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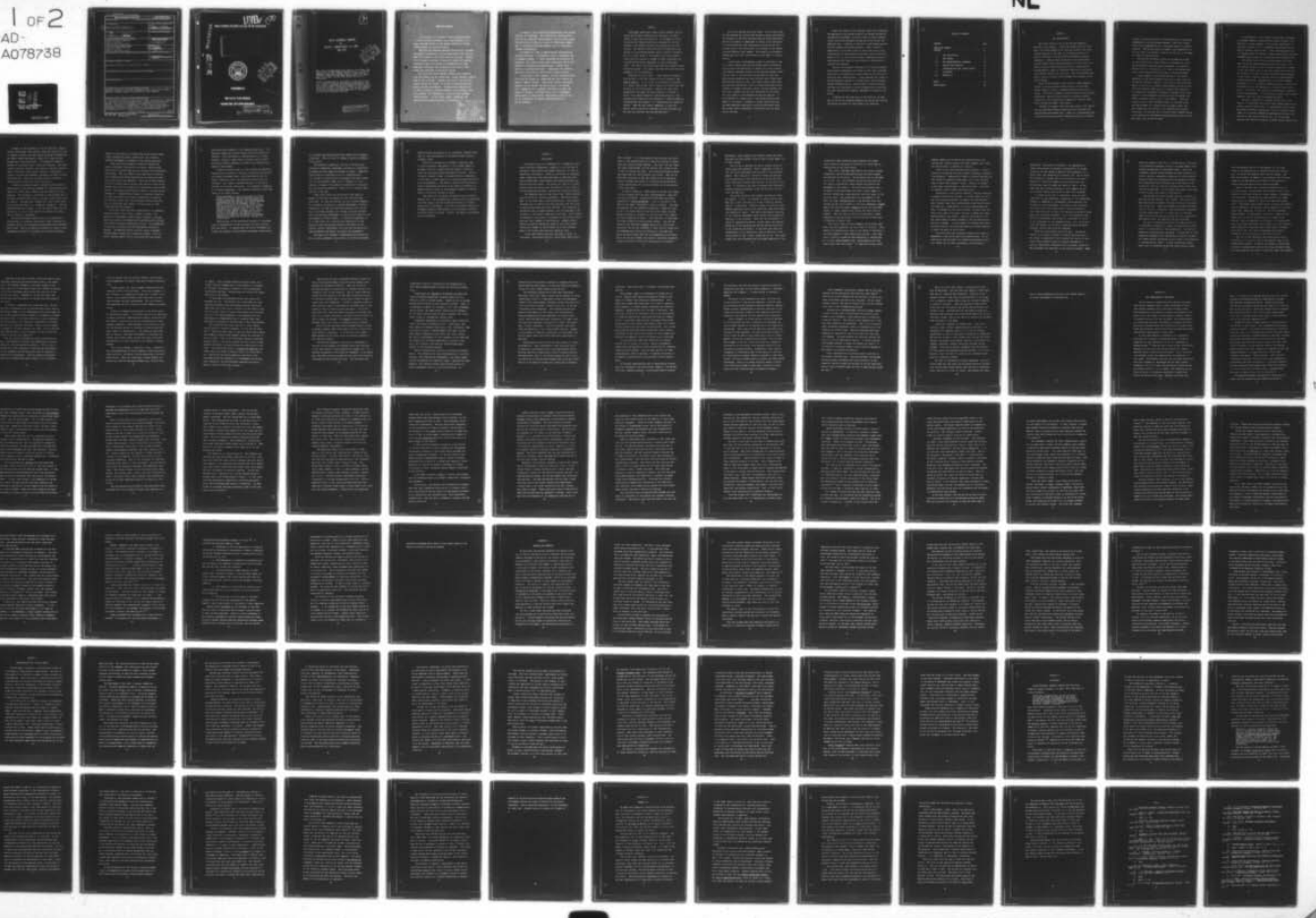

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Interrelations between the major Soviet freight carrying modes of transport are described in the context of the Soviet economic, political, and social systems. The evolutions of transportation development is traced, with particular emphasis on containerization. A form of decentralized planning intorduced at Leningrad in 1978 is outlined. The study concludes with recommendations for U.S. economic policy toward the Soviet Union.

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SOVIET INTERMODAL TRANSPORT

BY

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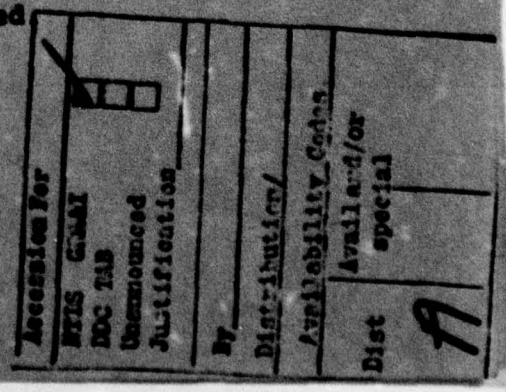
JUNE 1979

EXECUTIVE SUMMARY

In an attempt to go beyond arbitrary generalizations of Soviet economic processes, this study presents an in-depth characterization of the dynamic process of freight transportation in the Soviet Union.

The first two chapters describe the political, economic and social institutions, and the organizations and individuals which impact on the transportation situation. Conflict at all levels of activity is seen as a normal and expected occurrence, and to be actually encouraged by the State. Seemingly inefficient and ineffective practices to Westerners are justified in the Soviet context.

The third and fourth chapters examine the transportation environment and the traditional, though changing, leading role of the railroads. Transport evolutions from the Nineteenth Century are traced, to include containerization and merchant marine development. Transportation modernization is seen as primarily directed towards solving domestic capacity problems, and secondarily, to earn foreign exchange (hard currency). In the latter regard, landbridge and maritime cross-trading activity is discussed



In Chapter V the interrelationships between the freight carriers are described. The difficulties effecting this activity are explained using examples from the Soviet press. This difficulty is seen as a result of ideological commitment to centralized decision making; not as a function of inherent incompetence.

In Chapter VI a form of decentralized transportation planning initiated in Leningrad in 1978 is explained, and its impacts weighed. A nearly unprecedented delegation of authority, this system allows local representatives of five differently subordinated organizations to change their ministry's planning milestones. Suggestions are advanced that this new system may have further reaching effects.

In the paper's final chapters, the main characteristics of the Soviet economy are summarized and their effects on Western commerce weighed. Traditional Western reactionary economic policy towards the Soviet Union is criticized, and a suggestion for a possible alternative is made. The danger to the West, the study holds, lies in inadequate appreciation of unique Soviet institutions, which in turn can be responsible for Western underestimations of Soviet potential.

PREFACE

This paper identifies a basic Soviet problem, that of social and economic interaction at the lower, or micro, levels of that nation's existence. It attempts to go beyond arbitrary characterizations of process and to look instead at the dynamic process that operates in any real setting. The specific case which will be examined is the series of relationships between various types of transport, but in a larger sense it will examine the Soviet system itself and that country's attempt to apply successful centralized macroeconomic management at the microeconomic level. This may be the single most important problem facing the Soviet regime. This paper concludes that there are good prospects for its resolution.

Knowledge can be a curse. I have recently pondered a poem written in the last century by Alfred Tennyson, The Lady of Shallot. It is a tale of a princess held prisoner in a castle tower by her fear of destruction should she look directly at the world outside. Longing for that world, nonetheless, she spent her hours watching it through a mirror, from whose reflections she weaved pictures. The tapestry which these pictures combined to create necessarily contained what she wanted in it, representing her preferred reality. When she was finally compelled to leave the castle, reality proved so different from her pictures that her fear was realized, and she was destroyed.

We are all dealing with this curse. For too many years we have watched the Soviet Union through a mirror and painted our pictures in the hues and tones that we found comforting. Now we are finding it impossible to remain in our seclusion. At first militarily, and increasingly with political and economic force, the Soviet Union is intruding on our renderings and changing their shapes. This essay is an attempt to bypass the mirror and look directly at one aspect of Soviet reality.

I would like to acknowledge a debt of gratitude to the U.S. Army's Foreign Area Officer Program which provided me not only with the opportunity to engage in a year of excellent Russian language training at the Defense Language Institute but also to utilize the training there to meet pre-Revolutionary Russians and their children and to hear their memories and points of view. This most unusual educational program then afforded me a year of interdisciplinary Soviet studies at Fordham University, where I gained insights into political, economic and cultural histories and attitudes. The third phase of this program was the most special. It was conducted in a small town in the German Bavarian Alps, where for two years I listened to Soviet instructors who had been separated from their country by the Second World War present their viewpoints on the Soviet Union in their native language.

After four years of this program, which also occasioned the beginning of my serious study of the Soviet and Western transportation systems, including visits to major transportation facilities throughout Europe and travel within the Communist bloc, I was put to work as an intelligence analyst with the Defense Intelligence Agency. There I had the opportunity to look even closer at the Soviet Union, most interestingly at the hundreds of stories told by Soviet emigrees of life in their native country, expressing points of view ranging from those of truck drivers to those held by university professors.

Finally, the program's alternation of officers between area-oriented assignments and those in their basic branches, mine being in transportation, has allowed me the ability to retain my dual qualification. I have remained very close to the professional essence of transportation, having managed freight movements by air, land and sea in three countries, and have also consulted on Soviet transportation situations with the Congress and a special Presidential executive committee.

I express my gratitude also to the Naval War College and its Center for Advanced Research for making the time and facilities available for this study to be conducted.

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CHAPTER I

THE INSTITUTIONS

The Soviet Union is one of the two most powerful nations on this planet. It has the largest national landmass, the second highest gross national product, the third largest population, and what an increasing majority of opinion considers to be the world's preeminent military capability. Despite these statistics, the United States and many other nations have persisted in giving little credence to Soviet effectiveness potentials, seeing Soviet accomplishments rather as anomalies achieved at inordinate cost through totalitarian controls. This view believes that such a fragile situation could presage the collapse of the Soviet system.

With Soviet diplomatic and military accomplishments a matter of historical and current record, criticism has lately tended to focus on economic matters almost exclusively. The Soviet economy is characterized as being grossly inefficient, beset by difficulties in achieving planned objectives, and increasingly vulnerable to resource (especially energy and labor) constraints.

Evidence to support this view comes mostly from comparisons of published planning objectives with published and extrapolated performance data. There is a considerable body of Soviet writings critically describing efforts to achieve

economic rationality which is often called upon to reinforce assessments of Soviet economic malaise. The final ingredient in such assessments is an inevitable measure of wishful thinking. The Soviet system is deemed to be antagonistic to our own, and it is natural to desire its failure, or at least to relish its difficulties.

The view of the Soviet economy as incompetent allows for its relegation to lower orders of consideration in our own planning and decision making processes. The obvious danger of such a view should it err lies in the deleterious effect such miscalculation would have on those processes.

A good example of such miscalculation is the recent emergence of the Soviet merchant marine as a major force in the world's maritime commerce. Less than ten years ago this branch of the Soviet transport establishment received little attention and was looked upon as a second-class operation. Its ships were obsolescent by Western standards, with little evidence of the remarkable technology which had become customary in Western vessels built in the 1960's. Today the Soviets carry an ever-increasing share of available world maritime cargoes on a growing fleet of modern ships, and this capability (and threat to the international economic status quo) is currently one of the most hotly debated issues in the capitals of the Western maritime nations (more will be said about this situation below).

Coincidentally, in the light of such Soviet successes, an obverse tendency to perceive the Soviets as being "ten feet tall" is also growing. This is most discernable in military contexts, but it is becoming increasingly noticeable in economic areas as well. Such attitudes serve only to increase levels of anxiety, further deteriorating rational judgement and the ability to take effective counteractions.

The middle road of Soviet analysis seems to be the least travelled though apparently the most direct. There are several reasons for this, the most compelling of which is that the middle road is the least charted and often can be navigated only with the aid of well-developed knowledge of the terrain (Russian language training, understandings of Marxism-Leninism, comprehension of socialist command economies, etc.). An equally important barrier to travel on the middle road is the necessity to view the Soviet Union evenly, contrasting (and therefore acknowledging) strengths as well as weaknesses. It is the phobia against such acknowledgements that most inhibits balanced analysis.

The basic strength of a command economy lies in its ability to concentrate resources on ends deemed important by central decision authorities. It accomplishes this through horizontal management integration; that is, through a large number of functional management organizations directly subordinate to the central authorities. The Soviet model reserves most decision authority to these central authorities,

and herein rests also the basic weakness of the system. Functional organizations must obtain inputs and dispose of outputs based on instructions from the center. Since there is normally only slight ability for unilateral action in these regards, interaction between differently subordinated economic units is therefore carried on with difficulty.

The Soviets call the weak link in any process an "uzkoye mesto" (a narrow place). Microeconomic management is an "uzkoye mesto" in the Soviet Union, which finds effectiveness (doing the right things) more easily achievable than efficiency (doing things right). In a command economy efficiency pays enormous dividends because of the scale of possible application. There is a constant imperative to remove any stumbling blocks to its attainment. At the same time, however, there are ideological and bureaucratic institutions which complicate the situation. For the purposes of this paper they are:

1. The Soviet Union is ideologically committed to Marxism-Leninism and concomitantly to a system of centralized decision making.
2. The Soviet economy operates on the basis of interactive planning and maximum growth.
3. The Soviet economy is managed by exception.
4. Soviet managers are opportunistic integrators.
5. Soviet society is highly specialized to conform to the requirements of the national economy.
6. Thinking and action are usually governed by necessary adherence to the philosophy of dialectical materialism.

Except for the existence of the "private plot" wherein Soviet citizens may raise certain crops and animals for sale in farmers' markets, and some highly regulated craftsmen who ply their trades individually, there is no legal private enterprise in the Soviet Union. All productive capacity belongs to the state, which is the only employer. The state reserves decision authority over resource (capital, materiel, labor) allocation to the center, relying on subordinate organs to provide the necessary information on which to base such decisions. These are the basic tenets of Marxism-Leninism which enclose the first institution.

Interactive planning based on maximum growth requirements refers to the situation whereby all resources are allocated in a "daisy chain" manner from raw materials to end products. This process is calculated to make maximum use of available resources with little or nothing purposefully held in reserve. Suppliers and customers are tied to each other by the state and there is no commercial "shopping." Without alternate sources of supply, it can be readily seen that the failure of one link in the "chain" can damage--even stop--one or a series of processes.

The Soviet economic system is run on an extensively codified body of rules and regulations, which stipulates in elaborate detail the procedures and processes that management must follow. This is an absolute necessity in order to keep management decisions at the center to an absolute minimum.

There is little ability to manage the Soviet economy extensively through the central authorities, and intensive methods--management by exception--are instead practiced.

Since the Soviet economy is centrally managed and highly integrated (interactive) in nature, opportunities which serve to promote the national interest can be exploited effectively. The only brake on such exploitation would be the inflexibilities which characterize an interactive planning cycle during its operation. Since the Soviets normally follow five-year planning cycles, that period of time is the maximum delay that full opportunity exploitation would likely suffer. Once exploitation begins, however, its scale can be impressive. A method which allowed a one percent reduction in labor force within the Soviet transportation industry, for instance, would free 170,000 workers and save some 340 million rubles per year (based on average wages of 2000 rubles per year per worker).[1]

The Soviet Union has three categories for its laborers. These are worker (blue collar), peasant (farmer), and people's intelligentsia (white collar--university trained). The latter group is differentiated by profession and obtains work through analogous professional unions. Union membership is open only to persons who have appropriate university degrees. Job mobility within the first group is easiest, and employment changes are increasingly common. Until recently, peasants were tied to agriculture but have lately

been given more freedom to find nonagricultural work. Professional people are usually mobile only within their professions. This high degree of specialization is a mixed blessing, tending in some cases to prevent natural talent from being properly employed, but more often enhancing professional development.

Dialectical materialism is a very complex philosophical system which originated in the early nineteenth century with the German philosopher Hegel, was elaborated by Marx and Engels, adopted by Lenin, and modified by Stalin and his followers. As a tenet of Marxism-Leninism, it should be included in the first institution. For purposes of emphasis it is treated separately. The dialectic basically holds that change is an innate process:

> Every phenomenon in the various orders of being contains in itself opposing elements which are mutually exclusive, and yet also presuppose and interpenetrate one another; the conflict between them conditions all development; within the bounds of the unity of any given thing a continuous accentuation of the contradiction between the opposites is always going on; once this opposition has reached a certain level, conditioned in each case by the specific quality of the thing in question, the contradiction is resolved, and the previous quality is thereupon replaced by another one, with new internal contradictions.[2]

Understanding of the dialectical process is a prerequisite to comprehension of the rationale for much of Soviet word and action. It explains why the Soviet government can accept the presence of microeconomic management shortcomings

as inevitable and believe that their resolution is equally inevitable. This is a sort of "power of positive thinking," Soviet style.

The dialectic, especially its law of the unity and struggle of opposites, encourages criticism to "accentuate" contradictions and speed the process of change. These contradictions are considered to be (a) nonantagonistic, (b) related to growth and occur throughout the whole formation of the socialist order, and (c) leading not to an eventual collapse of the production-relations of the existing (socialist and communist) order but to a continual perfecting of the same.

These three traits are paralleled by the specific manner in which such contradictions are resolved under socialism: (a) they are settled, not by a violent upheaval, but gradually, by means of a planned development of social production; (b) they are disclosed and dealt with, not by way of the class struggle, but through criticism and self-criticism and the establishment of new driving forces for the development of Soviet society; (c) they are eliminated, not as in capitalism, by a revolutionary destruction of the existing order through mass pressure from below, but by degrees, without "explosions," but with the initiative process proceeding from above, from party and government.[3]

This paper will attempt to demonstrate the validity of the six above enumerated institutions in the Soviet economic

system through the examination of intermodal transportation; that is, the interworkings of the seven freight carrying transport modes.

The Soviet transportation industry, employing some 17 million persons (thus making it the largest sphere of economic activity), constitutes the system of arteries, veins and capillaries which nourishes the nation. Each of the seven transport modes is bureaucratically independent of the others, though they are to varying degrees operationally interdependent. The state of relative efficiencies in their interworkings can serve as an effective barometer to measure general trends in microeconomic managerial improvements in the Soviet economy at large.

This paper will introduce the general Soviet economic system first. The transportation industry will be integrated into that system, and the situations relating to intermodality will be discussed. Very recent innovations which are attempting dramatic improvements in microeconomic coordination will then be outlined. Finally, the paper's conclusions will be presented.

CHAPTER II

THE ACTORS

The Soviet Union is a federation of 15 republics, each with a different predominant, separate (or, in the case of the Baltic states which have become Russified, at least an historical) nationality. There is a profusion of languages, races, traditions, and histories--many of them with less than friendly past relationships with prerevolutionary and postrevolutionary Russia. The actors are from all of these groups across the Soviet Union and belong to one or both of the two bureaucracies which regulate the country's existence.

The Communist Party of the Soviet Union (CPSU) controls very little and it controls everything. The Soviet government, on the other hand, controls everything. This seeming contradiction is resolved with the knowledge that the actors in both bureaucracies are often the same. The President of the Soviet Union is Leonid Breznev, also the Chairman of the Politburo of the Central Committee of the CPSU. Alexi Kosygin is Chairman of the Council of Ministers of the Soviet Government and also a member of the Politburo. Marshal Dimitri Ustinov is head of the General Staff of the Soviet Armed Forces and a member of the Politburo as is Yuri Andropov, head of the Soviet State Security Committee (KGB).

A much-used Russian question, ascribed to Lenin, is "Kto-kogo?" (pronounced kto-kovo), which means "Who's doing

what to whom?" It is this question which defines the difficulty in the characterization of the Soviet system of government into simple process diagrams. The "doer" and the "doee" are often interchanged, and the question then arises of who in fact is running the store. This dichotomy becomes clearer the lower down into the hierarchy one travels. What can be said with certainty is that the system is one of perpetual conflict between the actors in a dialectical process which is the justification for the dictatorship of the proletariat in the first place.

It wasn't always so. Under Stalin's one-man rule (there is even a Russian word for this--"edinonachalye") there was true totalitarianism. Solzhenitsyn describes this period poignantly in Gulag Archipelago. A gun to the back of the head or the camps, regardless of rank or standing. This was the penalty for even suspected disloyalty. Among the first to go in the Great Terror of the late 1930's were railroad workers accused as "wreckers" of the five-year plan targets for the transportation sector. They were shot or imprisoned for their crimes--not moving enough freight. The last man known to have suffered a summary execution in this manner was Beria, the man who attempted to seize Stalin's power from his deathbed and continue its exercise in the same form. Among his executioners were the top leadership of the Soviet Union for the next decade, who agreed to sacrifice excessive controls so that all could have some measure of security.

Thereafter, fallen leaders were demoted rather than shot; negligent railroad workers fined or sent to work camps, not to their deaths.

This is not an apology for Soviet internal policies. Others argue that question. What is important to know is that the Soviet Government has lost some of its arbitrary powers. What remains is a series of checks and balances which extend down to the very bottom of the Soviet hierarchy, designed to ensure that the will of the CPSU is followed. To understand the conflict between the interactive elements requires knowledge of how the political and economic systems work.

The Soviet political and economic systems are really one system. In fact, for purposes of simplification the best way to tell this story is to use a familiar analogy--that of a corporation. Imagine a board of directors, with members appointed from various industries, some from within the corporation itself. This body gives general direction to the corporate management which handles the planning and operation of the business. There are vice presidents in charge of operating divisions, to whom report the managing directors of the factories and service centers controlled by the respective divisions. At the same time there are stockholders in the corporation, some of whom work in the various parts of the company, others who do not. The stockholders are very concerned over the proper operation of the

corporation; many attend the annual meeting and others write letters to the board of directors to inform them of malpractices at the lower levels.

The U.S.S.R. has been described as the world's largest corporation, and with few modifications the above scheme can describe its structure. The Politburo sits at the head of U.S.S.R., Inc., and dictates the policy directions for the Council of Ministers, which handles the planning and management of the country. The operating divisions are a collection of 48 ministries, each with a large number of economic enterprises, whose managing directors report to the ministry chief. The stockholders are the members of the CPSU, who elect representatives to the periodic Party Congresses and who write letters to the Party newspapers (Pravda papers are Party-published, Izvestia ones by the Government organs) or report malpractices through the Party chain of command. There are some 16 million "stockholders," whose membership is earned through work for the CPSU without pay, in addition to regular jobs.

The actors, then, are Party members and non-Party members, and this represents the first level of conflict. Party members are theoretically loyal to the "board of directors," non-Party members to their operating divisions. This lower form of loyalty is known as departmentalism or regionalism or, in more understandable terms, "preoccupation with the trees rather than the forest." To complicate things, Party

members themselves can demonstrate departmentalism and regionalism, further categorizing Party members into "good" and "not-so-good," a sublevel of conflict.

There is one other personnel stratification. Soviet adults are classified as either workers, peasants or people's intelligentsia. Theoretically there is unrestricted mobility with regard to achieving these tags, but in fact children tend to adopt their parents' status. Status, not wealth, is the major discriminator in the Soviet Union. And there is constant conflict among the three strata.

Regardless of one's status, however, everyone undergoes a similar socialization process. In grade school all join the Young Pioneers and wear its symbol--the red kerchief. Here children learn that individualism is bad and the group all-important. Grade school is a long group-therapy session. As members of the Young Pioneers, children often get their first taste of military training in summer war games held throughout the country. They are encouraged to join the Young Communist League (Komsomol) and the Armed Forces Auxiliary (DOSAAF). In high school all children take basic military training, and the great majority of males continue to serve two years of active duty.

Two motivations are constantly present with regard to membership in the social-political organizations. One is ideological and the result of a subtle and pervasive patriotic thread that is woven throughout a young person's

upbringing. The second is pragmatic, for membership in these organizations is possibly a prerequisite for higher education and the status of people's intelligentsia, for better jobs, and therefore for a better life. But it would be a mistake to consider the two motivations as mutually exclusive. The Soviet people tend to be patriotic and nationalistic and to accept the ideals of Lenin. At the same time they dislike bureaucrats, Party members or not, and consider them as distortions of what Lenin promised.

To summarize the cast of characters, there are good Communists vs. bad Communists; Communists vs. non-Communists; workers vs. peasants vs. the people's intelligentsia; and everyone vs. the bureaucrats. According to the dialectic, it is the role of the dictatorship of the proletariat to fuel these conflicts, allowing the historical process to bring about the inevitable synthesis. It must be understood that the CPSU acknowledges this situation, encourages it, stirs it up, aggravates it--all premeditatively. For, if the conflict were absent, by definition Communism would have been achieved, and the CPSU could be disbanded.

There are institutional actors as well. The Soviet economy is run under a system of "centralized pluralism." The center is comprised of the Politburo and Council of Ministers, which combine forces to develop "perspective" (usually twenty-year) and medium-term (five-year) plans for the development and operation of the national economy. These

plans are issued in the form of instructions to the system of 48 economic ministries, which in turn pass them to subordinate enterprises in operational forms. This is an incredibly complex process whereby the State Planning Commission (Gosplan) aggregates resources into 300 groupings, balances these with the medium-term and perspective plans, and disaggregates and allocates some 20,000 items to the ministries, which in turn must allocate them to their subordinate enterprises. All to achieve the output stipulated by the Politburo and Council of Ministers.[4]

Enterprises are told from whom they are to obtain inputs and to whom they will sell outputs. They are told in what quantities to produce, with what levels of efficiency, and at what cost. There are rewards for success and penalties for failure. Ultimately, each enterprise is dependent on other enterprises--for, if inputs are not received, there is little recourse and outputs will not be produced. This domino effect can hamstring the entire economy.

The cast of institutional actors and their conflicts are therefore Politburo vs. Council of Ministers vs. ministries vs. enterprises vs. other enterprises. The conflict widens and is particularly insidious. At each level in this hierarchy management wants the ability to fulfill its plan. As a hedge against uncertainty it will tend to hide capacity or overrequisition inputs. At each successively higher level this is recognized by setting plans slightly higher

than the apparent ability of achievement, but not high enough to be demoralizing or threaten actual plan fulfillment (for which the managing level will be judged). Not even the Politburo is immune to this pressure, for the world judges it and the Soviet Union itself on the ability to achieve the plans which are now openly published.

There is another cast of characters whose acting is of a dual nature. We have seen their primary roles in the persons of Party and non-Party, worker, peasant, and people's intelligentsia. The second role some 36,000,000 of these people play is as members of the Soviet compliance mechanism.[5] Distributed among organizations including the People's Control Commission (10 million), Soviet deputies (13 million), trade union inspectors (10 million), and Young Communist League members of "Searchlight" (4 million), these are the people set into motion--dialectically--to keep the pot stirred. They are expected to muck about, with legal privilege, and uncover the distortions caused by all the conflicts above enumerated, reporting them to their parent organizations and to the 7,973 Soviet newspapers which publish streams of critical material on such distortions.[6]

With all of the individual and institutional actors identified, it is time to look at the specific cast of the transportation sector. Following the scheme of centralized pluralism, transportation planning for long and medium terms is accomplished by the Council of Ministers under the guidance

of the Politburo. The CPSU Central Committee maintains a small transportation advisory group as an independent source of situational information, while Gosplan's Institute for the Study of Complex Transportation Problems remains the Council of Ministers' most competent source of information. It is at this level that national priorities are weighed to determine the extent of investment in new and existing transportation facilities.

The four principal transportation operators are the rail (Ministry of Ways and Communications) and maritime (Ministry of the Merchant Fleet) ministries subordinate to the U.S.S.R. Council of Ministers, and the river and automotive transport ministries subordinate to each of the 15 Soviet republics.

The rail ministry is the most important, both historically and situationally. Its name and organization remain much the same as in Tsarist days, and railroads remain the center of Soviet transport activity. The most important reason for this fact is geographical. Set well into the northern latitudes, the Soviet Union is beset with winters which deny use of river transport for an average of five months, impede truck transport by snow and make it nearly impossible during spring thaws, and hamper the relatively small flows of intercoastal maritime commerce that is allowed by the Soviet Union's largely landlocked location.

Some 60% of all Soviet freight (ton-miles) moves on the railroads, which have carried as much as 80% in the recent past. This freight movement is the most intense in the world, and half of the world's total rail traffic is carried over Soviet railroads, which account for only 10% of the world's rail track. Compared to the United States, the Soviets move twice the amount of freight over two-thirds of the track.[7]

In order to accomplish this gargantuan task, the rail ministry is organized into 26 railroad authorities, each of which has a number of rail departments, which total some 167. The ministry also operates a system of 15 technical colleges, providing three- to five-year education in every technical and administrative rail discipline imaginable, to provide staff for its operating divisions. There is also a system of hospitals, vacation resorts, and clubs. In all, the ministry employs some 5 million persons, of whom a third are engaged in actual rail operation.[8]

The rail ministry manages one unique institution as well. The system of railroad courts administers military justice to railroad operating personnel. This is tacit recognition of the importance of near-optimal performance of rail transport and the discipline that is required to maintain that performance. Railroad operating personnel constitute a paramilitary service which is in a constant

state of warfare with its enemies--weather, inefficiency and incompetence--to achieve rapid and reliable transportation.

Traditionally, all other transport modes have served auxiliary roles to the railroads. Since rail transport is most reliable, all schedules have been set to those of the trains. Any transfers between other modes and rail must first consider railroad requirements. The rail ministry thus exercises de facto control of Soviet domestic transportation.

Second in transport significance to the Soviet Union is the merchant marine. Its ministry controls the operations of three territorial administrations (Baltic, Black Sea and Far Eastern), which in turn direct the operation of seven shipping companies. There has been little historical need for the merchant marine to interface in serious ways with other forms of transportation. Ship schedules were known well in advance, took days--even weeks--to discharge and reload, and freight seldom carried the urgent priorities characteristic of that traveling on the domestic transport network.

This last statement is absolutely false . Because of the interdependencies of Soviet planning, everything has an urgent priority, and herein lies the importance of the merchant marine. There are three ways in which Gosplan can achieve its material balances--produce more, do with less,

or import. Once an import decision has been taken, the foreign material becomes part of the balance, is included in the plan, and becomes a "domino" in the interrelated manufacturing process. Delays become as critical for these materials as any others.

In many ways the maritime ministry has lately overshadowed the rail. The Soviets are in the midst of a considerable merchant marine development program, which has added some six million tons of capacity to the fleet in the last ten years, which now ranks eighth among world maritime nations.[9] The stated purposes of this expansion are the achievement of independence from an industry which they describe as a monopoly of the West and to earn hard currency.

The Soviets can now carry some 85% of their import-export cargoes on domestic shipping, up from 50% ten years ago.[10] There have been times in the last twenty years during which Western boycotts were imposed against the carriage of Soviet freight. This is an intolerable situation given the planned nature of the Soviet system, and their goal of independence from such a situation should be understood in this light. The Soviets see this as a <u>dialectical approach,</u> the thesis being the threat of Western control of Soviet material acquisition and the accompanying uncertainty, the antithesis being the creation of an independent Soviet merchant capability, and the synthesis expected--the end of Western control of maritime transport.

The Soviets now earn considerable amounts of hard currency from maritime commerce and are moving towards independence of the Western monopoly. Many see the Soviet maritime buildup as a declaration of economic warfare or an attempt to gain its own monopoly. Both of these views disregard both the dialectic and the basic interactive nature of the Soviet system itself, which cannot accept any end in itself, save one--Communism. In order to maintain motion in that direction, each of the dialectic processes must be completed so that the ones following may begin. The Soviet view holds that, when the Western monopoly of maritime commerce is no longer threatening, and when sufficient hard currency incomes are present, the planned attention to the merchant sector will shift to another dialectic problem.

There are few more emotionally-charged economic issues on Western agendas today than those relating to Soviet maritime commercial expansion. It is the tip of an iceberg whose breadth we are likely to be increasingly exposed to into the next century.

The maritime commerce of the world is dominated by cartels--called shipping conferences--which were designed in the last century to avoid destructive competition. By allowing shipowners to fix rates for transport, it was hoped that rate wars would be avoided and that extra cost would be outweighed by more reliable service. This principle was

recognized in the U.S. situation by the Shipping Act of 1916, which excepted these cartels from antitrust prohibitions.

Conferences are composed of shipowners who share the trade on mutually-agreed-upon formulae based first on seniority, then on economic power. Rates are set to provide minimum profit levels for the high-cost carriers. Thus, in a conference to which, for instance, a U.S. and a Taiwanese carrier belong, the same freight rates would be charged--but the profit margin would be widely different due to different levels of overhead and capital costs.

Independent shipowners can operate on small scales and charge rates below conference levels. Practically, when their operation becomes threatening to the conferences, they are usually invited to become members with small initial trade shares commensurate with their very junior status. The capital requirements for this industry are so great and the rewards for conference membership so lucrative that, until very recently, this mobility has precluded major threats to the conference system.

This all changed with the entry of the Soviet merchant marine. The Soviets first tried unsuccessfully to join conferences, then operated as independents, and finally began joining conferences on a selective basis. Operating as independents, they charged freight rates slightly above the lowest independent rate in a particular service. So

effective has this economic incentive to shippers been that the Soviets now carry some 4% of the total maritime commerce of the U.S. and in some trades as much as 20%.

The conference system has at last been threatened. There has, since 1973, been a draft Code of Conduct for Liner Conferences in the U.N. Committee on Trade and Development (UNCTAD) which would weaken conference control and which will enter its second five-year iteration this year, on the way to probable world acceptance. The Congress has been the scene of much debate on this issue, with contradictory opinions emanating from the Department of Justice (anti-trust), Maritime Administration (regulation of trade), Federal Maritime Commission (regulation of rates), and Department of State (precedent). Bills are pending that would limit the operation of all "state"-owned carriers. Nowhere in this debate is there any recognition of the primary dialectic purpose which the Soviets take every opportunity to describe.

These debates center around one topic above all others--profitability. Their contention is that the Soviet Union is operating its merchant fleet in an unprofitable manner, which by definition constitutes a form of economic warfare. The opportunity costs to the Soviet economy of such a practice would be so high and any possible short-term gain (less than 10 to 20 years) so remote as to make such an argument

ludicrous. The Soviets are, if anything, preoccupied with profits.

The problem comes in a difference in definition of profit. Nearly every Soviet enterprise is formed on the basis of economic cost accounting (Khozraschyot). This means that income from sales must cover costs of operation and overhead, to include limited investment and incentive payments. Excess profits are returned to the state. The main goal of profit in the Soviet Union is the maintenance of financial equilibrium, precluding the need for subsidization. Since most trade turnover is between state enterprises and not with private individuals, there is no reason to earn profits over the level of equilibrium. Only in commerce with private individuals (where most Soviet revenue originates in the form of the turnover--a value added--tax) and with non-Communist nations is excess profit justified.

In international trade, the Soviets do not measure profits only in terms of currency. Barter arrangements trade Soviet raw materials, goods and services for necessary inputs to their economy. This can take the form of other raw materials, goods or services, of complete factories, or of Western currency which allows purchase of hard requirements.

As the West characterizes some of these barter arrangements as "uneconomic" and constituting "dumping," the Soviets (and other command economies) countercharge Western subsidy,

tax advantage, and loan guarantees to selected industries (especially maritime) as even worse examples of "uneconomic" operation and "dumping." A middle ground is certainly needed!

Returning to the transportation cast, the river and truck ministries of the various republics, of which those of the Russian Soviet Federated Socialist Republic (Russia--RSFSR) are most important (due to the fact that most of the rivers and roads are located in that republic), serve very different roles than do the rail and maritime ministries.

River transport is a bulk carrier, attractive because of its relatively low cost of operation and overhead, but often shunned because of its sensitivity to the vagaries of the weather. Most rivers can be used with confidence only from May through September, and even the unlikely advent of ice at either extreme of this window gives rise to "hydrophobia"--the Soviet transportation planners' fear of water. Once trapped in the ice, cargo must remain so trapped for the duration of the winter, with imagined effects on the interactive planning process. Nonetheless, major capital investment is continually made to this sector in the form of interconnecting canals; hydraulic systems to raise water levels, allowing increased drafts of ships; and modern ships and barges. There is an almost plaintive manner in which river ministries attempt to sell their virtues to a very suspicious and untrusting body of potential shippers.

Truck transport carries more tonnage (80% of the total tonnage carried nationally) than does any other mode.[11] This is not to be confused with the statistic of 60% of all cargo (ton-miles) carried by the railroads. Soviet trucks average trips of less than 16 miles,[12] and this fact defines their role in the transportation process.

Because of an underdeveloped intercity highway network, a lack of trucks, and an unfavorable rate structure compared to rail transport, trucks perform what is primarily a shuttle function. They shuttle cargo between rail, river and ocean terminals and warehouses. Most of the trucks are small by Western standards, mostly in consideration of the condition of Soviet roads. Specially designed heavy-duty highways are required for the 40-ton loads that move over our highways. Too many potholes can seriously shorten the life of truck and semitrailer chassis. As anyone familiar with highway systems in Canada and Alaska can confirm, it is difficult to maintain these in good condition because of the effects of freezing and thawing.

Truck transportation is receiving major attention in the current five-year plan. New hard-surfaced road systems are being widely introduced and truck production is skyrocketing, mainly through the building of the new Kama River Factory, with a planned output by 1983 of some 150,000 trucks per year.[13]

There are three other modes of transportation which must be mentioned. Only the last will impact on this study. They are air, pipeline and industrial. Aeroflot is the largest airline in the world and devotes most of its attention to domestic routes, where rates are favorable compared to those of railroads. Pipelines stretching some 36,000 miles carry oil and natural gas as far west as Bavaria and northern Italy. Although both air and pipeline modes are exploring the potentials for moving large quantities of conventional freight, they do not now do so and will be excluded from the scope of this paper.

Industrial transport is another story. This is an unofficial mode, without separate ministry direction. It represents the combined capacity of all Soviet economic enterprises in terms of intraplant transportation capability. The Soviets include in this category rail sidings and switch engines, enterprise truck assets, specially constructed containers, pipelines, conveyor belts and overhead trolley systems. Recalling an earlier statement that the majority of trade takes place between State enterprises, it is interesting to note that 80% of all Soviet rail transfers take place on industrial sidings.

The cast of characters is finally completed. The conflicts among the last group can be characterized as follows: rail and maritime neutral before 1967 and rail vs. maritime after, and rail vs. river vs. truck. The reasons for these,

and all above enumerated conflicts, will become clear in following discussions of intermodality.

CHAPTER III

THE TRANSPORTATION CHALLENGE

The one piece of information about Russian railroads that is most commonly known is their difference in gauge (the distance between rails) from other European roads. This difference is attributed to Russian preoccupation with security and the attempt to deny potential enemies access to Russian territory via the railroads. This misconception is a good starting point from which to introduce the transportation challenge facing the Soviets and to further highlight the perceptual difficulties facing the West which were described at the beginning of this paper.

In 1842 James Whistler journeyed to St. Petersburg with his wife to consult with Tsar Nicholas I's Special Committee for the Construction of the St. Petersburg to Moscow Railway.[14] Whistler was a noted railway construction engineer, and his wife would be the subject of a famous American artist's painting of his mother. One of the pressing problems facing the committee was the selection of rail gauge. The Russians had built two railroads previously. The first, between St. Petersburg and the Tsar's summer residence, with 6 ft. gauge, and the second, between Warsaw and Vienna, with 4 ft. 8½ in. gauge. The committee was in favor of the 6 ft. variation, believing it would allow heavier and more stable loads. Whistler convinced them

that 5 ft. would be the optimum and could very well be the standard long-distance gauge for other parts of Europe. The committee accepted his advice. Whistler was wrong and the Soviets wound up with the only major 5 ft. rail network on the continent. While this slowed Hitler's invasion, his forces had only to lift the rails and replace them 4 ft. 8½ in. from the static ones, with no other modification of the railroad superstructure.[15]

Whistler's visit to Russia came at a turning point in the history of that nation. Two outstanding facts punctuated that history: that Russia had remained in a state of siege for most of its thousand-year history (the most recent incursion by Napoleon a boyhood memory of the Tsar) and that Russia had insulated herself from the world so well that, when German engineers were building Peter the Great's new city on the Baltic in the previous century, the Russian people misperceived their inability to communicate with the Germans because of language difficulty, naming them "nemtsy"--deaf people. Tsar Nicholas I, with the motto "Orthodoxy, Autocracy, National Unity," was attempting to follow Peter the Great's direction: to maintain Russia's national integrity while keeping pace with--even leading--the rest of the world technologically. Railroads were destined to remain a key factor in that effort.

The Moscow-Leningrad line was built, using the 5 ft. gauge, and the construction was used as an excuse to

stimulate native iron production. American and British technicians worked side by side with Russians in factories to build engines and other necessary equipment. Imports were kept to a minimum. Investment capital was welcomed from abroad and French, German and Dutch money paid for much of the new right-of-way. The first city trolley system in Kiev was built by a German firm, and German employees of the company rode the cars as conductors.[16]

From the ranks of railway workers towards the end of the nineteenth century rose one Sergei Witte. He became Minister of Finance with the Tsar's adoption of his program of rapid Russian industrialization through extensive railroad development, a further elaboration of the theory that intensive iron and steel production would stimulate all of the associated sectors of heavy and light industry, helping propel Russia into the twentieth century as an equal among nations. The Trans-Siberian Railroad was one of these projects. Railroad building flourished.

Let's examine a collage of Russian transportation situations in the nineteenth century, for in many ways these fragments are timeless in nature. Readers of Pushkin will remember the stationmasters who were the bane of a traveler's existence, changing horses for the carriages traveling the great distances between Moscow and St. Petersburg and the country estates where serf labor worked the land. Lovers of music might recall the song of the Volga Boatmen, those

cooperatives of laborers who pulled barges upstream on that, and other, Russian rivers. And from Tolstoy's Anna Karenina remember the trains which ran eternally to some unseen destination, like the nation itself. All of these existed in a terribly harsh climate where ice blocked rivers for months every year, snowdrifts could bury trains, and where roads turned to mush in the springtime, cutting the farm estates off from the outside world.

Under these conditions the railroads were the only reliable form of transportation. The Russian Ministry of Ways and Communications, also the guardian of stagecoach travel for the Tsar, ran the railroads with uniformed servants of the government and their work was hard. The rail network grew and became an important wartime ally which, though inadequate during the Russo-Japanese War, nonetheless linked Moscow with the Sea of Japan.

Boris Pasternak's Dr. Zhivago also described these railroads, which carried the living to the battlefields of the First World War and the dead and wounded home. It also demonstrated the effectiveness with which the Bolsheviks used the rails to prosecute their war against the Tsarist regime. In fact, Leon Trotsky, first commander of the Red Army, led his forces from the railroads, defeating his attackers by the ability to move rapidly from one breach in the lines to another. Among the forces opposing him were contingents of French, British, Dutch and American soldiers

attacking in a north-south axis from the North Sea ports of Murmansk and Arkhangelsk and on an east-west axis from Vladivostok, along the Trans-Siberian Railroad towards the Urals.

Much of the Allied concern, especially that of the French, British and Dutch, was railroad-related. The ostensible excuse for the invasion had been the plight of the Czech Regiment, a force which had been in transit across Russia to the Sea of Japan on a circuitous journey to join Allied forces fighting the Germans when the Bolsheviks seized power and made a separate peace with the Kaiser. The invasion was designed to bring them safely out of Russia. This "intervention" also hoped to help the White Armies replace the Bolshevik government and return Russia to the war. Another reason for the interest of these countries in a return to non-Communist rule was the existence of the railroads themselves. Much of the investment for them had come from stock issues to their own people, creating obligations which the Bolshevik government had immediately abrogated. The invasion failed, as did the White Armies themselves. The invasion was, in fact, very much forgotten outside of the Soviet Union, which regards "the Intervention" as one of the most important facts in its history of conflicts.

The disorganization and chaotic conditions which characterized the first 15 years of Soviet rule resulted in a

constant state of crises management. Only the largest economic fires were fought; other, smaller, blazes were simply controlled. The rail system was one of these small blazes. Well developed by the time of the Revolution, it required little attention during the following 15 years, and it wasn't until Stalin's Five-Year Plan that the leadership began to realize how inadequate the railroads were for the program of rapid industrialization that was being undertaken. New rail lines would require resources which had been allocated elsewhere. More importantly, construction would take time--which there simply was not enough of. Some way had to be found to squeeze extra capacity out of the existing rail plant.

The answer lay in containerization. The standard rail cars had two axles and loading capacities of 20 tons. Statisticians found that their average loadings used only 60% of that capacity, and transportation engineers set about designing a box in which cargo could be placed, which could enable the full utilization of the car's platform. The box was designed with a capacity of 2½ tons and dimensions which allowed eight to be loaded aboard a flatcar. In 1932, test runs were successfully completed on the Moscow-Leningrad route, and the system began general introduction. By 1940, 50,000 of the boxes were being handled by some 33 rail stations in key locations.[17]

This container transport system had advantages other than merely efficient flatcar loadings. Freight could be loaded at factories and moved by truck to rail stations or to river ports without the necessity of rehandling the contents, allowing labor savings to be used elsewhere. A necessary requirement was the installation of hoists and cranes wherever the containers were to be used, but the relatively small weight of the package reduced the complexity of that task. When the Second World War reached the Soviet Union, the container transportation system became a major asset in enabling supply efficiency and reducing manpower requirements.

The system continued to grow and spread to other areas of the country and, after the war, outside of the country as well. By 1955, there were in the Soviet Union over 800 stations handling some 600,000 of the containers, which were also widely used in eastern Europe. The Soviets had created a Council for Mutual Economic Assistance (CMEA, COMECON, or SEV), in which members' (Poland, Czechoslovakia, Hungary, East Germany, Bulgaria, Rumania, and U.S.S.R.) national economic development plans were coordinated, to include transportation activity. The cooperative nature of the various economies was such that there was a constant cross-traffic of each other's rail cars, with one notable exception. Since Soviet rail gauge was

wider than its allies', freight had to be transloaded between Soviet and east European cars at borders, for further transportation east or west. The containers facilitated this transloading. The most significant expression of the universality of these containers' use was seen in the formation of the Common Railcar Fleet by the CEMA countries in 1963, to which member countries gave a number of rail cars and containers with the right of free use of an equal number at any time.[18]

In the mid-1950's production began on a new flatcar. It had four axles with a 50-ton capacity and represented the dialectic negation of the entire Soviet and CMEA container transportation system. It, and the heavier rails which allowed correspondingly heavier trains to operate, questioned the rationale of a system with upwards of three-quarters of a million containers, thousands of loading facilities--in short, estimated capital assets of some half-billion dollars.

It has taken 20 years to begin to resolve this problem with the combined efforts of planners, scientists, economists, and engineers.

Dialectically, the national and transportation planners knew that their immediate roles lay not in finding a solution--that would be the end result of the dialectic process--but in stimulating the contradictions. This stimulation, pragmatically, took the form of attempts to optimize the sub-optimal situation.

Gosplan and each of the transport ministries have an extensive organization of research institutes which study problems ranging from cybernetics to the design of specialized pieces of equipment. The rail ministry institute charged with container design developed three separate alternatives for different parts of the problem. The first was the expanded use of a small 1½-ton container on wheels, designed to fit through the doors of boxcars, lending some handling and capacity utilization advantages to their use. The second was the redesign of the 2½-ton container into a 3-ton variant, adding some six tons of capacity to a flatcar loading, which on a national scale was a considerable measure. The third innovation was the wide introduction of the 5-ton container, which improved the situation but still did not allow optimal flatcar loadings.

Meanwhile, the dialectic synthesis to the Soviet problem was in the process of birth far from the U.S.S.R. In the United States a trucking executive with a novel idea was attempting to break into the maritime shipping business. His name was Malcolm McLean, and his new company was called Sea-land Services. The name was derived from his idea to make the cargo vans of his trucks' semitrailers demountable, allowing them to be lifted vertically from their chassis and loaded on ships. These could carry them to destinations where the process would be repeated in reverse. Cargo could move from the warehouse of the shipper by land and sea to

the warehouse of the consignee without ever leaving the cargo van--and without tying up the capacity of land transportation equipment. "House to house" movement was born, to the dismay of longshoreman unions, and to the delight of steamship companies and shippers--who saw transportation savings, shorter shipping times, and major reductions in pilferage and handling damage.

McLean's experiments were conducted in 1956, about the time that the Soviets were beginning to realize their difficulties. By 1966 the Western container revolution was in full swing, Sealand Services was one of the giants in the maritime industry, and the large-ton freight container (as it came to be called in the Soviet Union) was internationally standardized. This container revolutionized the world's transportation systems. Ship owners who had converted vessels to carry the boxes could now turn their ships around in matters of hours, rather than days. With ship days measured in tens of thousands of dollars, and with the extra trips made possible, the combination of economy and added income netted enormous profits. Railroads and trucking firms quickly adapted their operations to the handling of the containers, which began moving quickly and effortlessly among inland locations in scores of countries.

This activity could not possibly have escaped the thousands of researchers in the Gosplan and transport ministry institutes. The question must have been what to do with the

knowledge of the new Western container system. While a good solution for the problem of rail car loadings, there was no way to lift the boxes at rail stations (all the cranes there having maximum capacities of just ten tons), no way to transport them by truck over the poor Soviet highways, and no ships to carry them in. The new technique was continually studied, but efforts were confined to further improving the existing system in the manner outlined above.

By 1965, it was clear to the Soviet transportation planners that the new container system was an international fact of life and that in its use lay the synthesis to the dialectic problem. They also realized that the obstacles which would be associated with its introduction in the Soviet Union were considerable. These problems can be listed in order of their required solution as follows. First, Gosplan would have to table the concept within the Council of Ministers, which in turn would have to obtain policy guidance and approval of the general concept from the Politburo. The concept would then need to be fitted into the perspective plan and its impacts weighed. These impacts would most seriously affect the planned development of shipbuilding, rail car and truck manufacture, handling equipment development, container manufacturing, and highway construction. This, in turn, would require rough restructuring of material balances.

Once the concept was integrated into the perspective plan and space made for it in appropriate five-year plans,

the various transport ministries could be instructed to begin determining the actual requirements which Gosplan would eventually have to arbitrate.

Before proceeding further with this story, a word of caution is appropriate. It would be a mistake to assume that this transportation situation had suddenly loomed large as a major concern of the Soviet political and governmental hierarchy. There is no evidence for that. The process described above must have taken place at some time between 1965 and 1969 in order for events to be described shortly to have happened. But at the time the review was undertaken, the situation was very probably routine and but one of scores relating to various development projects under consideration, all of which received similar disposition.

That this is so is evidenced from a lack of any special interest in large-ton containers in Soviet transportation writings before about 1968. The earliest mention was found in a 1966 publication, its only reference being to development and testing of 10-ton containers in the coming years and feasibility studies of the possible use of large-ton containers.[19] Since increasing references to Soviet publications will be made, a few words about them are in order.

To a reader of Soviet writings the most important page is often the last. At its bottom are two fascinating pieces of information which Western readers are denied. One is the "tirazh" or press run. A glance at this figure tells the

reader how many books have been published, which in turn gives indications about the scope of application of the subject matter. The second important piece of information is the time between submission for editing and submission for printing. The average is about 18 months. Shorter times can indicate special priority for publication.

A personal judgement is also in order. Over the past ten years I have read hundreds of Soviet books and articles. They are written dialectically; that is, they first of all describe the "synthesis"--the way reality should be. It is at this point that most Western readers get lost. This is the obligatory "preaching to the choir." Following this obligatory "opening," however, there is usually a discussion of the "contradictions" ongoing in the dialectic process. These are clear messages directed at Soviet audiences. The first part tells them where their efforts should be directed, the second how those efforts are falling short. While it cannot be denied that there are Soviet writings that are directed principally at Western audiences to achieve some sort of effect, I will maintain that these are special, highly restricted cases, and that the general bulk of literature emanating from the Soviet Union is informative and invaluable in understanding that country.

In the last chapter, 1967 was set as the year in which neutrality between the rail and maritime ministries ended. The rail ministry had continued to lead the other modes in

container development initiatives, with these others following and copying its initiatives. In 1967, however, an agreement between the Soviet Ministry of Foreign Trade and two Western firms, one Swiss and the other American, became the catalyst that would change the face of the Soviet transportation system.[20]

This agreement created the JEURO (Japan-Europe) Corporation to administer a highly unlikely commerce--the movement of capitalist manufactures between western Europe and Japan across the Soviet Union. The Trans-Siberian Landbridge, as the route became known, copied the successful U.S. transcontinental landbridge which connected the same two areas. Landbridge movements are managed by shipping companies and forwarding agencies (the latter called non-vessel-owning common carriers--NVOCC) which charge single-factor rates for "house-to-house" movements on mixed land-water routes. The land portion is arranged and paid for in bulk by the shipping company or forwarding agency.

Under the JEURO scheme, Soviet ships would pick up freight containers in Japan, transport them to Soviet far eastern ports (either Vladivostok or Nakhodka), where they would be loaded onto flatcars for the long trip west over the Trans-Siberian Railroad, either to Leningrad for further water transport to northern Europe or to one of the Soviet border rail stations for further rail or highway movement to central and southern Europe. The first test shipment

was a dismal failure, taking 55 days for the east-west transit.[21] The promoters of the route knew, however, that potential savings in money and time over the conventional water route through the politically unstable Suez Canal or longer route around the African Cape justified attempts to make the landbridge work.

The maritime ministry had little experience indeed in the movement of unitized cargo. In 1966 the Baltic Shipping Company had moved packaged freight for the first time on the Leningrad-Rotterdam route.[22] The ships designated to move containers between Japan and the Soviet far eastern ports were conventional freighters, and the containers were tied down on their decks. For the first time the powerful Soviet rail and maritime ministries faced a routine commerce in which they would have equally important roles, requiring their interaction on a basis that would define ships, rather than trains, as the critical link. In this situation was found the genesis of conflict and the end of neutrality.

Foreign exchange (hard currency) is one of the resource balances maintained on the Gosplan ledgers. The JEURO Agreement promised large potential flows of such currency. Small initial movements of no more than 200 containers in one direction per week would provide some $10 million annually (based on a rate of $1000 per container), and further development of the route could easily foresee ten times those

earnings. These were the projections which suddenly changed the routine status of the containerization problem.

Though the Soviets generally reject conventional Western economic theory, they apparently considered the opportunity costs[23] involved in operating the Trans-Siberian Landbridge. Since their planning is based on the "ratchet" principle--that is, the accomplishment of what was done the year before plus a percentage of growth--the JEURO traffic would have to be in addition to, rather than replace, existing traffic. The Trans-Siberian Railroad is probably the most intensively used in the world,[24] and this in itself would be no small problem to deal with. Equipment would have to be installed to handle the containers at the ports of entry and exit and at the rail stations where transloadings would be necessary. Additional rail cars and shipping capacity would be required. All of these items would have to be found in a system where there is little or no excess capacity.

It is likely that the JEURO Agreement caused the measures which had been roughed into the perspective plan for dealing with the containerization problem to be prioritized and expedited. Soviet intentions became crystal-clear as the number of newspaper and magazine articles and books on the subject of containerization in general, and specifically dealing with large-ton containers, increased significantly from 1968.

There was literally nothing of a substantial nature which could be done with either the Trans-Siberian Landbridge or the container problem itself until 1971. Prior to that time, the ninth Five-Year Plan would have to run its course, it being nearly impossible to make major changes in the middle of a planning period. The JEURO Agreement was kept in a caretaker status, with small movements which remained inefficient but which gave operators along the route experience.

To clarify, nothing substantial could be done domestically. Thus far the Soviet relationship with her east European allies has been only briefly mentioned. The CEMA organization has its own integrated development plans, which recognize the comparative advantage of the various countries to the whole. Thus, for example, in the transportation area Bulgaria might produce mechanical handling equipment, Poland and East Germany ships, and Czechoslovalia and Hungary rail equipment.

Three of these countries had already taken steps to begin the use of large-ton containers. East Germany was ahead of them all, having initiated a container route with England in 1967, coupled to the introduction of large-ton container equipment throughout the major rail terminals of its country. By 1972 the scope of these operations compared favorably with west European levels of sophistication. Hungary began shipping fruit to the United States in the

large containers in 1967 and expanded their movement with West Germany, Great Britain, Scandinavia, Canada and Australia. Poland and Bulgaria had some small experience before 1968 as well.

In 1970 the CEMA countries met in Warsaw for the 36th Session of the Permanent Commission on Transport. The Commission approved an earlier decision by the Permanent Commission on Containerization to adopt the large-ton container as the basis of an integrated CEMA system, provided for favorable tariffs to encourage wide use of the system, simplified documentation through the use of a single transportation document for intermodal movements, and provided for landbridge facilitation. Also created were two organizations to continue these directions. They were the Temporary Working Group of the Executive Committee for Joint Planning of the Container Transport System and the Temporary Working Group on Container Transport Systems under the Permanent Commission on Transport.[25] Though long-named, these organizations were taking steps on a CEMA-wide basis which would soon be formalized in the Soviet Union itself.

On March 31, 1971, before the CPSU 24th Party Congress, Chairman Brezhnev made the following statement: "In connection with the long-range development of all modes of transport, it is necessary to ensure greater coordination of work, and to create a unified, highly effective transport system for the country."[26] This reference was buried among

scores of others on every aspect of Soviet existence as affected by the 9th Five-Year Plan which Brezhnev was introducing.

Kosygin, speaking a few days later as head of the Council of Ministers, enlarged on Brezhnev's statement as follows: "The immediate task of workers on all modes of transportation is the mechanization of freight handling and the development of container transport."[27] The final resolution of the Party Congress summed both statements up by stating the goals of ". . . raising effectiveness of transportation work, achieving improvement in the use of transportation facilities, improving the coordination between modes of transport, eliminating irrational transport, and widening container and packaged transport with the introduction of large-ton containers."[28]

Gosplan published the complete version of the 9th Five-Year Plan in 1972, the first time a plan had been circulated in such detail. The Plan called for "the increase in volume of container transport not less than two times . . . and also the initial introduction of a container system based on large-ton containers of 10-, 20-ton and higher capacity on definite domestic and international transport routes, allowing cargo movement to be speeded, and savings to be realized in packing, dunnage, and handling work."[29]

Gosplan expanded this statement into a basic working document, "On Measures for the Long-Range Development of

Containerized and Packaged Transport of Cargo."[30] It outlined the following specific tasks:

a. Beginning in 1972 the manufacture of large-ton containers by factories of the Ministry of Heavy, Industrial, Energy and Transport Machine Building in quantities of up to 16,000 per year by 1975.

b. The manufacture of medium-ton containers up to and including 5-ton capacity in quantities of up to 175,000 per year by 1975, by the rail ministry.

c. The manufacture by other agencies of 3000 special rail container flatcars, 13 sea container ships, 41 river container vessels, 1000 truck tractors and 1500 container semitrailers, and 415 cranes with automatic container couplers.

d. The creation of facilities for large-ton container operations at 67 rail terminals, 18 river stations, and 14 seaports.

e. The provision of yearly plans of container transport by ministries and departments of the Russian Republic, and by the councils of ministers of other republics.

These various statements by the Chairmen of the CPSU and the Council of Ministers and by Gosplan reinforce some of what has been described. There is a clear statement of the dialectic synthesis--a unified, highly effective transportation system--through improved coordination between modes, improved use of transportation facilities, and the further

development of containerization to include introduction of large-ton containers. There is also, both implicitly and explicitly, the list of "contradictions"--inadequate coordination, insufficient mechanization, inadequate use of transport facilities, irrational transport, slow cargo delivery, and excessive packing, dunnage, and handling costs.

While the dialectic process is seen by the Soviets as immutable and historically inevitable, some dialectic processes have greater imperatives for their resolution than do others, especially those processes which become part of a five-year plan. Once a problem is afforded that status, its resolution becomes an interactive necessity for the successful accomplishment of other plan objectives. So it became for the dialectic process of the Soviet container transportation problem. It was no longer simply a container problem. The scope had been widened to include the entire Soviet transportation structure. And resolution was now stipulated by timetable.

The results of the individual transport ministry efforts to identify requirements were clearly outlined in the five measures listed above from the Gosplan working document. It is interesting to note that these figures do not appear to be rounded, as evidenced by goals such as 41 river vessels and 415 cranes. Gosplan cannot deal with generalities outside of the perspective plan. Each of the items on its list becomes an output goal in a series of

productive processes which begin at the lowest levels of raw material extraction and build upwards.

CHAPTER IV

REAPING THE BENEFITS

We have seen the problem concerning the underutilization of 50-ton flatcars by 2½-ton containers evolve through capacity problems of the entire rail system, the discovery of an alternative (the large-ton container) which was not amenable to the Soviet environment, a chance opportunity to earn hard currency, and finally to the transmutation of the problem of the 2½-ton container into a planned, centrally directed major restructuring of the entire Soviet and East European transportation systems. While not an everyday Soviet occurrence, neither is this example an outstanding exception. The ability to exploit such opportunities is one of the major strengths of a central planned economy. A corresponding weakness, on the other hand, is the difficulty in implementing the resulting programs on the lower level. In the transportation example this level is where intermodality must flourish. Before we examine this difficulty, some explanation of how the Soviets went about reaping the benefits of their decision is in order.

By 1973, a year after the plans had been announced, one containership was in service and others were under construction. Various research institutes had produced experimental and prototype models of containers, handling and transportation equipment, and factories were beginning to

retool for their production. The bulk of this equipment would become available by 1975. In the meantime three problems faced the transportation planners. The first was how to proceed with the traditional, small- and medium-ton container system. The second was how to achieve an integrated container transport system within the framework of CEMA while retaining the future option of integration with the West European system. The final question was how to develop large-ton container operations, with emphasis on the Japan-Europe route, pending the availability of Soviet-manufactured container handling equipment in 1975.

We have already seen the faults of the traditional container system and evidence that there was no real way to make it efficient for contemporary use. But with a capital plant totalling nearly a million containers with over 1400 handling facilities[31] dedicated to their use, the Soviets were unwilling and unable to move directly to a universal large-ton system. As indicated by the 10th Five-Year Plan program which called for continued production of these containers, their use would continue with a gradual shift of emphasis to the new types.

Efforts would be made to maximize the efficiency of the traditional system through a shift in reliance from the 3-ton to the 5-ton unit. The larger container would now account for 60% of total manufactures. In an effort to "confound the gods," reactionary critics continued to call for increased production of the smallest, 1¼-ton container.

One other avenue towards increased efficiency of the traditional container system was opened through increased use of the special-purpose container. These are not common carriers but are the "mavericks" of the system, belonging to Soviet enterprises which maintain sole user rights. In 1971, with as many as 200,000 units then in circulation, nearly four million tons of industrial cargo were shipped in special-purpose containers, with transport concentrated in ferrous metal ores, other dry powdered cargoes, sheet glass, plate metal, construction materials, and chemicals.[32]

The importance of the special-purpose containers lay in their ability to provide flexibility not available in the small- and medium-ton containers, and not yet available in the large-ton units. There is, however, an inherent inefficiency in their use. The special-purpose box is good for one-way transportation only, both because of its special configuration and its private ownership. And, because they operate in an environment set up to service universal, carrier-owned equipment, they often get lost or fall into disrepair en route.

The answer, then, to the first question is that the traditional container system was continued, with attempts made to improve capacity through use of larger and specialized boxes.

Much has already been said regarding the question of achieving an integrated container transport system within

CEMA while retaining the future option of integration with the West European system. The Common Railcar Fleet had established procedures for interchanging containers in 1963, the volume of which had reached 130,000 per year by 1969.[33] The basis for an integrated large-ton container system had been laid in 1970.

The next step in this process was taken at the 25th CEMA Congress in Budapest in 1971. A long-range plan to 1985 was outlined, which called for scientific and technical cooperation, joint development of route facilities, centralized operation of the integrated system with the computerized data processing facility to be located in Prague, and the management organization in Moscow.[34]

An integrated large-ton container transport system within CEMA would assure future integration with the West European system. East Germany, Czechoslovakia, Hungary, and Bulgaria were already members of the European corporation of 22 national railroads called Intercontainer, established to provide maximum efficiency and favorable tariffs for international rail container movement. This association, once the CEMA large-ton system was completely on line, would interconnect all of the European continent by a modern, efficient, and mutually profitable freight transportation system. At the same time, Central Europe would become a potential landbridge between countries on and

around the North Sea and southern trading centers in the Middle East, Persian Gulf, and beyond into South Asia.

The question of how to develop large-ton container operations with emphasis on the Japan-Europe route pending the ability of the Soviet economy to catch up with equipment requirements was the most pressing.

It is time to give a more complete introduction to the large-ton container and to change its name. As adopted by the International Standards Organization (ISO), there are four variations, in 10-, 20-, 30-, and 40-foot lengths (Malcolm McLean's container was ironically 35-foot and non-standard). Containers are usually referred to in 20-foot equivalents (TEU), the 20-foot model being the most popular. ISO calls these "Series I" containers. Series II are West European rail boxes and Series III are the Soviet and East European small- and medium-ton variety.

The primary advantage of the Series I container lies in its adaptability to mechanical handling. The standard 20-foot unit has fork pockets on its sides for forklifting and corner castings on each of its eight corners which can be automatically engaged by twist locks on lifting devices and locating pins on carrying platforms. Cranes can be fitted with spreaders (automatically adjustable couplers) whose twist locks quickly couple with the container's corner castings, speeding handling operations. Spreaders can also be fitted to forklifts, straddle carriers (which

move, tunnel-like, over stacks of containers up to three high), side loaders and self-loading semitrailers.

This means that with the proper equipment a crane (or other equipment) operator can, without assistance, pick the container up, move it, and put it down very quickly. With conventional handling equipment the crane operator must be assisted by a hookup man, a ground guide, and another person to unhook the container at point of rest. This slow and cumbersome process is the one the Soviets were forced to use as an interim measure.

Once the container has been unloaded, it must be moved inland. Special transportation equipment incorporates locating pins which engage bottom corner castings of the container, which can then be locked firmly into place using twist locks. On special long flatcars these locating pins are moveable, allowing different length containers to be carried. Semitrailer chassis are designed to minimize weight and achieve maximum efficiency and safety of container and tractor hookup. In the Soviet Union this equipment was not available and conventional equipment use gave rise to further inefficiency. One 20-foot Series I container carried on the standard 4-axle, 50-ton flatcar achieves an even lower (40% vs 65%) utilization than the smaller Series III units. When truck shuttle was required, the Series I units would have to be carried on the beds of

conventional trucks, an inefficient and potentially dangerous practice.

All of this information helps to explain the difficulties facing the Soviets as they prepared to move major flows of Series I containers through their country before adequate facilities were available. One of the interim solutions they sought was through foreign trade. Manufacturers of all sorts of container transport related equipment were invited to show their wares at an exposition in Leningrad in 1972. A hundred and forty firms came and deals were signed, one British firm earning an estimated 15-million-dollar order.[35]

Another solution was through help sought from CEMA partners. Initial orders of as many as 8,000 containers were placed with East Germany, as were orders for ships from East Germany, Poland, Rumania, and Bulgaria and handling equipment from East Germany, Hungary and Bulgaria. A final ploy was through lease-buy arrangements with British and American firms, allowing rapid procurement with options to purchase if there was a future need.

To complete the answer to the question of how to develop large-ton container operations, the Soviets continued low-efficiency handling operations with Series I containers using existing "jury-rigged" equipment. Special handling equipment from abroad was employed at critical transfer facilities along the Japan-Europe route when

necessary to keep traffic moving at an acceptable tempo. Series I container assets were judiciously distributed, with the bulk dedicated to hard-currency-earning routes in the Baltic-North Sea area and the Far East. As Soviet-built equipment became available, domestic operations increased along important industrial routes.

This pattern has continued to the present time. Three factories now produce Series I containers in the Soviet Union. The equipment called for in the Gosplan working paper was delivered as planned, though late. The Soviet merchant marine today operates a large fleet of modern containerships. Jury-rigged operations, while still continuing, are being phased down as specialized equipment becomes available. A new container port has been built in the Far East. Vostochnyy, as it is called, was built nearly exclusively with Japanese funds on a barter for timber basis. Special high-efficiency container handling facilities exist at the ports of Leningrad, Riga, Odessa, and Nakhodka as well as at the Moscow and Leningrad rail complexes. High-speed container transfer facilities are being continually upgraded at three Soviet-East European border rail gauge interchange stations.

Series I containers are extensively used well into the most remote regions of the Soviet Union. They are carried up Siberian rivers, by rail and truck into Central Asia, and are the continual subject of books, journal articles and

newspaper reports at all levels of economic activity. It is impossible to pick up one of the monthly publications of the rail ministry (Railroad Transport), maritime ministry (Merchant Fleet), the Russian Republic automotive ministry (Automotive Transport), the Russian Republic river ministry (Water Transport) or the State Construction Committee--"Gostroy"--(Industrial Transport) without finding at least one article about Series I container use or about the newest preoccupation--intermodalism

CHAPTER V

INTERMODALISM--THE "UZKOYE MESTO"

"Uzkoye mesto"--literally, a narrow place--refers to bottlenecks or choke points in some process. The term is often applied to interaction between freight carriers, or intermodalism. Since this type of interaction is, in fact, a precondition for efficient and effective Soviet economic activity, being the "synthesis" of the economic dialectic which will allow the dictatorship of the workers' firm grasp on economic controls to be loosened, it may be seen as a critical indicator of how the Soviets are progressing towards their dialectical goal.

Let's begin with an example of perfect intermodalism, from American experience. A large U.S. automotive manufacturer receives regional new car orders on a weekly basis. These are fed into a computer, which accumulates a period's manufacturing capacity for a given factory, disaggregates the collective orders into component parts (so many stereo radios, vinyl tops, radial tires, air conditioners, body parts, etc.) which are transmitted to subcontractors for filling. These orders specify quantities and arrival times at the factory. Based on prior arrangements, goods delivery is guaranteed within a narrow time horizon. Subcontractors ship components in containers by the quickest and least expensive means which will ensure arrival on the

specified date. The containers arrive on time and are moved directly to the assembly line, where parts are soon placed directly on the moving automotive chassis. This process operates continuously, so that the next container of parts will be ready to replace an empty--keeping the rhythmic process going.

The advantages of this sort of optimal scheme are several. The most appropriate means of transportation can be chosen, with the shipper able to balance transportation time and cost in an acceptable ratio. Container shipment reduces handling and exposure to breakage and pilferage to a minimum. Scheduling the container delivery to coincide with product requirements on the assembly line eliminates the need for warehousing and at least two handling requirements (transferring goods from containers into warehouse storage and out of warehouse storage onto the production line). Transportation equipment, especially the container itself, has minimum idle time.

What makes this marvelous efficiency possible in the U.S. is the ability of the manufacturer to find, by process of trial and error, subcontractors who are reliable. The subcontractor's reliability is, in turn, both a function of the profit motive and his ability to achieve reliability within his own supporting environment, an important part of which is transportation. With a wide range of transportation services and competing companies to choose from, he

has the ability to satisfy his customer's requirements. The discipline of promised loss of revenue to any of the links of the chain keeps the process operating.

Market-type economies contain this microeconomic efficiency as an integral part of their nature. The vulnerability of their potential is the uncertainty of a marketplace which relies heavily on regulation by supply and demand. The automotive industry, for instance, may produce 10 million cars each year but be faced with substantial uncertainty as to whether these will be sold should there be a fuel shortage.

Command economies, by stipulating outputs to match planned demands, can remove much of this type of uncertainty through pervasive controls. The effects of an oil shortage can thus be blunted, prices for cars adjusted, and the economic environment generally manipulated as necessary. On the other hand, because the market does not provide alternate sources of supply and services, the type of optimal microeconomic management described above is extremely difficult, some say impossible, to achieve. Rather than depending on potential loss of revenue to maintain discipline, these systems must depend on exacting instructions from the center to the subcontractor, transportation carriers and manufacturer, and the conscientious and competent manner in which those instructions are followed.

A ubiquitous series of individual and institutional conflicts was described earlier in this paper. Summarized, they were communist vs noncommunist, good (ideologically strong) vs bad (departmentalist and regionalist) communist, peasant vs worker vs intelligentsia, everyone vs bureaucrats, CPSU vs Council of Ministers vs ministries vs enterprises, and, in the transportation sector, maritime vs rail, truck-river vs rail, and shipper vs consignee (or enterprise vs enterprise).

The reason for these conflicts is not ideological, but practical. Each level of conflict, each unit of the struggle, is attempting to fulfill its plan, to follow its instructions as best it can. Unfortunately, the instructions are often contradictory, leading to parochialism and the "kto-kogo"--who's doing what to whom--characterization.

While this conflict is an integral part of the dialectical process, which was explained as being actually encouraged through the public compliance apparatus, it is a serious stumbling block for Soviet economic enterprise. The problem rests on the fact that the central management finds it difficult to issue instructions with sufficient detail to eliminate distortions and is unwilling to delegate decision authority down to the level where such detailed instructions can be made. The following almost trite example concerning plate glass manufacture is illustrative.

The ministry responsible for plate glass manufacture will be given an output requirement from Gosplan in one of two measures--tons or square meters. These plans are distributed to producing enterprises in appropriate proportions. Factory managers must meet their plans. If the output is specified in tons, very likely thick glass will be made to allow plan fulfillment in the shortest time, as a hedge against uncertainty. Likewise, if the plan calls for square meters, output is likely to be as thin as possible for the same reason. These managers are following their instructions carefully, even though the output is apt to be undesirable to its users.

One way out of this situation is for the center to order specific sizes from the ministry. This would require detailed reporting of specific requirements on a national level which for a single commodity might equal Gosplan's entire workload. Applying this method to each of the two million items on the Soviet price lists makes it a clearly impossible solution. The other solution is to delegate decision authority regarding mix to the level (ministry, regional, or even factory) where those specific requirements can be known and are on a manageable scale. The Soviets are unable to do the first and presently unwilling to do the second. Management is therefore cast into what appears to be the inevitable continuation of the enumerated conflicts.

The various freight-carrying modes are parochial in two ways. The first concerns their requirements to fulfill plan indicators, be they ton-mile, profit, labor productivity, or whatever. The second is the tendency to overinflate the importance of a given mode by concentration on capability with less consideration given to limitations. This is the so-called "evil" of departmentalism.

Gosplan recognizes these tendencies and attempts to combat them through elaborately devised plan indicators. It specifies to the transport ministries the amounts of traffic which must be carried in intermodal operations and stipulates freight rates (higher for short-distance travel by rail or lower for mixed-mode movement of bulk commodities, for instance) in an effort to escape them. Invariably, however, these instructions can't be sufficiently detailed to avoid the type of distortion exemplified in the plate glass case.

This situation is further complicated by the fact that the Soviet economy is a seller's market. With sole-source procurement institutionalized, customers have little or no leverage on their suppliers. This is particularly true in the transport sector, where shippers and consignees are more or less at the mercy of the carriers.

Shippers on any mode must give prior notification of intent to ship, receive delivery instructions, document the shipment, deliver it to the origin station or port, and

pay charges to the destination station or port of the original transport mode. The consignee must arrange for transportation from that point to his warehouse and pay the second part of the charges. The consignee usually has no say in how his freight is routed and is obligated to pay whatever charges accumulate during that part of the travel which is his responsibility. The first difficulty with this system, therefore, is that there is little incentive for the least expensive (or most efficient) route to be chosen, since the customer arranging for the transportation is obligated to pay only part of the charges. This system can also be inefficient for smaller enterprises which are required to divert labor for nonroutine movement of cargo to and from transportation facilities.

Forwarding (transportation agencies) services are available at larger rail stations and at major sea and river ports and may represent shippers and consignees, performing these duties for them. They operate with usual efficiency and are a valued part of the transportation process. What makes them remarkable is their subordination to the various transport mode organizations. The obvious problem with this arrangement is that it will no more favor intermodal transportation than the transport mode administrations themselves.

The Series I container has lessened the tolerability of these cumulative situations. The rail ministry is under

increasing pressure from the maritime ministry to improve intermodal Series I container movements. The other modes, river and truck, lack the power bases of the rail and maritime ministries but are increasingly vocal about intermodal problems. Snapshots of each mode's case taken from recent journal articles will demonstrate some of the difficulties.

An editorial in Railroad Transport[36] which appeared in February, 1978, begins dialectically with the statement that within the Soviet Union ". . . has been created and functions a single planned developed transport system where all modes of transport are closely coordinated and complement each other in a single national complex." Remember, this is the dialectic synthesis. Next come the problems. They include logjams at rail-ocean interchanges caused by poor planning. The author describes a situation where inaccurate forecasting caused rail cars, trucks and ships to arrive at the wrong time, causing serious delays. Similar planning errors were held responsible for a situation where 24 million tons of cargo were forecast for truck transport and the actual amount was four times the forecast! Conditions remained chaotic as a result for an entire year. Lack of uniformity in forms and procedures for use of rail cars at various mode interchanges was highlighted. Short rail trips (of less than 60 miles) were said to have cost the Government over 500 million rubles during the 9th Five-Year Plan. The railroads were shown to have carried over

30 million tons of bulk cargoes during that period over routes parallel to rivers, which could have carried them more cheaply. Finally, the author points out that there are 4600 rail stations in the Russian Republic, 3700 of which are too small to be mechanized and many of which should be eliminated in the name of economy.

Another article from Automotive Transport[37] also begins with obligatory good news. It brags that in the previous three-year period over 1.1 million tons of cargo were transferred from short rail haul to trucks, freeing some 50,000 rail cars for other purposes and lowering costs by 300,000 rubles. The author continues to complain that the use of short rail hauls continues and cites examples of how trips of less than 30 miles by rail can take up to five days, and require multiple rehandlings and expensive in-transit warehousing, when direct truck transport is possible in a matter of hours with none of the added expense. He explains that this is not only the result of irresponsible transportation management but that high truck rates, lack of truck servicing (loading docks, mechanical handling equipment) facilities, poor highways, and lack of trucks themselves are also to blame.

Water Transport[38] reports that river container transport is declining despite large potential cost savings. Reasons cited include shortages of containers which cause less tonnage to be carried, in turn causing ships to be

taken from the lines in a vicious circle. The next example is even more extreme. Containers delivered to river ports in the months of September and October are subject to being caught there by ice, forcing them to remain through April. April movement plans are therefore extra large in consideration for the frustrated containers and the normal monthly quotas. Since there is a likelihood of underfulfilling the April plan, railroads attempt to overfulfill the September and October plans to compensate. This, in turn, aggravates the original situation in another vicious circle.

These articles represent only a sampling of the microeconomic ills that plague the Soviet transportation system. Economists have calculated that a one percent reduction in transportation operating costs on the national level will yield 350 million rubles savings per year.[39] The resource savings potentials represented by solutions to these microeconomic problems are enormous. More important, the costs of not solving the problems will increase as Series I container use increases, in a fairly direct ratio.

CHAPTER VI

AN ANSWER?

Leonid Brezhnev, speaking before the 18th Young Communist League Congress on 25 April 1978, made the following statement:

> Concerning transportation, we must here mention the valuable initiatives of the people of Leningrad, the experiences of the working society of sailors, railroaders, truck drivers and river transporters in the Leningrad transportation network. (applause)[40]

When this reference appeared a year ago it did not seem extraordinary. Leningrad is the center of maritime container activity and a major link in the Japan-Europe route. The major force of this remark, which was one of thousands made in the speech, was felt only the following August when the Economic Gazette, a weekly published by the Central Committee of the CPSU, appeared with its pullout supplement (a regular feature) bearing the title "Working Society of Transporters--The experience of complex interbranch competition by the (workers') collective of the Leningrad transportation network."[41] Apparently the Party had committed itself to speeding the resolution of the intermodal dialectic!

Thus began, at the CPSU level, a campaign to solve the microeconomic problems which were plaguing transportation interactions in general and the movement of Series I containers in particular. It will be useful at this point to

go over the articles in this supplement one by one, looking at what is said and, as importantly, by whom.

The leading article was written by K. S. Simonov, Director of the Department of Transport and Communications of the CPSU Central Committee. He first indicated the scope of the problem by stating that the 17 million transport workers in the country would have to join the workers in all other spheres of Soviet activity to improve transportation services. Quoting Brezhnev's remarks to the Young Communists, he stated that the country should follow the example set by the Leningraders to improve coordination between mixed modes of transport at junctions and at transportation interchanges. In Leningrad, he said, under the direction of the district Party organization (emphasis added), a new, more progressive form of work had been introduced which coordinated the efforts of sailors, railroaders, river and truck workers in an "uninterrupted schedule" on the basis of a single technological process. This allowed the increase in effective use of rail cars, ships, and trucks and the lowering of costs to the national economy for transport of cargo, while insuring a distinct rhythm in the transportation conveyor.

What this introduction hinted at was nothing short of revolutionary, for it spoke of decentralization. Simonov stated that the Leningrad experiment fully complied with the intentions of the Party's December Plenum of the Central

Committee and indicated that similar programs had been introduced at Odessa, Vladivostok, Khabarovsk, Novosibirsk, Murmansk, Arkhangelsk, and other locations.

The next article was written by V. M. Kapustin, secretary of the Leningrad City Committee of the CPSU--and therefore its most important Communist. He explained that the rail stations, Baltic Sea and north-west river port authorities, the many truck enterprises, and civil aviation moved over a million and a half tons of cargo in Leningrad every day. In order to make this process as efficient as possible, since the fourth quarter of 1977 a new form of coordinated work had been introduced.

He continued to describe the new system by offhandedly mentioning the reason for its need. Enterprises in the Leningrad transportation network, he indicated, were subordinate to various ministries and departments.

> Therefore to achieve compatible operational activity in the fulfillment of transportation plans a coordinating group was created, with the help of district and city Party organizations, composed of representatives of the October Railroad, the Baltic Sea Port and North-Western River Port Authorities, the Main Leningrad Automotive Trust, and the Leningrad office of the Soviet Foreign Trade Corporation.

The main points of the new system included a "plan schedule" of 10 days' duration or longer which contained movement and work schedules of ships, rail cars, and trucks and specified turnover times for all operations. The system

relied on automatic data processing assistance. The resulting plans became binding on all participating agencies. The coordinating group was to meet daily to consider the data provided by the network computer and make necessary adjustments. Weekly review meetings would check performance against goals and, not limiting its attention to the coordinated work of its membership, give recommendations of a general nature to any concerned enterprise and to department executives in the case of violations of the planning process.

Kapustin said that, in the nine-month experience of this new system, compared with the corresponding period in the previous year, the volume of cargo transfer was up 25%, labor productivity of longshoremen up 26%, and in-transit warehouse time for cargo had been cut a day. He also noted that direct transfers between ships and rail cars and between ships and trucks had increased 70%, with a resulting savings of 6000 rail car loadings and a three times reduction in truck dead time.

The next article was written by Boris Trunov, head of the Baltic Sea Port Authority. After mentioning that his Port had provided eight million rubles from surplus profits (most, no doubt, as a result of the Japan-Europe route, which had by then accounted for at least 20% of all movement between the two areas)[42] in the first half of the current Five-Year Plan, he stated categorically that the new

system was needed to make use of transportation capability which had been unused due to "the interference of departmental obstacles and inadequate coordination of work." He detailed the Port's part in the new process. The standard longshoreman shift (Russian word is "brigad") was the basis for augmented shifts as well as gangs ("zvena"), their manning and structure based on work requirements at the eight pier complexes in the port as set by the direction of the coordinating group. As a result, shifts were reduced from 150 to 90, a special augmented shift was created for container work which allowed all required operations to be completed the same day, and incentive payments (bonuses) were adjusted to reward work that reinforced the new "direction."

The last article to be summarized was written by the chief of the October Railroad, F. D. Ivannikov. As the representative of the mode whose lopsided primacy had necessitated introduction of the new system, he could be expected to show less enthusiasm than his fellows. The way it used to be, he explained, was that orders from the port would be received a day before the work had to be done, making it difficult to get the required rail cars there and to coordinate the requirements of other modes. Under the new system's 10-day planning cycle, it was easier to do what was required, especially to move cargo directly between ship and rail cars/trucks, avoiding requirements

for double handling. The tone of Ivannikov's article was less enthusiastic, but positive nonetheless.

References to the Leningrad example and to "UPGRTU"--"uninterrupted plan-schedule of work of transportation networks"--have become common. Articles have appeared written by Party functionaries describing the role of the Party in realizing success in the new system[43] and by economic planners weighing the possibilities of the use of the system in other areas, as have scores of articles about transportation networks all over the country which are integrating the new method into their management systems.

This new system of decentralized control, while in its infancy, could very well become the basis for fundamental changes in the direction of other forms of economic management. It is a clearly enunciated recognition of the problems associated with inadequate horizontal integration. If the planning milestones of ministries and enterprises can be routinely changed at the lower levels of activity by a coordinating group of related enterprises that are under different subordinations, the Soviets will have taken a giant step towards solving their microeconomic difficulties. Only time will tell how effective this new method will prove.

If the introduction of the Series I container played a role in sharpening the dialectical contradictions to a point where such revolutionary change became necessary,

then mention must be made of a complementary catalyst of that same process--computers. The new system of "uninterrupted plan-schedule" relies heavily on computers to collate and analyze the large amounts of information. Such a job could not be done manually.

Computers are widely used in the Soviet transportation system. While generally older and less efficient than U.S. models,[44] the Soviet machines are in place throughout the entire system of 26 railroads, at the river and maritime ministry levels, and are used to coordinate CEMA transportation movements between the Soviet Union and Eastern Europe.

There is one deceptive fact about computers that usually escapes the neophyte. Hardware, referring to the computer itself, whatever its generation, represents a mechanical capability--to store pieces of information, to process them with varying levels of efficiency, to interface with other computers, or a range of other "operations." Computer hardware is a unique technological achievement in that it has shown a tendency to vary in price <u>inversely</u> with respect to increases in capability. This means that a computer that can do ten times more than its predecessor is likely to cost ten times less than that older model did. This process continues and, with the advent of "bubble" and other high-density memory storage techniques, the huge computers of the past will literally be reduced to suitcase size and be generally available to anyone who needs their applications.

Computer software refers to the sets of instructions that cause the machines to be productive. While advances in programming have simplified and made software development less expensive, it is still time- and labor-intensive. The Soviets are certainly behind the rest of the developed world in hardware, but they are able to devote time and human resources to software development in amounts that we might find staggering.

One article which appeared recently described the planned system of computer use on the railroads in several phases, with a very interesting final result.[45] The first phase saw introduction of computers at the rail ministry center, connected with the 26 rail administrations, and thence to the 167 separate railroads and their larger stations. These were to be used for optimal route planning, accounting operations, and other tasks. The second phase was introduction of a Japanese system to track Series I containers on the Japan-Europe route, one of the Soviet contractual responsibilities in that commerce. The third would be the integration of Soviet Series I and Series III (remember, there are a million of those) into the tracking system and the integration of the various computer systems of the different transport modes. The final phase would be the integration of the system with those of major industrial ministries and their enterprises. The first two phases of this program are in operation.

The "synthesis" of this dialectic process is a model similar to that described earlier concerning the "perfect" intermodalism of an American automotive manufacturer. There are increasing numbers of articles in Soviet transportation journals on the subject of industrial transportation, which would be the final link in the achievement of the "synthesis." There are major difficulties in that sector, the most considerable concerning packaging. The Soviets do not generally package their industrial production. It is more often shipped loose than not. Cement, for instance, is frequently shipped in open gondola cars and trucks, with large losses to the wind and rain.

There are good indications that the 11th Five-Year Plan (1981-1985) will stress packaging and industrial transport in general. One recent book[46] on the subject notes that the use of packages is similar to that of freight containers, both amenable to tracking by computers. The author of this book took the "synthesis" even further and postulated a system where goods would be placed on the "transportation conveyor," tracked by computer, and directed to the point of demand automatically.

The hardware to support a requirement of that magnitude does not yet exist. Soviet research institutes are nonetheless preparing the logic for such a system and are developing the software in a piecemeal fashion to enable the eventual creation of a "single technological process."

Nowhere in the articles which describe these research and development efforts are signs of distrust by the Soviet leadership. Stalin disdained cybernetics, as did Khrushchev for some time. Brezhnev and his followers will depend on it.

CHAPTER VII

SUMMING UP

My paper has presented a detailed look at the development of a problem for the Soviet economy and the measures that the Soviet government was able to apply to its solution. My purpose in writing the paper was as much to "desimplify" reality as to discuss intermodalism. As my allusion to The Lady of Shallot in the paper's introduction pointed out, there can be great danger in living with simplified (copies of copies of) reality.

The Soviets are first of all dialectic thinkers. The most important fact of this characteristic is that they are necessarily future oriented, believing in the inevitability of the synthesis--the better way. This I call the power of positive thinking, Soviet style. Of course, being dialectic thinkers, they also tend to be Communists--the ultimate dialectic synthesis.

The Soviets are, secondly, interactive planners. Because of their command economy and the tool of centralized pluralism, long-range and five-year plans tie all economic activity together into an "uninterrupted plan-schedule" of the national economy. The macroeconomic strength of such a system is the obvious one of reduced uncertainty concerning the future. The microeconomic weaknesses are results of the near impossibility to carry such a process rationally

to the lower levels of activity. That they are trying is evidenced by the introduction of "uninterrupted plan-schedules" in transportation networks with corresponding delegation of decision authority to lower levels, which appears unprecedented in peacetime.

The Soviets are, thirdly, opportunistic integrators. When the Japan-Europe route changed the material balances which defined their ability to introduce the Series I container, that introduction was expedited. To give them credit for premeditation in this regard, or for premeditation in the "economic warfare" they are charged with conducting in the Western maritime trades, is to paint them a true 10 feet tall--a frightening and unrealistic specter indeed.

Fourthly, the Soviets are a specialized society. Education is not eclectic and math students remain largely as ignorant of literature as do literature students of math. As a result, Soviets more narrowly follow the essence of their professions than do Westerners. Technical colleges, research institutes, and the ample funds that support them lead to exhaustive studies of multitudes of problems from every conceivable viewpoint. Readers needing proof of this are invited to look into the Letopis Zhurnalnykh Statey--the List of Magazine Articles (found in larger U.S. libraries) under any subject and read the titles of these studies

which emanate from Gosplan's institutes and those of the ministries and colleges.

Finally, the Soviets are managers by exception. This is a requirement of scale. It is difficult for us to conceive of that scale, and only by considering what would be involved if our President and his Cabinet were suddenly charged with running all of the industrial, construction, farming, and service organizations of the country in addition to the country itself can a rough idea be gained. In this respect the Soviet government is conducting a form of critical path analysis, in which it hopes that the setting right of exceptional problems will lead to more general improvements.

The combination of all of these characteristics makes the Soviet Union a very unique and powerful competitor. The question then becomes: How to compete with them? Not by remaining in castle keeps, looking at them through mirrors, certainly. Not by any method which fails to consider all Soviet collected strengths and weaknesses will meaningful competition be able to be enjoined. The only possible result of such nearsightedness must be conflict.

The alternatives, unfortunately, are equally unsettling. If we can no longer ignore this nation which is three times the size of our own, has the raw materials which we lack with increasing discomfort, and maintains an armed force that alone can challenge us, what is to be done?

How can we change the attitudes and opinions of three generations?

Part of the answer, I feel, lies in our ability to understand and use the dialectic process. We cannot possibly compete with the Soviets unless we are able (and willing) to realistically identify their goals. At the beginning of every Soviet policy there is a thesis which is being negated. We must be able to understand that the negation is not an end in itself. Neither the buildup of the merchant marine nor strategic nuclear arsenals is a Soviet end in itself. Both negate situations the Soviets would like changed--Western control of shipping and doctrines of assured destruction--and seek the negation not as the end but, rather, look beyond for the negation of the negation. This sounds much like Major Major Major in Joseph Heller's Catch-22, and in a way it carries a similar message. It is important to understand, nonetheless.

There are really only two ways to deal with the dialectic. The first is the traditional Western method--ignore it. This can be effective as demonstrated in Berlin in 1948 and in Cuba in 1962. The Soviets will abandon policies when costs are too high. The major ally of this strategy is time. We have played the waiting game on the assured destruction question for 30 years. The costs of using this method are usually quite high for both sides.

The second way to deal with the dialectic is to find an acceptable synthesis--the step after the Soviet policy--and expedite it. This "giving in" can be accomplished more quickly than the Soviets can adjust to it, and the dialectic can be turned against them. In the case of Soviet maritime trade, for instance, had they been given immediate shares in conference pools when they sought them in 1969, and obliged to sign agreements which would have limited increases in these shares to a reasonable level, the extent of their merchant marine buildup might have been lessened. In fact, it was strengthened and the problem is now beyond that sort of solution.

Some problems demand that the dialectic be ignored; others should consider it. By limiting ourselves to one trick in our bag, we can only dull the competitive edge and consign ourselves to long, expensive processes. It is this wearing-down process that Khrushchev was referring to when he said, "We will bury you!"

NOTES

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4. Alec Nove, The Soviet Economic System (London: Allen and Unwin, 1978), p. 39.

5. Jon S. Adams, Citizen Inspectors in the Soviet Union (New York: Praeger, 1977), p. 139.

6. Ibid., p. 136.

7. Transport i Svyazi SSSR--Statistichesky Sbornik (Moscow: 1972), p. 8.

8. Ibid., p. 109. Lists 1.997 million workers involved in transportation in 1970. Additional personnel from my own estimates, extrapolated from various sources.

9. U.S. Maritime Administration data, but the Soviets claim fifth place (I. Kovalev, "Kompleksnoe Razvitije Transporta," Tyl i Snabzhenije, January 1977, p. 75).

10. T. Guzhenko, "Politika Gosudarstv V Oblasti Sudokhodstva," Morskoy Flot, February 1979, p. 9.

11. V. Konnov, "Bklad Rabotnikov Avtomobilnogo Transporta," Avtomobilny Transport, October 1977, p. 6.

12. Ibid.

13. A. Vladimirov, "Kamaz: Tempy, Mashtaby , Effektivnost," Ekonomicheshaya Gazeta , Number 6, February 1977, p. 12.

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15. Ibid.

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17. M. D. Sitnik, Konteynernye Perevozki (Moscow: 1970), p. 47.

18. V. V. Gorizontov, Sotsialisticheskaya Integratsiya V Oblaste Transporta (Moscow: 1972), p. 46.

19. Razvitiye Zheleznodorozhnogo Transporta V Novoy Pyatiletke (Moscow: 1966), pp. 142-146.

20. From public information releases of MAT Transport AG, Basil, Switzerland, 1972.

21. D. K. Zotov, Morskoye Lineynoye Sudokhodstvo (Moscow: 1970), p. 7.

22. Ibid.

23. Nove, Soviet, p. 336.

24. Interview with S. Guins, American Association of Railroads, following his 1967 visit to the USSR.

25. V. Makarov, "Konteynerizatsiye Vneshnetorgovnikh Perevozok Stran SEV," Vneshnaya Torgovlya, January 1972, p. 14.

26. Ekonomicheskaya Gazeta, number 14, April 1971, p. 14.

27. Ibid., number 15, April 1971, p. 9.

28. "Shire Razvivat Konteynernye i Paketnye Perevozki Gruzov," Promyshleny Transport, October 1972, p. 2.

29. Gosudarstvenny Pyatiletny Plan Narodnogo Khozyaistva (Moscow: 1972), p. 78.

30. "Shire Razvivat Konteynernye i Paketnye Perevozki Gruzov," Promyshleny Transport, October 1972, p. 3.

31. Karen Prelle, Containerization in the Soviet Union (Charlottesville, VA: U.S. Army FSTC, 1975), p. 1.

32. V. A. Shkurin, "Perspektivny Tirazh Spetsialnikh Konteynerov," Promyshlenny Transport, August 1972, p. 21.

33. Gorizontov, Sotsialisticheskaya Integratsuja, p.46.

34. E. Shopa, "Sotsialisticheskaya Ekonomicheskaya Integratsiya V Oblaste Transporta," Zheleznodorozhny Transport, November 1977, pp. 15-19.

35. Interview with U.S. Embassy, Moscow, personnel in 1973.

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37. "Kompleksno Ispolzovat Zheleznodorozhny i Avtomobilny Transport," Avtomobilny Transport, December 1974, pp. 18-20.

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