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ANNEX IV

STATE POSITION ON CAPABILITY OF
CHINESE COMMUNIST RAILROADS

29 January 1954

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1. [REDACTED] represents a commendable effort to attempt to evaluate Chinese Communist railway performance data independently of Chinese Communist claims by constructing a theoretical model of a standard traffic pattern and comparing this model with the Chinese Communist claims. Unfortunately, the conclusion of the paper that freight tons originated on the Chinese Communist railways in 1952 was 40 million tons is totally unrealistic, considering (a) that coal production is estimated at over 50 million tons in 1952, most of which would be moved on the railways, (b) that a large construction effort was under way on the railways, water control projects and in urban areas which required the movement on the railways of heavy tonnages of stone, crushed rock, timber, cement, and other building materials, and (c) that the Korean war and the re-orientation of trade towards the Soviet Bloc necessitated large rail freight movements to and from the USSR. The subsequent adjustments to this theoretical model [REDACTED] permit an upper estimate of freight tons originated of 60 million tons, which still appears to be unreasonably low.

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While there are many differences between the theoretical model and the Chinese Communist railway performance claims as interpreted by OIR, the essential difference appears to lie in the turnaround time and, in particular, in the time other than travel time, including divisional and terminal stops for switching, loading and unloading, waiting, etc. The theoretical model indicates that the turnaround time for cars in operation in 1952 would be in the neighborhood of six days with something over 100 hours for divisional and terminal stops, while the Chinese Communist claims would suggest a turnaround time of 2.9 days with 41 hours for divisional and terminal stops. OIR believes that the major

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defect of the theoretical model is at this point, since it appears to give no weight to the effects of the ruthless measures taken by the Chinese Communists to speed up freight flow, including labor speed-ups, 24 hour shifts at major stations, and imposing on shippers the necessity to conform to the convenience of the railroad.

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In general, OIR believes that [REDACTED] is unrealistic because it does not sufficiently take into account either the historic railroad data -- both Chinese Nationalist and Japanese -- or available intelligence on railway operations and other aspects of the economy of Communist China.

2. ORR accepts Chinese Communist claims regarding the freight tons originated and the freight ton kilometers, but believes that this total performance was accomplished with a larger number of cars and with the railway system operating under less strain than is implied by the Chinese Communist data. The ORR position takes into consideration historic data, commodity movements, data derived from interrogations, as well as Chinese Communist published railway data. In OIR's view, however, the ORR position is not justified with respect to its estimate of the operable car park and to its estimate of the rapidity of the traffic flow or the strain under which the railway system is operating.

The ORR car park estimate is based on an analysis of the changes in the car park since 1945. An analysis of the numbers of a limited observed sample of cars provides much of the supporting evidence for this estimate. The projection of this sample reflects the 1945 car park and does not reveal the extent of destruction or removals in subsequent years. However, the appearance of new numbers is believed to reflect certain developments under the Chinese Communists, although it is not yet certain that these newly numbered cars include either singly or in combination (a) new production, (b) reconstructed cars, (c) the restoration of cars removed, (d) imports, (e) or the re-numbering of existing cars. OIR believes that the potential value of this analysis is very great in providing an independent check on the Chinese Communist car park; however, OIR is inclined to believe that at the present stage of this analysis the conclusions are speculative, tenuous, and premature.

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In its estimates of turnaround time and other performance factors, ORR estimates have differed from Chinese Communist claims and in general have indicated a slower movement of traffic than indicated by Chinese Communist claims. This slower movement of traffic is of course consistent with accepting the Chinese Communist claims on total performance, owing to ORR's estimate of a larger car park than claimed by the Chinese Communists. However, ORR justifies its estimates of turnaround time and other performance factors largely on the basis of their proximity to Chinese Communist claims, and has not offered any explanation as to why certain Chinese Communist statistics might be considered reliable and others, in varying degrees, less trustworthy. In OIR's view, Chinese Communist data are interdependent; the rejection of any one figure would tend to cast doubt on the reliability or the interpretation of all related figures.

3. OIR concurs with ORR's estimate of total Chinese Communist railway performance but believes that the rail system had a smaller car park and was operating under a greater strain than is indicated by the ORR estimate.

The bulk of the data on current Chinese Communist railway operations comes from Chinese Communist sources and of course must be treated with caution as to its interpretation and reliability. OIR believes that these data, although subject to some differences in interpretation, reflect actual operations, since: (a) a large amount of data have been issued since 1949 on both the national and regional level and all of these data appear to be internally consistent, (b) nearly all of the data are stated in absolute physical units rather than in percentages of a base period, and most of the statistics have been clearly defined, (c) the data provide results approximately consistent with available estimates of internal trade, production, and economic developments in Communist China, both on a national and regional level, and (d) reports from non-Communist sources [REDACTED] while not conclusive, have tended to support Chinese Communist claims on railway operations and none, to OIR's knowledge, have challenged the reliability or apparent meaning of Chinese Communist railway data.

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OIR is aware, and it has been clearly brought out in the TSC working group discussions, that the speed of freight car circulation claimed by the Chinese Communists is unusual. However, OIR believes that available intelligence indicates that a considerable speed-up has occurred and is the result, not so much of efficient railroad operation, but of the strain imposed on the railways by Chinese Communist military and economic requirements and of the willingness of the Chinese Communists to employ labor intensively, to reduce freight services, and to sacrifice equipment to meet current transport goals. 25X1C

25X1C [redacted] reported that speed-ups in 1952 had resulted in reduced maintenance of equipment and abnormally high repair bills, while the Chinese Communist Minister of Railways admitted that the railways had met quantity goals only at a heavy cost in the quality of service.

While there may be room for possible misinterpretation of Chinese Communist railway data, OIR is inclined to believe that the Chinese Communists have established a standard terminology and that the statistical terms have the standard or common meanings employed on other railroads. It may be noted that a number of articles have been published in the Chinese Communist technical magazine for railwaymen, "People's Railways," which have defined and explained the scope and use of many of the statistical terms.

In consequence, OIR has considered that the Chinese Communist claim of 131 million "freight tons carried" in 1952 has the standard meaning of the term as employed on most national railways throughout the world, namely, tons of freight originated within the country plus tons of freight received from other countries. Considered in the light of reported carloadings and reported freight ton kilometers, this definition of freight tons carried appears to be the most reasonable. (For these and other Chinese Communist railway data on 1950-52, see Table 1.)

It has been suggested, however, that "freight tons carried" may be defined as it is in the US where it is the sum of the total freight carried by each of the private lines, including the freight originated on the line and the freight received from other lines. While OIR regards

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this interpretation as less probable, OIR agrees that this is a possibility which should be examined, particularly because of the way in which Chinese Communist railway data have been organized. Each of the 12 railway administrative bureaus publish performance data for the railways under their jurisdiction. If the Ministry of Railways merely sums or averages regional data to obtain the figures for the system as a whole, some double-counting or distortion would result. In particular, the freight tons originated and received from other countries would be over-stated, and the average length of haul, the turnaround time, and the number of cars in operation would be under-stated. OIR has calculated in Table 2 the effect which this possible procedure would have on the various performance data in 1951 (the last year for which full data are available), assuming that inter-bureau freight would range between 10 percent (the proportion of inter-line freight of the 16 national railways in China proper in 1935-36) and 25 percent of the freight tons carried.

4. The difference of opinion on Chinese Communist railway performance which remains despite the activities of the ESC working group indicates the necessity for further research and analysis of this problem. In OIR's view, further efforts should be made to assess the validity and meaning of published Chinese Communist railway data, since they represent the only possible base for obtaining a fairly comprehensive indication of current Chinese Communist railway operations. If these data cannot be utilized, the remaining intelligence on Chinese Communist railways appears adequate to support only vague and tenuous estimates of the car park and line capacities, within which a very wide range of operations performance could have occurred. In the latter event, the level of railway operations can probably be more accurately determined from intelligence external to the railways, such as intelligence on production, domestic trade, and economic development.

Further research in the following fields would probably contribute to clarify the meaning and significance of Chinese Communist railway data:

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(1) A more thorough study of the relation of national data to the data of the individual railway bureaus where the statistics are first compiled.

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(2)

and other non-Communist sources who have knowledge of Chinese Communist railway operations, particularly with respect to obtaining their opinion of the validity of Chinese Communist railway data and to determining the amount of time other than travel time spent in a turnaround period.

(3) A more thorough analysis of the commodity composition and regional pattern of freight flow.

Table 1. OIR INTERPRETATION OF CHINESE COMMUNIST CLAIMS ON RAILROAD PERFORMANCE, 1950-1952

	1952	1951	1950
1. Freight tons carried (millions)	131.0*	110.6*	99.2*
2. Freight ton-kilometers (billions)	59.5*	51.5*	38.9*
3. Average haul per ton of freight (kilometers) (2 ÷ 1)	454.0	466	392
4. Turnaround time (days) ^a	2.9*	3.22*	3.34*
4a. In hours	69.6	77.3	80.2
5. Tons loaded per car (1 ÷ 6a)	b	25.98	25.94
6. Daily carloadings	n.a.	11,663	10,479*
6a. Annual (thousands)	n.a.	4,257	3,825
7. Average number of cars in operation (4 x 6)	n.a.	37,555	35,000
8. Average daily distance per freight car	237.3 ^d	223.4*	185.4 ^d
9. Average speed per freight car (kilometers per hour)	25.2 ^d	22.8*	20.9*
10. Distance travelled in one turnaround (kilometers) (8 x 4)	688.2	719.3	619.2
11. Hours in transit (10 ÷ 9)	27.3	31.5	29.6
12. Hours stopped (4a - 11)	42.3	45.8	50.6
13. Loaded haul as percent of total haul (3 ÷ 10) ^e	66%	65%	63%

Notes: Figures followed by an asterisk () are original published data. Explanations of calculations of the remaining figures are contained in the captions.

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- a. Turnaround time, as calculated by the Chinese Communists, is based on actual cars in operation, excluding those cars sidelined for repairs and some cars held "in reserve." The cars in operation would number somewhat less than the operable car park, which is estimated at roughly 40,000. The turnaround time for 1952 of 2.9 days was originally reported for the first half of the year, but has since been used in index form as the average turnaround time for the whole year.
- b. For the first half of 1952 the Chinese Communists reported that the "average loading capacity per car" had been raised to 28.7 tons. In context this obscure term appears to mean average load per loaded car, and if it is representative of the performance over the year, daily carloadings are indicated at 12,504 and average daily cars in operation at 36,252.
- c. See a. above.
- d. These data are published for the first half of the year only, and may not be representative of the full year's performance.
- e. Average haul per ton of freight is assumed to be equal to the average loaded haul per loaded car.

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Table 2. EXAMPLES OF THE EFFECT OF VARYING ASSUMPTIONS ON THE RELATION OF FREIGHT TONS CARRIED TO FREIGHT TONS ORIGINATED OR RECEIVED FROM OTHER COUNTRIES ON DATA ON CHINESE COMMUNIST RAILROAD TRAFFIC, 1951

	Assumption A	Assumption B	Assumption C
1. Freight tons originated (millions) (assumed)	110.6*	98	83
2. Freight ton-kilometers (billions)	51.5*	51.5*	51.5*
3. Average haul per ton of freight loaded (kilometers) ($2 \div 1$)	466	526	620
4. Turnaround time (days) ^a	3.22	3.63	4.27
4a. In hours	77.3	87.0	102.4
5. Tons loaded per car ($1 \div 6a$)	25.98	23.0	19.5
6. Daily carloadings	11,663*	11,663*	11,663*
6a. (Annual) (thousands)	4,257	4,257	4,257
7. Average number of cars in operation (4×6)	37,555	42,300	48,800
8. Average daily distance per freight car	223.4*	223.4*	223.4*
9. Average speed per freight car (kilometers per hour)	22.8*	22.8*	22.8*
10. Distance travelled in one turn-around (kilometers) ^b	719.3	809	954
11. Hours in transit ($10 \div 9$)	31.5	35.5	41.8
12. Hours stopped ($4a - 11$)	45.8	51.5	60.6
13. Loaded haul as percent of total haul ^c	65%	65%	65%

Note: Figures followed by an asterisk (*) are original published data. Explanations of calculations of the remaining figures are contained in the captions and footnotes.

Assumption A: that freight tons carried is equal to freight tons originated and received from other countries.

Assumption B: that freight tons carried is the sum of the freight tons carried by each individual railway administrative bureau, and that freight tons originated and received from other countries is 10 percent less.

Assumption C: that freight tons carried is the sum of the freight tons carried by each individual railway administrative bureau, and that

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freight tons originated and received from other countries
is 25 percent less.

(footnotes to Table 2)

- a. Since the proportion of hours in transit and hours stopped is the same in both the "administrative bureau" turnaround and the "true" turnaround, the "true" turnaround can be calculated, first, by obtaining the hours in transit in a "true" turnaround from the "true" turnaround distance (see b. below) and the average freight train speed between division stops, and second, by dividing this figure by the percent of time in transit in an "administrative bureau" turnaround.
- b. Since all distance travelled is taken into account in the calculation of an "administrative bureau" turnaround, the proportion of empty to loaded haul is the same in both the "administrative bureau" and "true" turnaround. The "true" turnaround distance can be calculated therefore on the assumption that the average haul per ton of freight is equal to the average haul per loaded car.
- c. See b. above.

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