to obtain a new breakdown of tied stocks and strategic reserves. Mr. Levy said the O.C.S. had reestimated tied stocks of the Navy at 225,000 tons, the Air Forces at 230,000 tons (4 weeks on the eastern front and 3 weeks on the western), and the Ground Forces at 845,000 tons, with special reserves for an invasion of 45,000, 60,000, and 95,000 tons respectively. This gave a total of 1,300,000 tons tied up by the military machine alone.

February 1944

Table 1

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COMPARISON OF BRITISH AND U.S. ESTIMATES OF
CIVILIAN MILITARY CONSUMPTION IN 1942

(In thousands of tons)

	U.S. Estimate	British Estimate	Differences (U.S. over British)	
			Tons	Percent
Army	1817	1738	242	6
Navy	107	200	30	2
Air Force	2203	2368	162	7
Other	48	48	41	13
TOTAL	2075	2394	438	5.3

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Table 2

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WOUNDING OF AXIS AGENTS - NOVEMBER 1943
IN BRITISH AND U.S. THEATERS

	<u>British</u>	<u>U.S.</u>
Midland and Northern Sector	36	37
Central Sector	2	106
Southern Sector	18	183
Isolates	5	Included above
	729	325
<u>Other Fronts</u>		
Germany	5	2.1 (average for year)
Eastern Europe	9	20 (average for year)-
Germany, Poland, Denmark	10	6.1 (average for year)
Italy	30	29.0 (average for year and active front for Nov.)
France and Belgium	12	29.7 (average for year)
Other theatres	70	8.6
	76	74
	405	399

Notes on Meeting of the Committee, February 11, 1944.
Atlantic Building, New York

Approved: Messrs. J. M. Campbell, Sidney Killey, J. W. March,
W. B. Patterson, W. H. Perry, B. H. Grove, Henry Loel,
Donald H. Jones, David Loken, Ray Walters, E. F. Haynes,
and J. Baker.

101) The subject under discussion was the crude oil production estimates for 1943 and the first half of 1944.

102) Mr. Grove distributed a recap of British and American estimates of crude and shale oil production in Europe for 1943, together with a breakdown by fields of oilfield production in Germany submitted. He then proceeded to comment on the figures.

103) Rumania - Both estimates agreed on a production of 100,000 tons for the first eight months of 1943, which is based on first-hand intelligence. Both also agreed that there has been no production since August 1943. Mr. Baker stated that there is very little intelligence in the first half of 1944. Mr. Campbell mentioned that intelligence indicated there has been no preparation for operations in the fields.

104) Czechoslovakia - Both estimates agreed on 1943 production of 72,000 tons, with no significant change in the rate of 1944. The estimates were based on pre-war data and figures from "Oil und Kohle", as well as the fact that no intelligence had been received of any expansion in operations.

105) Estonia - Both estimates agreed on a production of 95,000 tons in 1943, being based on the same intelligence. Intelligence also indicated that the Germans are expanding their facilities and production in the first half of 1944 was estimated at a rate of 110 to 150,000 tons, with a possibly higher rate in the second half of the year. However, it was recognized that the Estonian shale industry is in imminent danger of being captured by the Russians.

106) France - The American total for 1943 is 95,000 tons and the British total 65,000 tons, the difference apparently being due to the fact that the British calculated 5,000 tons less for French oil and made no allowance for St. Cavours. The Americans rated French oil at 95,000 tons, based on past production, which is a combination of drilling and mining. Both agreed to rate Autun at 15,000 tons, although

there was a feeling that this figure might be high. The Americans had included St. Gaudens for 5,000 tons. According to last reports there were 20 wells, mostly gas, but since July 1943 there may have been additional oil wells. Geologic conditions are favorable for production. The French at first had difficulty in getting drilling material and it was assumed that later they tended to hold back production. However, the Germans have been reported as having taken over the development of this field. Mr. Thompson mentioned that an agreement was reported with the Continentale.

107) Germany--Reitbrook - The American estimate for 1943 is 143,000 against a latest revised British figure of 130,000 tons, as compared with the previous estimate of 144,000 tons. Mr. Grove and Mr. Mackay explained the basis of the American estimate, which is dealt with in a recent revised ROC report on the Reitbrook fields.

108) Heide - The American estimate for 1943 is 70,000 tons and the British 50,000 tons. The Americans have adopted the higher figure owing to sporadic reports of deep drilling in Germany, which apparently could only be at Heide.

109) Small fields - Mr. Grove estimated that production in the Beckelfeld might be about 50,000 tons; this was based on the assumption that it is a salt dome as in the nearby Reitbrook field. It was also considered that wildcatting was continuing on a small scale in Oldenburg. Dr. Haynes felt that field limits were quite well known for the Rodewald field and he did not expect much production. Mr. Walters thought that air cover of small fields would be worth while.

110) Mienhagen - The American estimate for 1943 is 139,000 tons as against the British figure of 140,000 tons. Mr. Grove thought production was unlikely to be higher and might be lower. Mr. Thompson said that air cover had been requested.

111) Casinghead - Mr. Thompson asked where casinghead gasoline might be produced, and Mr. Grove mentioned Mienhagen, Reitbrook and Oberg, two of which had casinghead recovery plants before the war.

112) Italy - Both estimates for 1943 production were put at 10,000 tons, although Mr. Grove commented that ground intelligence indicated the true figure might be 0,000 tons.

113) Yugoslavia - 1943 production is estimated by both sides at 50,000 tons. Mr. Grove felt that this was a very generous allowance. Sweden's information is the only intelligence that has been received on production at well. The balance sheet of Yugoslavian companies all show loss, which would indicate little or no production. The power

stations had had to shut down for lack of fuel, which would presumably not have occurred if local crude had been available. Mr. Grove did not think that guerrilla action had interfered with production, in view of the location of three principal fields.

114) Poland - 1943 production was agreed at 400,000 tons. Mr. Grove mentioned that reports had been received from the Polish underground indicating large increases in production. These reports check as to geologic division of production, oil-gas ratio, etc. One-third of Polish production is in the west in the Jaslo area and two-thirds in the east, which includes Stalowa and Drohobycz. Mr. Thompson confirmed that London had also used the same Polish source. However, drilling activities appeared to be increasing. Mr. Grove thought this might be in western Poland where wells are more shallow and might be in the form of intermediate wells to push production. Mr. Thompson asked what was the future trend. Mr. Grove said it was toward a decline, perhaps moderated by increased production in the west. It was mentioned that wells in east Poland would require one year to drill. Mr. Grove also thought the chances for new production in eastern Poland are very remote; this area has been very closely studied. The Americans estimate the annual rate of production 1944 at 360,000 tons, including casing-head gasoline.

115) Romania - The American estimate for 1943 production is 5,067,000 tons and the British estimate 5,450,000 tons. Mr. Grove said that various intelligence reports indicate production ranging from 4,800,000 to 5,600,000 tons. He favored a figure of between 5,000,000 and 5,300,000 tons, including casinghead.

116) Mr. Thompson mentioned that a pipe line connection with the Barga area had been reported which would require three months to build. Astra and Credit Winter were active in this area. Mr. Walters mentioned that Romano American had participated in a purchase of new properties, presumably to the west of Ceptura. He thought that the drilling possibilities foreseen last year must have been put into effect by this time.

117) Mr. Thompson said that the arguments for maintaining production were new discoveries and drilling activities at a high level. The contrary arguments were equipment difficulties, hesitation of the companies to over-exploit, and possible effects of the August first raid. The latest report was 5.5 million tons. Shipments from Roumania have been intensive but results have been disappointing. He thought that drilling probably consisted of marginal wells, five-spotting, etc. Mr. Thompson said Dr. Haynes had given a decline factor of 5%, which some people in London felt was a little on the high side. Dr. Haynes said the rate had been based on actual experience. It might be offset by five-

117) Mr. Thompson and Mr. Walters thought that this latter possibility would tend to speed the decline, but would not increase production. In regard to the possibility of deep wells, they thought there would be a long time to drill and would represent a long chance, since the oil probably was small. They said that they themselves would not have been so sure of deep wells with any certainty of production. Mr. Thompson asked if it would be possible to map out say four interesting areas for a year. Mr. Meyers and Mr. Walters said that they would be glad to do this and mentioned offhand Berca, the area west of Carabona and the north. Mr. Baker asked about the probability of oil production in the Transylvanian gas area. Mr. Walters said that the gas was dry gas as far as the base of the upper Miocene; they have drilled into the lower Miocene but have found no oil.

118) Mr. Thompson said that the British estimate for 1943 was being brought down nearly to the wartime figure. Casinghead was being included at the rate of 200,000 tons.

119) A question was raised regarding the rate of decline in 1944. It was pointed out that the decline rate for 1943 was increased over the normal in view of firm intelligence of high 1942 production, which would tend to increase the decline rate. It was also mentioned that larger oilfields increase the rate of coming up and reduce the ultimate recovery as well as lessen the decline.

120) Coming up, Mr. Thompson said there appeared to have been no possible discovery of significance that had not been anticipated.

121) Summary: Both estimates agreed on 1943 production of 600,000 tons. It was agreed a production of about 1.5 million tons could have been obtained. The intelligence is that the Hungarians have opposed production of more than 800,000 tons in 1943. It was assumed that the Hungarians have been meeting German oil demands by reducing internal consumption. The question was raised as to whether the limitation is attained by holding back from drilling or burning back wells. In the latter case production could be increased on short notice. It was agreed to cable Luxembourg for information on this point. Mr. Grove mentioned that air cover is being obtained of Hungarian fields.

122) Mr. Grove mentioned that the 1943 estimates included an allowance of 3,000 barrels per day for the area east of the Danube, in view of the Canal concession, which is entirely German and therefore out of the control of Hungarian authorities. He suggested a rate of 1,000,000 tons for early 1944, maintaining the above allowance of 3,000 barrels a

a day for unknown fields.

123) Austria - The American estimate for 1943 is 1,149,400 tons and the British 1,200,000 tons. Mr. Mackay pointed out that we know a great deal about Austria as we have had recent air cover as well as the records of an American company engaged in the field up to 1939. He gave details of the American calculations, which are covered in EOC-71.

124) It was thought that 1944 production might be as high as 1,750,000 tons but would probably be around 1,400,000, allowing for a decline in the Gaiselberg field but new wells in the Prinzendorf field. Mr. Grove did not look for much development in the Czechoslovakian section of the Vienna Basin, as wells there would be less productive than in the Austrian section.

125) Mr. Grove mentioned the Americans were checking the limits of the Zistersdorf field and Mr. Thompson said London had requested the Air Ministry to cover certain portions of the field and he would appreciate a note from Mr. Grove on this.

126) Mr. Thompson raised the question of ownership and Mr. Grove said he had lease maps dated 1939. The Prinzendorf-St. Ulrich field is being exploited by a consortium which includes Deutsche Erdöl and I. G.

127) Mr. Thompson asked about the possibility of a gas line to Bruex. Mr. Grove said there was not much gas production.

128. Mr. Thompson suggested a standardized nomenclature and it was agreed the Basin could be divided into the following fields; Gaiselberg, Zistersdorf (R.A.G. Dome and Goesting Dome), Kreufeld, and Prinzendorf-St. Ulrich.

129) Mr. Thompson raised the question of equipment and Mr. Butterworth was of the opinion that this would probably not be a bottleneck. The Germans had available the drilling equipment prepared for Maikop, as well as the personnel to operate it. It was also mentioned that the production of crude would require one-fifth or one-tenth of the steel needed for synthetic production. Mr. Thompson mentioned that the Germans had largely standardized equipment, which appears to be produced by Mannesmann, Werth, and Trautal, the latter firm located in the outskirts of Vienna.

ESTIMATES OF CRUDE AND SHALE OIL PRODUCTION
IN AXIS EUROPE FOR 1943

(In metric tons)

<u>COUNTRY</u>	<u>U. S. A. (ENEMY OIL COMMITTEE)</u>	<u>BRITISH (HARTLEY COMMITTEE)</u>
Albania	100,000	100,000
Austria	1,149,400	1,200,000
Czechoslovakia	32,000	32,000
Estonia	95,000	95,000
France	95,000	85,000
Germany (See attached sheet for breakdown)	886,000	866,000
Hungary	800,000	800,000
Italy	10,000	10,000
Yugoslavia	50,000	50,000
Poland	400,000	400,000
Roumania	5,067,000	5,450,000
 TOTAL	 8,684,400	 9,088,000

NOTE: Letter of December 8, 1943 from Mr. O. F. Thompson, MEX
revises estimate of production from Reithbrook field from
144,000 tons to 130,000. Accordingly above total of British
estimate should be reduced by 14,000 tons.

ESTIMATES OF CRUDE PRODUCTION IN GERMANY FOR 1943

(In metric tons)

	U. S. A. (ENERGY OIL COMMITTEE)	BRITISH (HARTLEY COMMITTEE)
1. Hannover		
(a) Nienhagen)	439,000	440,000
(b) Biehlingen)		
(c) Other Fields	120,000	120,000
2. Reitbrook	143,000	144,000*
3. Heide	70,000	50,000
4. Rhine Valley	12,000	12,000
5. Small or Unknown German Fields	100,000	100,000
6. Natural Gasoline	2,000	(included in above estimates)
TOTAL	886,000	866,000

NOTE: Letter of December 8, 1943 from Mr. O. F. Thompson, MEM, revises estimate of production from Reitbrook field from 144,000 tons to 130,000. Accordingly above total of British Estimate should be reduced by 14,000 tons.

Notes on Meeting of February 14, 1944, 2:00 P.M.
Chanin Building, New York.

Present: Messrs. O. F. Thompson, J. D. Murch, B. H. Grove,
Walter Levy, Henry Noel, and W. T. Meyer, Sec.

130) The subject for discussion was a further consideration of the report on crude oil refineries in Europe.

131) Cracking Operations. Mr. Noel said that refinery operations in 1943 had been postulated on a different basis than in 1942. For 1942 a minimum of cracking had been allowed whereas in 1943 sufficient cracking had been postulated to fill up the consumption void. This was due to the fact that synthetic experts had revised their production estimates, which allowed for a normal amount of cracking in crude refineries.

132) European Refining Capacity. Mr. Noel said he had added about 20 small refineries to the list of European plants, so that the total capacity was now shown at 26,490,000 tons. He mentioned that the average capacity was 4 to 5,000 barrels a day or say 220,000 tons per year. The larger plants are located in Roumania, Italy, France, and Germany. From the total refining capacity it is necessary to subtract the plants that are shut-down, destroyed, damaged or dismantled.

133) Distribution of Crude to Refineries. Mr. Levy asked how expanded Austrian production would be handled. Mr. Grove thought it would go to northwest Germany or Roumania, while some Roumanian crude would go to Poland. Mr. Kilbey thought the double haul involved in shipping crude to Roumania and shipping back finished products would be illogical. Mr. Murch called attention to Table A of the report, which shows the flow of crude to refineries, and asked if the British had made a similar table. He pointed out that the refinery slate had been setup on the basis of what was needed after taking care of the output of the synthetic plants.

134) Mr. Thompson wondered if the key refineries could be identified. Mr. Noel mentioned that Germany has three cracking plants which are working.

135) Aviation Gasoline from Crudes. Mr. Grove asked if we had given too little weight to crude products for producing aviation gasoline. Mr. Thompson asked where such products could be obtained outside of Roumania. Mr. Grove thought that Hungarian and Polish crudes could supply aviation fractions.

136) Mr. Thompson asked about casinghead gasoline. Mr. Noel said this yielded pentanes after debutanization but not isopentanes; analyses did not indicate the presence of much pure pentane in aviation fuels. Mr. Levy mentioned that the Italian Air Attache report confirmed that the bulk of aviation gasoline comes from the synthetic plants. Mr. Grove said intelligence indicated Pechelbronn was being used for aviation purposes, but Mr. Noel said the aviation cut would only be about 3% (in this connection it was pointed out that Pechelbronn should be listed under Germany rather than France). Mr. Noel said that non-paraffinous Roumanian crude is the largest source of Aviation gasoline and that the maximum of aviation gasoline from crude sources was 500,000 tons. The production of aviation gasoline did not affect cracking or lube oil production, as aviation base stock is from virgin cuts.

137) Germany. Mr. Grove asked why Salzburg and Dollbergen are being expanded, since they are distillate plants. It was pointed out that the Socony-Vacuum refinery at Bremen is reported operating at 150% of rated capacity, running Hamburg distillates, the reason probably being that this refinery has the organization and the know-how for making high grade lubes.

138) Mr. Noel asked about the Hemingstaedt plant and Mr. Grove said that it exists and is suspected to be connected with oil sand mining operations. It was suggested that in this case it should be excluded, the same as the Estonian plants and Autun, and shown as a foot-note.

139) A map of Hamburg showing refinery locations was studied and Mr. Kilbey requested a tracing in order to be able to clear up differences in locations as compared with British maps.

140) Mr. Noel mentioned that the allowance of 200,000 tons of lubricating oil production from wax in synthetic plants made it necessary to cut down the lube oil output from Austrian and Hungarian crudes.

141) Holland. Mr. Noel said the Pernis plant is carried at double the pre-war capacity, but it is marked as severely damaged. Mr. Thompson mentioned that recent first hand intelligence indicates that damage was not severe, and it was agreed that air cover was required to settle this point.

142) Poland. The British capacity for Poland is 600,000 tons whereas the American is 970,000 tons, which figure includes three refineries that are not operating but not dismantled. Mr. Grove mentioned that the American data on Poland is considered excellent, having been furnished mainly by the Managing Director of Malopolska. He mentioned whereas previous reports had stated there was no refinery

at Lwow, there actually was a plant in the outskirts of the city at Zniesienie.

143) Austria. The British show a capacity of Lobau at 300,000 tons as against the American figure of 200,000 tons.

144) Czechoslovakia. Both estimates place this capacity at 700,000 tons. Mr. Noel mentioned that the capacity of the Government plant at Dubowa was a guess. It had been reported by various sources at rates running from 50 to 90,000 tons and had been included because it is located at an area where refining capacity is needed.

145) Hungary. The British show 400,000 tons capacity and the American 600,000 tons, the main increase being at Petfurdo, which used to be an experimental cracking plant. Mr. Noel asked about the reported refinery at Komarom. Mr. Grove said that intelligence indicated very strongly that there is a new refinery there; the British also think so.

146) Roumania. The British show a total capacity of 9,525,000 tons of which 6,250,000 tons are assumed to be active. The American figure is 7,035,000 tons. This included 560,000 tons of old refineries, such as Dacia and Petromina.

147) Yugoslavia. Mr. Noel said it was considered that Smederevo was a logical location for handling Roumanian crude; however this might be a vegetable oil plant.

148) Running Crude in Synthetic Plants. Mr. Kilbey raised the question of the possibility of running crude through synthetic plants. Mr. Thompson said that in England they had come to the conclusion that it could be done at Poelitz as the plant was designed for it, but in other plants it would only mean displacing other liquid feed stocks. Mr. Levy mentioned that Leuna hydro plant has about 1,000,000 tons refining capacity and asked if this could be used in case of necessity. Mr. Noel thought it might be done but it would require separate tonnage as tar products can not be mixed with crude products. Furthermore it would probably take three months to design the refinery changes.

149) Source of British Figures. Mr. Thompson asked the sources of the British figures quoted in Appendix A of EOC 68-2. It was thought they came from a compilation prepared by the Oil Control Board.

150) Results of Knocking Out Refineries. Mr. Thompson mentioned that if a large refinery were knocked out it would result in major difficulties due to the necessity of rearranging distribution of crude to other refineries. Mr. Noel recalled a study which concluded that if all the Ploesti refineries were knocked out it would definitely shut back 2,000,000 tons of Roumanian crude due to lack of transportation, even allowing for 10,000 extra tank cars. Mr. Thompson said it would require 17 trains a day to move all Roumanian crude.

Notes on Meeting 10:00 A. M. February 15, 1944
Chanin Building, New York.

Present: Messrs. O. F. Thompson, Sidney Kilbey, J. D. Murch, B. H. Grove, Walter Levy, E. M. Butterworth, E. B. Fock, M. K. Misenburgh, Henry Noel, W. T. Meyer, Sec.

151) Transportation. Mr. Grove said that transportation is a debatable as well as an important subject, involving tied stocks and mechanical difficulties. He said that about a year ago he had drafted a report which outlined by countries the main routes followed by oil, which he subsequently revised to take cognizance of individual products. For this purpose, he had divided Europe into eight consumption areas and six production areas.

152) Mr. Grove then showed a series of charts that had been prepared on this subject which showed that the two areas consisting of Rumania and the Balkans, and Germany and Austria-Hungary have large excesses of supplies, whereas the other areas show deficits. The flow of oil from Rumania was mainly to Central Europe, with small quantities going directly to the Russian front and somewhat larger quantities going through Poland. The flow from Germany and Czechoslovakia was mainly to the Northern and Central Russian fronts, with some shipments from Stettin to Norway and Sweden, as well as military supplies to France. Italy was supplied from Central Germany, Hungary, and Rumania.

153) The selection of areas had been made on the basis of the absence of natural barriers and the presence of railway or water routes between them. It was generally true that deficient areas were supplied from the nearest sources, but there were many deviations from this due to commercial tie-ups, clearing balances, and the quality of products required, especially aviation gasoline for military use.

154) The most important medium is the railway system; however, water routes can hardly be separated from railways as one can replace the other. Mr. Grove said he had not found it possible to separate to his own satisfaction oil transport from general transport. Pipelines were only important in Rumania, Austria, and Hungary. Tanker transport is now largely restricted to the Baltic Sea. Highway tank trucks are believed to be used largely for military supplies.

155) Mr. Grove gave a brief summary of the system of transportation

of oil products to Italy, taken from a report on transportation that he had prepared for the Air Force Intelligence.

156) Mr. Thompson asked whether any conclusion had been reached as regarded, for example, motor gasoline. Mr. Grove said he had particularly studied aviation gasoline, as he felt that the other products could easily be replaced locally in case of interruptions to transportation lines. He mentioned that Major Bell's report had given him a somewhat different concept of the handling of aviation gasoline through the use of blending plants.

157) Dr. Peck asked whether the current shortage of tank cars might be due to their use as mobile storage. This was thought possible as it would give great flexibility and speed. Mr. Levy wondered whether strategic reserves for invasion were being stored in tank cars; he thought this might require about 10,000 tank cars. Dr. Peck mentioned that major changes in the pattern of tank car routes involve great difficulties.

158) Mr. Butterworth asked if it were generally true that east/west traffic in Europe is less difficult than north/south. He particularly had in mind the difficulty of laying down supplies in Southern France. Mr. Grove said the statement was generally true, due to the barrier formed by the Alps and Carpathians, which have only a few passages such as the Danube and Rhone Valleys. He thought the Germans would have to rely mainly on the Rhone Valley to supply Southern France, although there was also a waterway from Bordeaux to the Mediterranean.

159) Mr. Thompson asked if it would be possible to calculate where stocks might be laid down against an invasion and in what quantities. Mr. Grove said an attempt had been made to determine this for Southern France but the conclusion had been reached that it would be pure guesswork, in view of the large number of possible storage points.

160) In reply to a question, Dr. Peck said that with the exception of Koelitz, bituminous coal cars travel relatively short distances, perhaps not over 15 miles.

161) Tied Stocks. Mr. Grove asked if it would be possible to calculate part of the tied stocks by figuring the number of tank cars on each route. In connection with this subject, Mr. Levy pointed out that if we say that stocks at the beginning of 1943 were at the minimum, the fact that consumption in the first half of 1943 exceeded production by about 700,000 tons should have resulted in a breakdown of the distribution system. He said that the first signs of shortages would be the cutting down of supplies to France and other occupied countries as well

as supplies to the home forces and naval surface craft, which had occurred. Mr. Levy was of the opinion that such restrictive action would be taken before the last drop of stocks had been reached. Mr. Thompson thought that the Germans might have been overtaken by the unexpectedly high consumption on the Eastern front and therefore present stocks may be lower than they had figured on.

162) Mr. Thompson asked whether any significant amount of stocks would be tied up due to the time lag between the initial production at synthetic plants and the introduction of the products into consumption. Dr. Peck thought that most products could move very promptly into consumption, and Mr. Butterworth said that the estimates of the dates on which additional synthetic equipment went on stream were not sufficiently close to warrant an allowance for time lag.

163) A. G. fuer Kraftstoffanlagen. Mr. Nieuwenhuis distributed copies of the announcement (attached) which appeared in "Oel und Kohle" in 1940 regarding the constitution of this company, which is connected with the Saechsische Werke. The latter was organized about 1935 and worked with Lurgi; it ran L.T.C. plants and sold coke and tar to Brabrag, also electric power. The capital of 150,000,000 RM, plus further loans, is sufficient for a large plant and led to the inference that it might be a hydro plant. However, it was pointed out that electric power plants are also very expensive and it was thought possible that this company might be operating a combined Lurgi L.T.C. and power plant. Mr. Nieuwenhuis suggested that Dr. Peck might be able to estimate the cost of such a plant.

164) Mr. Thompson asked whether this might not be a brown coal tar operation for making Diesel oil, possibly in connection with an F.T. plant. Mr. Nieuwenhuis reviewed the history of the Bruer plant which had been originally designed for such an operation but had had a hydro plant substituted for an F. T. Plant when the I. G. became interested. He suggested that if the Ernst Hochschwender mentioned in the notice could be identified as an I. G. man it might indicate that a hydro plant was involved.

165) Mr. Levy did not think the notice meant that they were necessarily building a new plant and might only mean a re-financing of existing plants.

166) Dr. Peck thought that Moelbis was an indication of what the plant in question might be. Mr. Thompson said the C. I. U. thought we might be confusing this plant with Moelbis.

167) Mr. Levy asked if the plant would be near a power plant, and it was thought it could be as much as 30 kilometers distant. Mr. Grove suggested air cover in the vicinity of the Saechsische Werke's coal mines.

168) Mr. Fetterworth suggested that some information might be found in a recent edition of the Handbuch der Petroleumindustrie, if such could be obtained.

169) Dr. Peck said he would like to withdraw the A. G. fuer Kraft. from the known hydro plants and show a total of 100,000 tons under the unknown hydro plants; this could also cover various other odds and ends. In this connection Mr. Nieuwenhuis mentioned that Offleben had once been carried as an unknown plant but had been dropped because no confirmation had been obtainable. However, he had found in his notes an item to the effect that in 1935 the I. G. had acquired the Carolina plant in Offleben, which is 25 miles west of Magdeburg. The question was raised as to whether this might be the decoy plant near Magdeburg; it was thought possible that it might be a rubber or edible fats plant. However, Mr. Nieuwenhuis thought it might be worth while to reopen this matter.

170) Ludwigshafen. - Mr. Grove asked whether there was synthetic lubricant production at Oppau-Ludwigshafen. Dr. Peck said there are hydrogenation stalls at Ludwigshafen, but that we had not tried to identify the plants where lubricating oil is made from wax, since there are several possibilities. Mr. Levy mentioned that special petroleum products which would not likely be needed for lube oil production can be shipped to Ludwigshafen at reduced rates from all other synthetic plants. Mr. Thompson said the British had thrown out Ludwigshafen from the liquid fuel viewpoint, but recognized that some sort of hydrogenation is going on there. Dr. Peck said they make at least three types of lubes there. Mr. Thompson said the C. I. U. rated the experimental hydro plant at Oppau at 100,000 tons plus stalls for lubricating oil, making a total of between 100,000 and 150,000 tons. Dr. Peck said the facilities are used for hydrofining; in other words, working on product which has already been counted elsewhere.

171) Technical Improvements in Synthetic Plants. Mr. Levy asked if it would be possible for synthetic plants to operate at say 10% above capacity for long periods. Dr. Peck said that we had frozen technical knowledge as of about 1938, whereas there might have been improvements since then. Mr. Murch thought this might be offset by war time difficulties and the necessity of sacrificing quantity for quality, especially in the case of aviation gasolines. As an example of technical improvement, Dr. Peck mentioned that the Helheim plant had been built as a Pott-Broche plant, but that they had found in 1938 that on a one-stall basis it operated at twice the capacity on H.T.C. pitch. He thought it possible that other small plants might be using this system, especially in the Ruhr and Silesia regions.

172) Mr. Murch asked why small hydro plants are uneconomical. Dr.

Peck said about the smallest practical plant is around 150,000 tons capacity.

1739 Blackwater Pesa Stocks. - Mr. Thompson raised the question of feed stocks for the Blackwater plants. Hartley assumed brown coal for whereas the Americans postulated bituminous coal here. Mr. Grove said that to get brown coal far to these plants would involve a transportation problem. Dr. Peck mentioned that L.T.C. has many advantages over B.T.C., especially from the viewpoint of certain by-products.

1741 Black market. Dr. Peck mentioned that the American Forces had found large stores of blue aviation gasoline in Italian civilian hands, these apparently having been traded by German soldiers for wine, etc. This indicated that consumption by the black market is very large.

Summary and Conclusions of Conversations on Europe

(Approved at Meeting of European Axis Sub-Committee Feb. 19, 1944.)

BRITISH - U. S. ESTIMATE OF THE GERMAN OIL POSITION*

194) Position at end of 1943. Throughout the year 1943 the German oil economy continued to be on a hand to mouth basis, and consumption was kept in line with production only by further curtailment of all but operational needs.

195) Restrictions in the use of petroleum products, and acceptance of the lower efficiency resulting from the use of substitutes, are causing long-term damage to the German economy as a whole.

196) The stock position was not improved during the year, and continued to be barely adequate for minimum distributional and strategic requirements.

197) Intelligence indicates that the oil position is causing grave anxiety and if the completion of new hydrogenation plants has been materially slower than we assume, then the position is weaker than our statistics indicate.

198) Outlook for the First Six Months of 1944. If military consumption during the first six months of 1944 remains at 1943 levels, and if existing supplies continue unimpaired, the following factors may contribute toward an important easing of the position:

- a. Increased supplies from new hydrogenation capacity;
- b. Reduced non-military consumption; and
- c. Savings resulting from territorial losses.

199) On the other hand, these favorable aspects would be proportionately offset if any important sources of supply are lost, or if there is any serious breakdown of the transportation system, on which the German oil economy is vitally dependent.

200) In any event, in the case of invasion from the west during the first half of 1944, supplies will be adequate for the increased military requirements even assuming that the rate of production during the first half of 1944 does not exceed that calculated for late 1943.

* See attached statistical statement.

Notes on Meeting 2:00 P.M., February 15, 1944

Chania Building, New York

Presents: Messrs. G. F. Thompson, Sidney Kilbey, J. D. Murch,
B. H. Grove, Walter Levy, E. H. Butterworth, E. B. Peck,
H. H. Nieuwenhuis, Henry Noel, W. T. Meyer, Sec

175) The subject for discussion was the German petroleum organization and strategic planning.

176) Petroleum Organization. - Mr. Grove mentioned the effects of industry competition and private industry control as contrasted with outside control by the German Army or political authorities. He said many Roumanian producing companies adjust their refinery slates to suit profits rather than German requirements. Early in the war the Germans had raised the price of Diesel oil in order to make it more profitable. Mr. Nieuwenhuis mentioned that when adjusting prices you get reactions that were not anticipated.

177) Mr. Thompson said the British had endeavored to set down their conception of the German petroleum organization, this being contained in RMT Intelligence Bulletin No. 46 of December 6, 1943. It is understood that the Reichsstelle fuer Mineraloel tells the refineries what to produce and where to ship the products. This does not hold for Hungary and Roumania. Mr. Thompson asked what inference had been drawn from the report regarding Goering's overriding a decision of Reichsstelle. Mr. Levy thought that Goering might have wanted to be freed from sharing priority with essential industries and thought that if the incident were true it would indicate that cooperation was beginning to fall down, which could only lead to serious difficulty.

178) Roumania. - Mr. Murch asked if Roumania had a petroleum bureau and Mr. Grove replied that the Government had recently issued some decrees on petroleum matters. Mr. Levy pointed out that as far as can be ascertained, the Roumanian Alien Property Custodian has not taken over British and American companies. The Germans had forestalled this in the case of Astra Romana, Romano-Americana, Concordia, and several other companies by claiming they were German-controlled in view of the fact that the Germans now held Holland, France, etc. Mr. Kilbey pointed out that as the Germans controlled the biggest companies they would control Roumanian exports; internal consumption is controlled by the Distributia. Dr. Peck said that he thought the German Administrators were not getting cooperation from the Roumanian staffs.

179) Kontinentale A.G. - The Kontinentale Company was discussed and it was pointed out that it is restricted to working outside of Germany but has exclusive rights in this field. Mr. Levy felt that the Kontinentale is gradually consolidating its position. For example, in Poland the Deutsche Erdöl took over in 1939 as it had had prewar interests in that country. However, when the Kontinentale was created it took over from Deutsche Erdöl. In Austria the Austrian Vacuum Oil Company had been taken over by the German Vacuum Oil Company and in Roumania the Romano-Americana and other German affiliates were taken over by the D.A.P.G.; however, Mr. Levy had the feeling that Kontinentale were gradually getting control for themselves. He also thought that Kontinentale probably now has control of the Royal Dutch Shell Corporation in Holland. He pointed out that the Germans have been meticulous in keeping all these transactions on a legal basis. The Kontinentale claims to be reclaiming all oil properties outside of Germany which were at any time in the possession of the Germans. The main ~~holders~~ ^{shareholders} of the Kontinentale are the Deutsche Bank & Disconto Ges., the Dresdener Bank, and several other banks, which had prewar interests in Roumania and Mosul, the Winterhall Company, which has holdings in Hungary, the Deutsche Erdöl, which had prewar interests in Roumania, Poland, and elsewhere, and the I.G., the Hermann Goering Works, and several large German synthetic oil companies.

180) Mr. Levy mentioned that after the last war it was found that all former Allied interests in Roumania had been transferred in 1918 to Switzerland, and the Allies had to buy them back. He thought steps should be taken to prevent a recurrence of this in Switzerland or elsewhere. Mr. Thompson mentioned that the Germans had placed big orders for ships in Sweden, which was one way of exporting assets to a neutral country.

181) Profitability of Synthetic Operations. - Mr. Thompson raised the question of the profitability of synthetic operations. Mr. Nieuwenhuis said that Brabag had a long-term contract with the Government, allowing for amortization and a small profit, say about 7 percent. All these plants had paid dividends in the early years of the war. Mr. Thompson asked if they had gone into hydrogenation voluntarily and the answer for most of them was yes. Brabag was a compulsory consortium of lignite producers. One of the first acts of the Hitler administration was to force all industries to spend their reserves or lend them to the Government, one of the purposes of this policy being to provide employment. Brabag were the first to go in for hydrogenation. Mr. Nieuwenhuis mentioned that in March 1943 the stocks of the synthetic companies were quoted much above par and their loans were floated with great success. Winterhall had entered the P.T. and hydro field without any pressure; the same being true of Hoesch, Krupp, and Celheim. In short, it could be said that with the exception of Kassel and Brabag, none of the plants were built under pressure. There were no direct subsidies but a high duty had been placed on imported crude oil and railway freight differentials were allowed.

182) Organization of Distribution. - Mr. Grove pointed to the direct contrast between private companies, with the freight forwarders, etc. It appeared that in occupied areas private industries usually take over distribution through Kontinentale, etc.

183) Mr. March asked in case one distribution center were knocked out who would provide for rearranging distribution. Mr. Levy thought the Government closely supervised the purchases of every company. Mr. Grove mentioned that intelligence indicated that official permits had to be obtained for all purchases and sales of oil.

184) Rationing in Germany. - Mr. Thompson asked if we can find out anything about rationing, possibly through Leafbourow. Both Mr. Levy and Mr. Thompson thought that there was no basic quota but that each district received a certain monthly quantity and the local distribution is left up to the local authorities based on proved requirements. This would be similar to the system used in the United Kingdom.

185) Effect of losses of certain areas.

Estonia - The shale oil industry here provides fuel oil for the German Navy. The quality is such that it could be used for low-speed Diesel engines, although it has a high sulphur content and is unstable and bituminous. It was felt that the loss of Estonia would also mean the loss of Finland, which would make it more difficult to maintain iron ore shipments from Sweden. The loss of Estonia would mean losing about 100,000 tons production, which would have to be drawn from another source in order to continue supplies to the Navy, whose activity might be higher rather than lower. The Germans would also lose the new equipment recently installed in Estonia. On the other hand the Germans would no longer have to supply Finland.

186) Italy - Italy has not been entirely lost to the Germans and military and industrial requirements probably have not decreased materially. Mr. Thompson mentioned that very thorough looting is now under way in Northern Italy and Mr. Grove thought we should look for intelligence regarding the dismantling of refineries.

187) Mr. Levy said the conclusion seemed to be that up to now losses of supplies were balanced by adjustments in consumption and that there seemed to be few possibilities of doing decisive damage to the German oil economy with the exception of Roumania and a few selected targets (hydro plants). Mr. Thompson said the British were looking at the picture that would result from a loss of Roumania, Poland, and Estonia, plus the activation of a further 45 divisions against invasion. Mr. Grove thought that the surplus of about 5,000,000 tons of supplies in the central area consisting of Germany, Austria, Hungary, and Western Europe provided a comfortable cushion for the defense of the inner-fortress. Mr. Thompson was of the opinion that Roumanian supply would make or break Germany.

188) Dr. Peck thought that the Germans would be able to get more ton-miles per gallon of motor fuel in the inner circle, where roads were better than on the Russian Front, and where they had such auxiliary assistance as narrow gauge railroads. He also mentioned the surplus production of aviation gasoline in this area.

189) Mr. Levy thought that even as of today supplies exceeded requirements and that statistically we would have to say they are accumulating stocks. Mr. Thompson did not agree that the position is easing. He said the British believed the stock position is the lowest in the history and that the German oil economy is suffering from acute anemia. Mr. Levy mentioned that the trouble with statistics is that a 10 percent error either way leads to an entirely different picture. Dr. Peck thought the position could be checked by taking aerial photos of the Blechhammer plants. He also suggested ascertaining whether the Germans had removed the reactors from Leghorn to Germany.

190) Mr. Levy mentioned that the cable from Russia states the Russians do not believe that fighting has been handicapped by lack of fuel. Mr. Thompson thought that under no circumstances would the Germans allow the fighting forces to go short. Intelligence shows that increasingly stringent ration measures were applied in the second half of 1943, also that the home forces have suffered from shortages.

191) Dr. Peck wondered whether producer gas had been introduced in order to plug the black market in petroleum products.

192) Future disposition of synthetic plants. Mr. Thompson asked for opinions as to what the United Nations should recommend be done with German synthetic plants. Dr. Peck thought that Australia should have one for defense purposes. It was suggested that possibly the United States could use one for experimental purposes. Mr. Kilbey pointed out that if the Germans were deprived of the synthetic industry it would mean they would be in the market for crude oil, whereas indications are that petroleum will be scarce after the war. Mr. Thompson said the British viewpoint had not been crystallized. The military question is how to prevent Germany from waging war again. If she is forced to rely on imports, sanctions can be applied. Mr. Levy thought the military menace could probably best be controlled by controlling military end products such as tanks and air-craft. The control of oil involves widespread control of stocks, consumption, etc. Mr. Levy asked what the Russians would do about the plants, and Mr. Nieuwenhuis said they had indicated great interest in such plants for certain regions of Russia. The question was raised as to whether the hydro plants had been built as a military measure or as a part of an atomic program. Dr. Peck thought they were not originally military but a result of research.

193) Mr. Levy brought up the question of Germany's technological progress and thought that the patents might be taken over as a part of reparations and made available to United Nations' companies. It was pointed out that these patents if made available indiscriminately might cause heavy losses to companies that had made large investments in similar processes.

Summary and Conclusions of Conversations on Europe

(Approved at Meeting of European Axis Sub-Committee Feb. 19, 1944.)

BRITISH - U. S. ESTIMATE OF THE GERMAN OIL POSITION*

194) Position at end of 1943. Throughout the year 1943 the German oil economy continued to be on a hand to mouth basis, and consumption was kept in line with production only by further curtailment of all but operational needs.

195) Restrictions in the use of petroleum products, and acceptance of the lower efficiency resulting from the use of substitutes, are causing long-term damage to the German economy as a whole.

196) The stock position was not improved during the year, and continued to be barely adequate for minimum distributional and strategic requirements.

197) Intelligence indicates that the oil position is causing grave anxiety and if the completion of new hydrogenation plants has been materially slower than we assume, then the position is weaker than our statistics indicate.

198) Outlook for the First Six Months of 1944. If military consumption during the first six months of 1944 remains at 1943 levels, and if existing supplies continue unimpaired, the following factors may contribute toward an important easing of the position:

- a. Increased supplies from new hydrogenation capacity;
- b. Reduced non-military consumption; and
- c. Savings resulting from territorial losses.

199) On the other hand, these favorable aspects would be proportionately offset if any important sources of supply are lost, or if there is any serious breakdown of the transportation system, on which the German oil economy is vitally dependent.

200) In any event, in the case of invasion from the west during the first half of 1944, supplies will be adequate for the increased military requirements even assuming that the rate of production during the first half of 1944 does not exceed that calculated for late 1943.

* See attached statistical statement.

DOC
February 1944

COMPARISON OF BRITISH/US ESTIMATE OF THE EUROPEAN OIL POSITION

In Thousands of Metric Tons

Production	British January-June 1944	US	British January-December 1943	US
Products from Crude ¹	4000	4000	8046	7747
Hydro & Fischer	3170 ²	3800	5567 ²	6038
Tar Oils	763	640	1525	1280
Benzol	300	300	600	600
Alcohol	57	100	115	175
Vegetable Lubes	13	5	25 ³	5
Regenerated Lubes	120	100	240	200
Anthracene Oils	12	15	25	25
Total Production	<u>8435</u>	<u>8960</u>	<u>16,143</u>	<u>16,070</u>
Consumption				
Army	2100	2260	4217	4460
Navy	726	800	1971	2001
Air	1074	1300	2206	2368
Totals	<u>160 4060⁴</u>	<u>240 4600⁴</u>	<u>427 8821</u>	<u>481 9,310</u>
Civilian	3103	2900	6837	6430
Exports	60)	100	135	135
Losses in retreats, etc.	75)		425	125
Evaporation	<u>30 3268</u>	<u>---</u> 3000	<u>60 7457</u>	<u>---</u> 6,690
Total Consumption	<u>7328</u>	<u>7600</u>	<u>16278</u>	<u>16,000</u>
Addition to Stock	+ 1107	+ 1360	(- 135)	+ 70

1. Excludes asphalt and wax
2. Allowance for loss of production due to war factors
3. Reduced from 100,000 tons
4. 1944 consumption estimates makes no allowance for increased requirements on a new front in Western Europe

Discussions of the

EASTERN AXIS OIL POSITION

MINUTES OF FAR EASTERN SUBCOMMITTEE MEETING

The fourteenth meeting of the Far Eastern Subcommittee of the Enemy Oil Committee was held at 11:00 A. M., Friday, February 18, 1944, in Room 1703 Temporary "T" Building. The members present were:-

Mr. J. B. Emmert, Chairman, FEA
Ensign W. M. Brown, OSS
(Substituting for Mr. Arthur Horeasy)
Lt.-Comdr. Donald Egan, Navy Department
(Substituting for Commander A. E. Hindmarsh)
Mr. Sidney Kilbey, MEW
Mr. Alexander Lury, G-2
Mr. John D. Murch, PAW
Captain R. N. Nevin, A-2
(Substituting for Major John R. Haas)
Mr. Leslie Webb, State Department
Lt.-Col. H. P. Whitcamp, QMC

Also present were:-

Mr. O. F. Thompson, MEW, London
Lieutenant J. H. Welders, Netherlands Military Commission
Major John M. Mattenheimer, IMC
Mr. John C. Goold, FEA Consultant
Mr. W. S. Keenholts, FEA
Mr. S. J. Tease, FEA

1) The Chairman opened the meeting with a word of welcome to Mr. O. F. Thompson of the MEW in London and a member of the Hartley Technical Subcommittee on Axis Oil. Mr. Emmert mentioned the many advantages that resulted from his visit to London last summer and welcomed this opportunity of Mr. Thompson's visit to again exchange views and to have round-table discussions on all important phases of the Japanese petroleum economy, all of which are bound to result in a closer meeting of minds. The Chairman also welcomed Mr. John D. Murch as a member of the Committee replacing Mr. E. M. Butterworth who has now gone back to industry. He also expressed an appreciation of the valuable services rendered by Mr. Butterworth and voiced regret at his leaving.

2) Japanese Naval Consumption. The first item for discussion was the fact that the United States Navy have recently upped the estimated fuel oil consumption of the Japanese Navy for 1943 and 1944 from 33,000,000 to 37,260,000 barrels, and the merchant marine fuel consumption from 7,000,000 to 11,000,000 barrels. This combined with

the recent reduction of industrial fuel oil consumption from 4,000,000 to 2,000,000 barrels puts the total fuel oil requirements at 50,660,000 barrels for 1943 and 1944.

3) These estimates had been arrived at by estimating the consumption of Japanese vessels at different degrees of activity in relation to consumption by equivalent United States vessels. Lt.-Comdr. Egan considered that the estimates were within a 10% margin of accuracy. Asked whether allowance had been made for the fact that the Japanese were presumably more oil economy conscious than we were, Lt.-Comdr. Egan stated that no specific allowance had been made for this factor, but it would come within the margin of error.

4) Inasmuch as the maximum fuel oil output to be derived from the Inner Zone of production is 10,340,000 barrels it means that if Japan is to be self-sufficient on this basis, the output of fuel oil from the East Indies must be 40,320,000 barrels, and this would mean a crude production of 67,000,000 barrels which was believed to be impossible of accomplishment.

5) East Indies Crude Oil Production - The discussion then centered around the probable maximum production to be obtained from the East Indies in 1944 and in this connection the technicians of the Shell Company in London estimated that maximum crude output obtainable was 54,000,000, which would yield 31,500,000 barrels of fuel oil. Prior to receiving this figure our preliminary reports were based on an estimated output of 60,000,000 barrels in 1944. This was based on a report by the New York technical group made about the middle of 1942 and we felt that the London figure would probably be about the same. There was, therefore, considerable discussion as to whether we should use the 60,000,000 barrel figure, which would make the Japanese position appear somewhat easier in the light of the increased fuel oil consumption, or adopt the 54,000,000 barrel figure put forward by the London technicians of the Shell Company who were the operators of most of the East Indies fields.

6) There was then some discussion on the relation of the 1943 to the 1944 figures and Mr. Kilbey expressed the view that these should be reviewed again. Mr. Lury stated that he felt that if the 1943 figure for East Indies were correct then the 1944 figure should be larger, but if the 1944 figure were correct then the 1943 figure should be smaller. Lieutenant Welders stated very definitely that in his view he felt that 54,000,000 barrels was the maximum that Japan could obtain from the fields considered in the estimate, although he felt that it was possible that additional fields might be introduced. Also, there seemed to be some indefiniteness as to whether the 54,000,000 estimate represented the total output for the year 1944 or the annual rate of production at the beginning of the year.

7) Mr. Thompson stated that the figure of 54,000,000 was a statistical ceiling put forward by the London Committee and with the intention that it should be whittled down as and when intelligence is received. The estimate covered some twelve producing areas. The heavy waxy fields mentioned by Lieutenant Welders had been omitted from the estimate as, in addition to the difficulties in producing these fields, they would not contribute to the supply of black oil; it had therefore been assumed that the Japanese would concentrate their drilling and repair activities on those areas likely to be most useful to them.

8) While the figure of 54,000,000 was an optimum assumed applicable to the month of December 1943, the estimate was too arbitrary to apply any trend to it, either upwards or downwards. It had been assumed, for example, that the Seria field had been produced 'wide open' from an early date and if this had been the case, output might now be substantially declining. The new figure submitted by the London Committee bore no relation to the estimate discussed in London last July, which estimate was based on the premise that the Japanese would have to produce 29 million barrels of fuel oil and 3 million barrels of aviation gasoline to meet their requirements.

9) It was also mentioned that recent reports emanating from Japan indicated that all may not be going too well with regard to the oil production activities in the East Indies. No definite figure was adopted finally as it was agreed that the question required further investigation. Meantime, it was agreed to adopt the interim figure of 54,000,000 barrels for the 1944 output of crude from the East Indies and that the reports now in preparation for the JIC would be based on this quantity. Mr. Gould brought up the question of storage facilities and inquired whether any investigation had been made to determine whether or not Japan had adequate storage in the East Indies to take care of the quantities of oil involved in her war time economy. The reply was that we had no definite information and that only reconnaissance could supply the real answer to this question, but that there were no reasons to believe that Japan had not been able to provide the necessary storage and in the absence of definite information to the contrary, we were forced to assume in writing our reports that adequate storage facilities had been made available.

10) Stock Pile - Ensign Brown inquired whether or not we had seen reports on the information revealed by Italian officers on the Eritrea with respect to the Balik Papan refinery and he was answered in the affirmative.

11) Mr. Emmert pointed out that two revisions had taken place in our stock pile figures, one in the estimates of Japanese Navy consumption in the years 1937 to 1941 at the time of the war in China, and the second was a reduction in the estimates of industrial consumption from 4,000,000 to 2,000,000 barrels.

12) With respect to the first item it was pointed out that new estimates of Japanese Navy consumption in the years 1937 to 1941 had just been received from London and were lower by some 7,000,000 barrels than the previous estimates of this item which also came from London. London had apparently revised their previous figures which seemed a logical thing to do, bearing in mind the fact that the China war was not a Naval war, and it seems reasonable to conclude that the previous estimates were on the high side. This change increased the stock pile by about 7,000,000 barrels as of January 1, 1944.

13) The reduction in the estimate of industrial fuel oil consumption from 4,000,000 to 2,000,000 barrels for 1944 caused some discussion. One view was that industrial activity in war time Japan had greatly increased and that therefore a reduction in fuel oil consumption seemed illogical. Mr. Thompson expressed the view that London had studied our previous estimate of 4,000,000 barrels and had considered it a good one. Mr. Tease, however, pointed to the Japanese Yearbook for 1939 wherein it was mentioned that conversion from oil to coal in Japanese industry was underway, and Lt.-Comdr. Egan felt that in his view the tightness of fuel oil and particularly the necessity of making so much stock available to the Navy and merchant marine all pointed to the likelihood of considerable conversion to coal and to electric power having taken place. It was made clear that the reduction of 2,000,000 barrels was not meant to be applicable to the year 1944 alone but was a correction factor applied to previous estimates for past years. Mr. Kilbey felt that the figure of 4,000,000 barrels should be allowed to stand. Ensign Brown was asked if the OSS had any information. He replied that they had none, but that it seemed reasonable to him to consider that the conversion to coal or to electricity might be offset by the general increase in industrial activity; but it was pointed out that especially in recent years the expansion of industry would not be along the lines of using oil for fuel but rather coal or electric power.

14) No reconciliation of the two views was possible, but since the amount involved was small and it did not substantially affect the overall picture, it was agreed that the figure of 2,000,000 barrels should stand for the time being although it would, of course, be subject to correction at any time that evidence could be brought forward in justification.

15) Civilian Lube Oil Consumption - The meeting next discussed the question of civilian lubricating oil consumption and attention was drawn to the fact that this had been increased from 1,600,000 to 2,000,000 barrels. Mr. Lary inquired the reason for this. The answer was that there had been a feeling in certain quarters that the previous figures were too low and did not adequately reflect the increase in industrial activity that had taken place in Japan. Mr. Thompson expressed the view that even this increase was not enough and that London felt that the estimate should be increased. Mr. Tease stressed the fact that Japan was

not as highly industrialized as other countries and that a great portion of her industry was made up of a large number of small shops where a great deal of work was done by hand, and, therefore, under such conditions the war time expansion of industry did not bring about as large an increase in lubricating oil as would probably be the case in other more highly industrialized countries. There was considerable discussion pro and con and no definite decision could be reached. It was agreed that the position should receive further study and that in the interim the present figure of 2,000,000 barrels would be allowed to remain.

16) Tankers - The meeting then took up for consideration the tanker report, EOC-77-2. Mr. Emmert pointed out that the report had already been up for consideration at the last meeting and that in form the revision was essentially the same as the previous report, but with certain alterations in figures agreed on at the last meeting. The estimated refining setup had not been changed, nor had there been any alterations in the locations where the oil was thought to be available, and, also, there had been no alterations in the destinations. However, the report incorporated the changes in figures brought about by altering the Navy consumption for the years 1937 to 1941 and the change in industrial consumption from 4,000,000 to 2,000,000 barrels. It was recognized, however, that the report would have to be revised again to incorporate the figure of 54,000,000 instead of 60,000,000 barrels for East Indies production. Mr. Thompson expressed the opinion that the statements in Paragraphs 2, 4, and 6 were somewhat too definite considering that they were only estimates, and he suggested that some modification of the statements be incorporated in the revision. It was agreed that this would be done. It was brought out again that the report made no attempt to indicate whether or note the present oil carrying capacity of the Japanese tanker fleet and merchant marine was sufficient to handle the quantities thought to be available, and that the scope of the report was limited to specifying the estimated quantities available, the locations of these stocks and an estimate of the number of nominal tanker trips per year that would be necessary for the movement of these stocks from the producing and refining centers to the areas of consumption.

17) It was finally decided to approve the reports subject to the revision of the East Indies production figures based on 54,000,000 barrels. Likewise, the report EOC-76-2 on the 1944 position was adopted subject to this same revision. Lt.-Col. Whitcamp inquired whether we had made any estimates with respect to how much of the stock pile was probably in the Indies and how much in the inner zone, and the reply was that we had no definite facts to go on but the report throughout reflected the quantities of stocks that were in the Indies and in the homeland. Mr. Gould felt that the question was important enough to warrant some definite statement of the fact in the report itself and it was agreed that it would be incorporated.

The meeting adjourned at 12:45 P. M.

NOTES ON DISCUSSION AT THE NAVY DEPARTMENT

February 11th, 1944

Present: O. F. Thompson, MEM
S. Kilbey, MEM
Commander A. E. Hindmarsh, USNR
Lt.-Comdr. D. S. Egan, USN
Lt. Marshall Green, USN
J. B. Emmert, FEA
B. J. Teaze, FEA

18) Consumption by Japanese Navy - Commander Hindmarsh presented a revised estimate that had been prepared by ONI which gave a total Japanese Naval Consumption for the year 1943 of 37,260,000 barrels, or 5,300,000 tons, as compared with the Navy Department's previous estimate for 1943 of 31,300,000 barrels or 4,500,000 tons.

19) The estimate by the Admiralty is 3,800,000 tons, or 26,600,000 barrels.

20) The new Navy Department estimate has been arrived at after a detailed breakdown of consumption by vessels, based upon Intelligence upon their operational activity. Commander Hindmarsh explained that the reason for the upward revision of the estimate was partly due to the fact that combat vessels were being used for transport purposes, resulting in greater activity than would have otherwise been the case.

21) The figure took into account all miscellaneous small craft of combat types, but excluded beach landing craft (which are considered Army units); the estimate also specifically excluded the Maru vessels that had been converted for fighting purposes, hospital ships, etc., all of which were placed in the Mercantile Marine category.

22) Commander Hindmarsh stated that there had been no Intelligence indicating any restriction of Naval activity that could be attributed to any shortage of fuel and certain operations had, in fact, been undertaken which might not have otherwise been the case if there had been any stringency in the oil position.

23) In regard to 1944 consumption Commander Hindmarsh could only express the opinion that consumption was not likely to be less than 1943 and may well be somewhat more.

24) Black Oil Conversion Factor - There was some discussion upon the appropriate conversion factor to use for Naval oil supplies. Navy grade fuel oil pre-Pearl Harbor would have mostly been heavy California oil but assuming substantial East Indies production, it was likely that the fuel is now of lighter gravity. Taking into account the small proportion of diesel oil being consumed it was felt that a conversion factor of 7 barrels per ton would now be the most appropriate figure to cover Black Oils as a whole. Actually the Tarakan and Seria heavy non-waxy give a factor of 6.8 barrels per ton, whereas fuel residuum from other East Indies crudes, based on pre-war refining methods, would give a figure higher than 7.

25) Mercantile Marine Consumption - In regard to the Mercantile Marine consumption, Commander Hindmarsh was of the opinion that notwithstanding sinkings, consumption had increased and was now estimated for 1943 at 11,000,000 barrels; this figure is inclusive of the deep sea fishing fleet, and all non-Naval vessels. No intelligence was available upon the possible conversion of Merchant ships to coal burning and if an arbitrary reduction of about 900,000 barrels was made to allow for possible increased reliance upon coal, this would give a Mercantile Marine consumption for 1943 of 10,500,000 barrels. Mr. Kilbey undertook to furnish copies of the 1942 MEN-MOWT tabulation of Merchant Marine consumption.

26) Zones of Oil Consumption - ONI have detailed information from which broad estimates of areas of consumption could be deduced and the figures differ considerably from those put forward by the Admiralty.

27) Consumption in the Inner Zone (i.e. the area North of 22° N - North of the Mariannes) is estimated at 40% of the total. The figure for the Southeast Pacific is put at 50% and the Southwestern area (i.e. a line approximately West of New Guinea) 10%.

28) Tanker Tonnage - Tables 3 and 9 in the ONI Tanker Report of October 1st recorded unlisted vessels that had been carrying oil. Certain of these vessels evidently were newly constructed tankers. The remainder had probably been carrying oil in deep tanks or in drums. Commander Hindmarsh had no information of any Merchant vessels that had been totally converted to bulk oil carrying.

29) ONI were of the opinion that data was insufficient to study the tanker position separately and that a misleading conclusion might be reached if such a study should indicate a deficiency of a specific number of tankers. ONI were of the opinion that the Merchant ship position, although tight, was necessarily flexible and shortages of any one type of carrying capacity would be ameliorated by special measures.

30) Beach Landing Craft - In regard to beach landing craft, ONI considered that these should come under the heading of Army Consumption. There were three main types, the craft varying in length from 35' to 70'.

Minutes of Meeting for Discussion of the Japanese
Synthetic Oil Production Position held in Room 1403
Temporary U Building, February 9th, at 10:00 A. M.

Present: O. F. Thompson, MEF, London
Sidney Kilbey, MEF
Dr. E. B. Peck, Standard Development Co
H. K. Nieuwenhuis, Int. Catalytic Processes Corp
Henry Noel, Standard Oil of New Jersey
John D. Murch, EAF
J. B. Emmert, FEA
W. E. Keenholts, FEA
S. J. Tease, FEA

31) The meeting was called to order by Mr. J. B. Emmert, Chairman of the Far Eastern Subcommittee with a brief word of welcome to Mr. O. F. Thompson of the MEF in London and to Messrs. H. K. Nieuwenhuis, Henry Noel, John D. Murch and Dr. E. B. Peck, who kindly made a special trip from New York for the purpose of discussing the Japanese synthetic oil production position.

32) The present position as regards the completion of EOC-65 was then made plain by Mr. Tease. This paper in preliminary form after its completion the middle of November, had been sent to London for consideration. London's immediate reaction as indicated by a letter of November 27 from the MEF was that with the exception of the Kirin site, for both hydrogenation and Fischer, production as calculated seemed reasonable suggesting at the same time that for unknown plants an allowance of 5% might be added for 1942 and 10% for 1943. The question of coal tar production from the gas and coke industry was to be made the subject of subsequent comments after the technical group in London had a chance to study the paper at more length and this group likewise were to comment further on the new estimates of production as per conclusions reached in EOC-65. Mr. Thompson mentioned that up to the date of his departure from London S/L Dawdney had nothing additional to contribute.

33) Mr. Tease then read a letter dated December 10, 1943 from C. E. Meyer of the American Embassy acknowledging EOC-65 and subsequent amplification as per memorandum covering meeting between Messrs. Peck, Nieuwenhuis, Rutherford and Tease in New York on November 12th. Mr. Meyer was in general agreement with the evaluation of the data available on synthetic production in Japan with which subject he is conversant. He recorded his feeling that if anything Japan's attainments may have been overrated rather than

underrated, but in his view it was prudent to err in this direction. He was of the opinion that along the line of usual Japanese foresightedness and thoroughness, Japan would attempt to attain oil self-sufficiency at home in the event of losing the N.E.I. either temporarily or permanently during the course of the war. For this reason he felt that the Japanese would make a supreme effort efficiently to apportion their supplies of critical materials, giving high priority not only to ship building and aircraft production but to synthetic oil production.

34) Mike Plant - The meeting was then opened to general discussion in an effort to decide if production figures as per EOC-65 should be revised. A cable from New Delhi, to which place a preliminary draft of EOC-65 had been sent, was considered. This cable pertained particularly to the Fischer plant at Mike and in some respects confirmed conclusions arrived at concerning this plant, i.e. that production should not be credited earlier than 1941, it being indicated that oil was first produced in limited quantities in the fall of 1940. The information in the cable supports a production estimate of 30,000 tons in 1942 but indicates that there is little likelihood of the plant being extended. Contrarily, conclusions reached in EOC-65 placed production in 1941 at 30,000 tons increasing progressively through 1942 and 1943 up to 100,000 tons in 1944.

35) Considerable discussion developed on the possibility of such a great increase in the face of the cable in question, and particularly because of the priority that would have to be given to ship building. Mr. Kilbey raised the question as to the possible effect on the completion of the construction program for all Fischer plants in view of operation difficulties at Mike. It was Mr. Tease's opinion that any delinquency on the part of Mitsui in completing their own company plants at Mike and Chinchow might possibly have been caused by the action of the government sponsored Imperial Fuel Company having taken over in 1940 or 1941 Mitsui's rights to the Fischer process but that this would not necessarily affect the entire construction program and the Imperial Fuel Company would be apt to push the construction of the other Fischer plants as hard as possible in the attempt at following production schedule planned. Further inquiries are to be instituted at source of cable with the hope of shedding additional light on not only production at Mike by Fischer, but production at other Fischer plants which have been credited with being in production from 1942 onwards as per conclusions corroborated to a great extent by letter dated May 5, 1941 written by Mitsui's head office to branch offices and made a part of EOC-65.

36) The cable also referred to a Manchurian plant not being in probable operation in 1942. Information contained in EOC-65 relative to Kinshu or Chinchow, the plant in question, was noted and believed to carry such weight that there is no good reason at the moment for changing conclusion reached that this plant had been completed and in operation from 1942.

37) Quantitative Aspects of Japanese Synthetic Production -

A reduction in quantities of hydrogenation production as per EOC-65 is called for by the actual yield of tar oil being 80% instead of 100% of raw product. The necessity for this correction has been referred to in the memorandum of conversations under date of November 18th. It was pointed out here in warning that any appreciable reduction in estimates of synthetic production would cut so far into Japan's present back log of fuel oil, already very low because of heavy consumption estimates for navy, marine and industrial purposes, that the position would become rather more critical than at present for Japan. A production estimate, however, should in no way be influenced by a consumption estimate and as mentioned by Mr. Thompson, both must stand on their own feet.

38) It was decided also to correct hydrogenation production in the case of the Kiria plant based on the probability of power not being available until the Senger power plant went into operation, thus eliminating any production at Kiria in 1942 and reducing the production quantity of tar oil for 1943 by 1/3 or from 300,000 tons to 200,000 tons. Finally, 10% of production quantities by synthesis, hydrogenation and LTC should be added for unknown plants of which unquestionably there must be some not listed.

39) There was considerable discussion on the rather sharp increase in production figures during the past two or three years as compared with Japan's capabilities and the priority that might be given to the use of steel for synthetic oil production. While admittedly high, it is not unproportionate, however, with German production as estimated. Mr. Murch brought up the question of whether Japan would not place more emphasis on the production of oil from shale rather than utilizing coal but was assured that the stock pile had already been given a maximum credit for output from this source. Dr. Peak mentioned a feeling that he has that the Japanese may be doing more with low temperature carbonization than they have been credited with especially as the major product can be used as fuel oil in which Japan is critically short. Mr. Nieuwenhuis said their problem in this connection would be to find an outlet for the char. Mr. Noel felt that if Japan's progress in production of synthetic oil according to estimate for the three years from 1941 through 1944 was any measure of their ability in other directions the United Nations had a powerful enemy confronting them.

40) The accumulative total from 1937 through 1944 on the corrected basis will approximate 30 million barrels of finished product. This may be compared with the figures as used in EOC-65 of roughly 32,500,000 barrels and to figures used in computing present stock pile of 36,000,000 barrels. These latter figures are based on production as estimated according to estimates confirmed at London meetings last summer with the use, however, of EOC-65 production figures for the year 1944. It will reduce Japan's already low stock pile of fuel oil another 2 1/2 million barrels

approximately.

41. The question of the publication of TCC-28 in its present form was once raised upon it. It was the consensus of opinion that as replicated considerably to the synthetic production picture, accordingly it should be produced as such after making the necessary corrections for yield and output production quantities, and adding any information of information or reflections on the subject, as for instance, the memorandum of November 18th and the New York cable.

TO BE RETURNED TO
HISTORICAL DIVISION
A. C. LE BAY

178.2631-2
10 June 1941