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**ECONOMIC INTELLIGENCE REPORT**

**THE SHIPBUILDING INDUSTRY  
OF CZECHOSLOVAKIA**



CIA/RR 31

19 March 1954

**CENTRAL INTELLIGENCE AGENCY**

**OFFICE OF RESEARCH AND REPORTS**

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ECONOMIC INTELLIGENCE REPORT

THE SHIPBUILDING INDUSTRY OF CZECHOSLOVAKIA

CIA/RR 31

(ORR Project 35.245)

CENTRAL INTELLIGENCE AGENCY

Office of Research and Reports

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THE SHIPBUILDING INDUSTRY OF CZECHOSLOVAKIA\*

Summary and Conclusions

The shipbuilding industry of Czechoslovakia has traditionally specialized in the construction of shallow-draft vessels. The country has 6 major and 12 minor shipyards equipped with facilities that may be used for the construction of self-propelled and non-self-propelled vessels. Shallow river depths provide a natural barrier to the construction of large ocean-going vessels.

Production by this industry constitutes only a minor part of the gross national product of Czechoslovakia. Of more importance is the fact that the industry contributes, in small manner, to the economy of the USSR by providing it with river vessels and by freeing facilities in that country for other uses.

Since the domination of Czechoslovakia by the USSR in 1948, the shipbuilding industry has produced for the USSR a series of barges, ocean-going tugs, river passenger vessels, and suction dredges.

The estimated production rate of the shipbuilding industry of Czechoslovakia is as follows:

<u>Production</u>	<u>Gross Registered Tons (GRT)**</u>
1948	14,400 (including self-propelled and non-self-propelled vessels)
1952	17,000 (including self-propelled and non-self-propelled vessels)
1953	25,500 (including self-propelled and non-self-propelled vessels)
Maximum Capabilities (one shift)	30,400 (self-propelled vessels only) or 66,600 (non-self-propelled vessels only)

\* The estimates and conclusions contained in this report represent the best judgment of the responsible analyst as of 15 February 1954.

\*\* One GRT equals 100 cubic feet of permanently enclosed space: that is, hull, deckhouses, and so forth.

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In 1948 and in 1952, approximately 50 percent of the production was exported to the USSR, an amount equivalent to 3 percent of Soviet production of river vessels. It is estimated that production for the USSR in 1953 has increased to about 80 percent, an amount equivalent to 7 percent of estimated Soviet production of river vessels.

The shipbuilding industry of Czechoslovakia is considered self-sufficient in the production of ship components and in labor and services but is dependent upon the import of copper and aluminum. The consumption of material resources, electric power, and transportation by the industry is negligible in relation to national supply. Less than 1 percent of the industrial labor force of the country is employed in the industry.

The shipbuilding industry of Czechoslovakia is indirectly vulnerable to copper and aluminum shortages and directly vulnerable to strategic bombing, as nearly 80 percent of the country's production capacity is concentrated in two cities, Komarno and Prague.

---

I. Introduction.

1. General Description.\*

The shipbuilding industry\*\* of Czechoslovakia is now, and has been since its inception, engaged in the construction and repair of self-propelled and non-self-propelled river vessels such as motorboats, tugs, barges, dredges, and passenger vessels. Since World War II it has also constructed some small ocean-going tugs.

The industry possesses the necessary shipyard facilities, is adequately supplied by indigenous production of ship components, is technically proficient, and has no labor shortage.

\* See Appendix A for a detailed description which may be applied to the shipbuilding industry in any country.

\*\* For the purposes of this report, the shipbuilding industry does not include production of ship components. 1/ [redacted]

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Because of the geographic position of Czechoslovakia, the shipyards that comprise the industry are inland yards located on rivers. As a result, the industry has specialized in construction and repair of river vessels. Standard practices and methods that are used in other nations doing similar work are used in the Czechoslovak shipbuilding industry.

The economic factors that affect the shipbuilding industry, such as materials, labor, and transportation, are insignificant in relation to the national supply, with the possible exception of copper and aluminum.

2. Importance.

Although the shipbuilding industry of Czechoslovakia occupies a minor position in the national economy, it does fulfill two distinct functions, as follows:

- a. Construction and repair of vessels for the expanding Czechoslovak river fleet.
- b. Construction of vessels for the Soviet river fleet.

About 4 percent of Czechoslovakia's internal trade and about 15 percent of that country's external trade are carried by the river fleet. 2/ The estimated size of this fleet from pre-World War II to the present is given in Table 1.\*

By producing river vessels for the USSR, the shipbuilding industry of Czechoslovakia augments the Soviet Fifth Five Year Plan (1951-55) and reduces a proportionate amount of pressure on Soviet shipyards. In 1952 the Czechoslovak shipbuilding industry produced 8,500 GRT for the USSR, or an amount equal to 3 percent of Soviet production of river vessels. In 1953 it is estimated that production for the USSR was 20,400 GRT, or an amount equal to 7 percent of estimated Soviet production of river vessels. 3/

3. History.

Czechoslovak shipyards have long possessed technical proficiency in constructing river vessels. Construction is limited to river vessels and ocean-going tugs because shallow river depths

\* Table 1 follows on p. 4.

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Table 1

Size of the River Fleet in Czechoslovakia  
Selected Years, 1938-53

<u>Year</u>	<u>Number of Vessels</u>		
	<u>Barges</u>	<u>Tugs</u>	<u>Estimated GRT</u>
1938 <u>4/</u>	541	74 <u>a/</u>	246,000
1945 <u>5/</u>	306	42 <u>a/</u>	139,200
1948 <u>6/</u>	420	49	187,600
1949 <u>7/</u>	458	49	202,800
1953 <u>8/</u>	495	61	222,400

a. Estimated at 12 percent of the total fleet, paralleling the years 1948, 1949, and 1953. (See Appendix C.)

preclude construction of large ocean-going vessels.

During World War II the facilities of most Czechoslovak shipyards were used for the construction of assault boats and pontoons for the German Army. 9/ As a result, construction and repair of vessels for the river fleet was neglected.

At the end of World War II, nearly one-half of the Czechoslovak river fleet had been taken over by the Germans or was sunk or seriously damaged. The ships that remained after the war were overhauled, and new construction was begun. 10/

The Two Year Plan (1947-48) called for putting into service 45 new barges and 4 tugs and for reconditioning the river vessels that were damaged or allowed to fall into disrepair as a result of World War II. Also, during this period, construction of Komarno Shipyard No. 2 (new Skoda Yard), 11/ which was to become the most important shipyard in Czechoslovakia, was begun.

During the Czechoslovak Five Year Plan (1949-53) the shipbuilding industry received an added stimulus with the introduction

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of Soviet technical and supervisory personnel into certain shipyards. In 1952, Komarno Shipyard No. 2 began construction of barges, ocean-going tugs, and river passenger vessels for the USSR, and, in 1953, Liben Shipyard began construction of large suction dredges for use on the canal and river systems of the USSR.

4. Organization.

The shipbuilding industry of Czechoslovakia is under the Ministry of Engineering, which was formed by a merger of the former Ministries of Heavy Engineering and General Engineering. 12/ This merger was accomplished on 15 September 1953, when the reorganization of the government brought the Czechoslovak cabinet structure in line with that of the USSR as it was developed following the death of Stalin. 13/

Under the Ministry of Engineering is the Evika National Corporation, which is the central planning office for the construction of railroad cars and ships. It is located in Prague and has 120 employees in the ship section. 14/

The Soviet Trade Delegation in Czechoslovakia 15/ is assumed to be on a parallel organizational level with the Evika National Corporation, and it is believed that this delegation has inspection and control duties in regard to production of vessels for the USSR.

Most of the major shipyards and some minor shipyards are under the control of either the Main Administration for CKD (Ceskomoravska Kolben Danek -- Czechoslovak National Corporation) or the Main Administration for Skoda. 16/ Other minor shipyards are assumed to be organized as part of either CSPLO (Ceskoslovenska Plavebni Labsko-Oder -- Czechoslovak Elbe-Oder Navigation Company) or CSDP (Ceskoslovenska Dujanska Plavba -- Czechoslovak Danube Navigation Company).

In addition to the listed government controls, certain shipyards which work almost exclusively for the USSR are under the direct supervision of Soviet engineers and technicians. 17/

The accompanying organization chart (Fig. 1)\* shows the tentative organization of the Czechoslovak shipbuilding industry as of 15 September 1953.

\* Following p. 6.

S-E-C-R-E-TII. Facilities.

The greater number of Czechoslovak shipyards are located in the northwest section of the country (see the accompanying map\*), but the most important shipyard, Komarno Shipyard No. 2, is located in the extreme south-central part of the country on the Danube River.

Shipbuilding, including construction and repair, is undertaken in 6 major shipyards and 12 minor shipyards. These yards and their coordinates are given in Table 2.

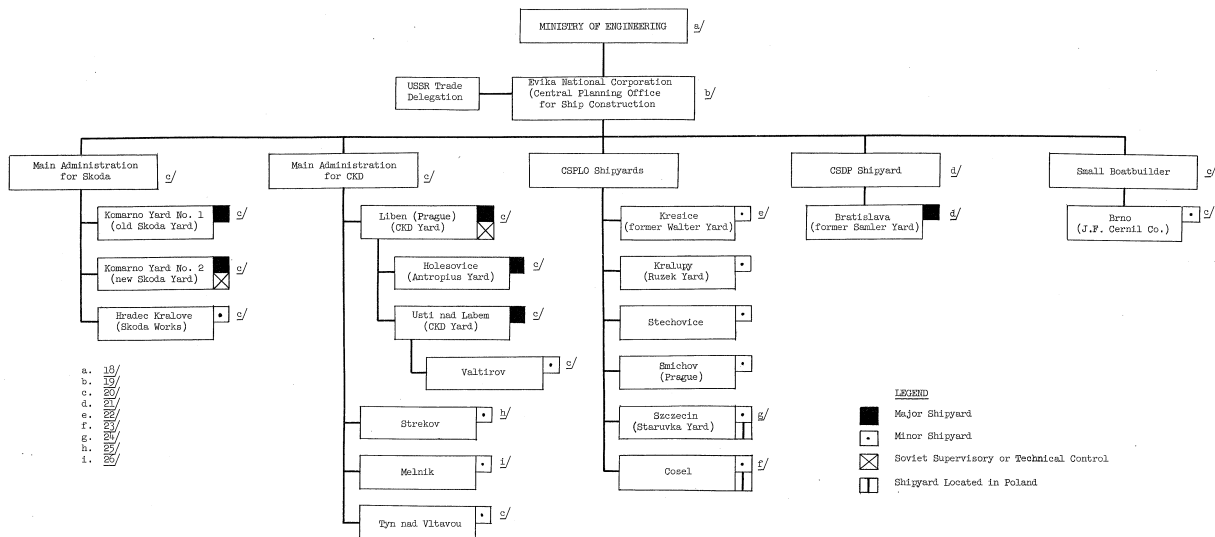
Table 2  
Shipyards in Czechoslovakia  
1953

<u>Major Shipyards</u>	<u>Coordinates</u>		<u>Minor Shipyards</u>	<u>Coordinates</u>	
	<u>North</u>	<u>East</u>		<u>North</u>	<u>East</u>
Bratislava (Former Samler Yard)	48°09'	17°07'	Brno (J.F. Cernil Co.)	49°12'	16°38'
Holesovice (Prague) (Antropius Yard)	50°05'	14°27'	Cosel (Poland)	50°20'	18°10'
Komarno Yard No. 1 (Old Skoda Yard)	47°46'	18°08'	Hradec Kralove (Skoda Works)	50°13'	15°50'
Komarno Yard No. 2 (New Skoda Yard)	47°46'	18°08'	Kralupy (Ruzek Yard)	50°14'	14°19'
Liben (Prague) (CKD Yard)	50°05'	14°28'	Kresice (Former J. Walter Yard)	50°25'	14°27'
Usti nad Labem (CKD Yard)	50°40'	14°02'	Melnik	50°21'	14°29'
			Smichov (Prague)	50°04'	14°27'
			Stechovice	49°51'	14°24'
			Strekov	50°39'	14°04'
			Stettin (Poland) (Staruvka Yard)	53°25'	14°35'
			Tyn nad Vltavou	49°14'	14°25'
			Valtirov	50°30'	14°08'

\* Following p. 40.

FIGURE 1. Tentative Organization of the Czechoslovak Shipbuilding Industry  
1 January 1954

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It will be noted from Table 2 that two minor shipyards are actually located in Poland. These yards are for minor repairs needed by Czechoslovak vessels while in Polish territory.

Appendix B includes detailed descriptions and layouts of the major shipyards and available information pertaining to the minor shipyards.

III. Production.1. Past and Present.

The past production of the Czechoslovak shipbuilding industry has been self-propelled and non-self-propelled barges, river tugs, and small river passenger vessels. The latter types were built with a barge-type hull.

[redacted] Komarno Shipyard No. 2 is now building hospital ships for the USSR. These vessels are possibly of a river type that is used in the USSR and referred to by the Soviet maritime press as a floating sanitarium or a floating rest camp for workers.

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Table 3\* gives type, size, and estimated GRT of vessels built in Czechoslovak shipyards up to January 1954. In 1948, production of the industry amounted to about 14,000 GRT (see Table 4).\*\* The current production of the Czechoslovak shipbuilding industry consists of self-propelled and non-self-propelled barges, river tugs, ocean-going tugs, suction dredges, pontoons, antiaircraft artillery boats, and river passenger vessels.\*\*\* Production during 1952 was about 17,000 GRT and during 1953, about 25,000 GRT.

2. Future.

Some information is available regarding the future construction plans for Komarno Shipyard No. 2 and Liben Shipyard, the two yards in which the USSR has evinced the most interest. Since Komarno Shipyard No. 2 is the newest, largest, and most productive

\* Table 3 follows on p. 8.

\*\* Table 4 follows on p. 10.

\*\*\* Photographs (Figs. 2 and 3) of the first river passenger vessel built in Komarno Shipyard No. 2 (new Skoda Yard) follow p. 8.

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Table 3

Type, Size, and Estimated GRT of Vessels Built in Shipyards in Czechoslovakia up to January 1954

Type	Length (Feet)	Breadth (Feet)	Depth (Feet)	Estimated GRT <u>a/</u>
River Passenger Vessel <u>28/</u>	261.6	32.7	9.8	1,200
Ocean-Going Tug <u>29/</u>	160.2	29.4	8.8 <u>b/</u>	300
Suction Dredge <u>30/</u>	317.2	29.4	N.A.	1,350
Self-Propelled Barge <u>c/</u>	219.1	26.2	7.9	400
Non-Self-Propelled Barge <u>c/ 31/</u>	219.1	26.2	7.9	400
River Tug <u>c/</u>	219.1	26.2	7.9	400
Antiaircraft Artillery Boat <u>c/ 32/</u>	219.1	26.2	7.9	400
Pontoon <u>33/</u>	29.4	N.A.	N.A.	Negligible

a. See Appendix C for the method of determining GRT.

b. Estimated: average of other types.

c. The hulls of self-propelled and non-self-propelled barges, river tugs, and antiaircraft artillery boats are similar in dimensions and structure.



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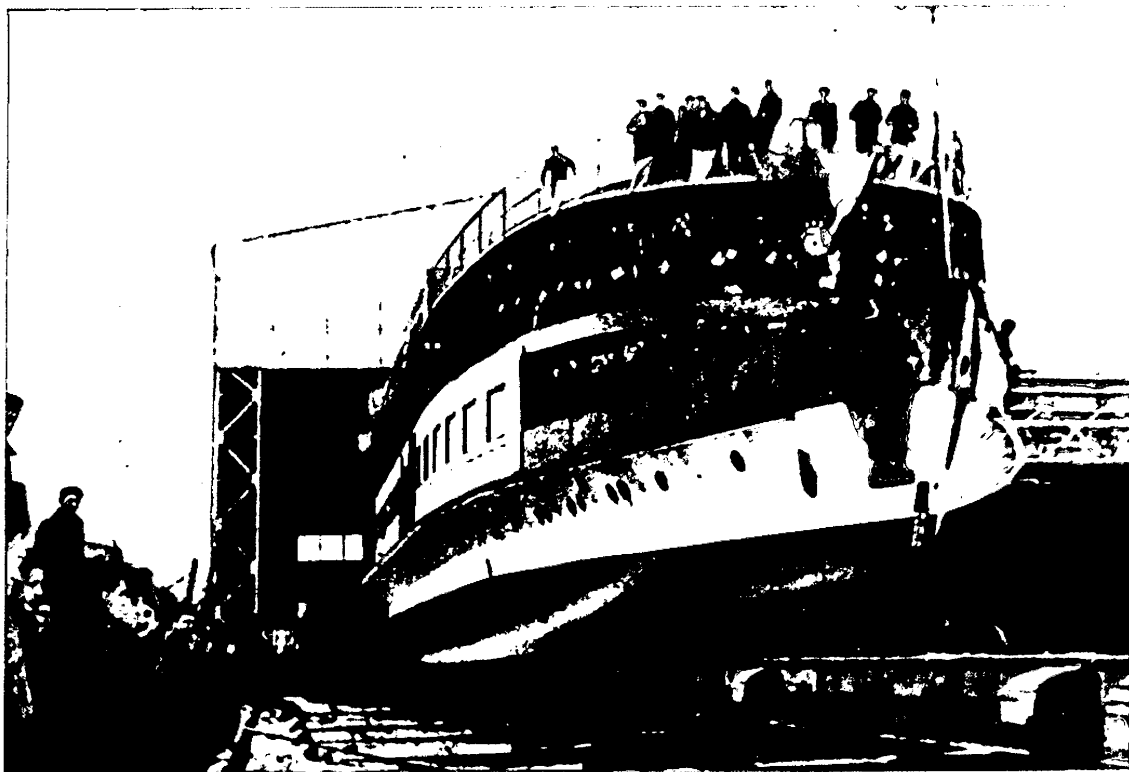


FIGURE 2. The First River Passenger Vessel Built at Komarno Shipyard No. 2 (New Skoda Yard) for the USSR, the Rossiia, Shown on the Ways in Front of the Hull Assembly Shop.

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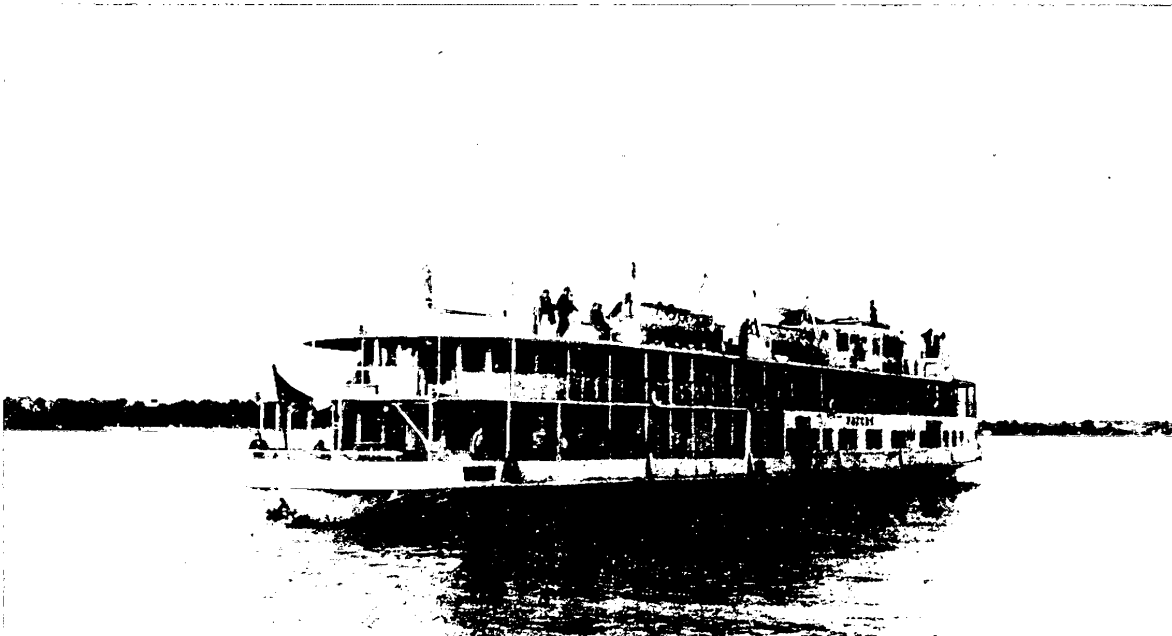


FIGURE 3. Another View of the Rossiya on the Danube River. The vessel has diesel-electric propulsion and accommodations for about 300 passengers

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in Czechoslovakia, it is concluded that the Russians will continue to control its production to further their own ends. The next phase of production at Komarno Shipyard No. 2 reportedly will be hospital ships and then gunboats. 34/ Liben Shipyard has orders for the construction of 25 suction dredges for the USSR. 35/ At an estimated production rate of six per year, these orders would keep the yard busy for the period 1953-56.

Finally, it is reported that existing shipyards in Czechoslovakia are booked far ahead and that new yards are being planned. 36/

### 3. Maximum Capabilities.

#### a. Merchant Vessels.

The maximum production capabilities of the Czechoslovak shipbuilding industry are estimated to be 30,400 GRT per year of self-propelled vessels or 66,600 GRT per year of non-self-propelled vessels. (See Table 5.)\*

#### b. Naval Vessels.

Although facilities in Czechoslovakia will permit the construction of small naval patrol vessels and submarine sections, no such vessels or sections are known to have been built 37/ or to be planned to be built.

## IV. Input Requirements.

### 1. Materials.

The major input required for the shipbuilding industry is steel, of which little more than 1 percent, or 34,000 metric tons, of the total national production would be used in maximum production of self-propelled vessels. (See Tables 6 and 7.)\*\*

### 2. Electric Power.

The electric power requirements for maximum production of self-propelled vessels is 27 million kilowatt-hours (kwh). This

\* Table 5 follows on p. 12.

\*\* Table 6 follows on p. 13; Table 7, on p. 14.

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Table 4

Production Statistics of Shipyards in Czechoslovakia a/\*  
1948, 1952, and 1953

	<u>Reported Employees</u>	<u>Employees on New Construction</u>	<u>Type of Production</u>	<u>GRT per Employee</u>	<u>GRT per Year</u>
1948					
Bratislava (Former Samler Yard)	300 <u>38/</u>	Not Applicable	Repair <u>39/</u>	N.A.	N.A.
Holesovice (Antropius Yard)	150 <u>b/</u>	150	NSP <u>c/ 40/</u>	10.7	1,600 <u>b/</u>
Komarno Yard No. 1 (Old Skoda Yard)	860 <u>41/</u>	860	SP and NSP <u>42/</u>	12.6	10,800 <u>43/</u>
Komarno Yard No. 2 (New Skoda Yard) <u>d/</u>					
Liben (CKD Yard)	300 <u>45/</u>	300	SP <u>46/</u>	6.6	2,000 <u>47/</u>
Usti nad Labem (CKD Yard)	300 <u>48/</u>	Not Applicable	Repair <u>49/</u>	N.A.	N.A.
Total Known Production					<u>14,400</u>
1952					
Bratislava (Former Samler Yard)	300 <u>b/</u>	Not Applicable	Repair <u>50/</u>	N.A.	N.A.
Holesovice (Antropius Yard)	150 <u>51/</u>	150	NSP <u>52/</u>	10.7	1,600 <u>b/</u>
Komarno Yard No. 1 (Old Skoda Yard)	N.A.	Not Applicable	Repair <u>53/</u>	N.A.	N.A.
Komarno Yard No. 2 (New Skoda Yard)	2,000 <u>54/</u>	2,000	SP <u>55/</u>	4.3	8,600 <u>56/</u>
Liben (CKD Yard)	400 <u>b/</u>	400	SP <u>57/</u>	7.0	2,800 <u>58/</u>
Usti nad Labem (CKD Yard)	700 <u>59/</u>	700	SP and NSP <u>60/</u>	3.4	2,400 <u>e/ 61/</u>
Total Known Production					<u>17,000 f/</u>

\* Footnotes for Table 4 follow on p. 11.

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Table 4

Production Statistics of Shipyards in Czechoslovakia a/  
1948, 1952, and 1953  
(Continued)

	<u>Reported Employees</u>	<u>Employees on New Construction</u>	<u>Type of Production</u>	<u>GRT per Employee</u>	<u>GRT per Year</u>
1953					
Bratislava (Former Samler Yard)	300 <u>62/</u>	300	NSP <u>63/</u>	10.7	3,200 <u>b/</u>
Holesovice (Antropius Yard)	150 <u>b/</u>	150	NSP <u>b/</u>	10.7	1,600 <u>b/</u>
Komarno Yard No. 1 (Old Skoda Yard)	1,400 <u>64/</u>	Not Applicable	Repair <u>b/</u>	N.A.	N.A.
Komarno Yard No. 2 (New Skoda Yard)	3,000 <u>65/</u>	3,000	SP <u>66/</u>	4.2	12,600 <u>b/</u>
Liben (CKD Yard)	600 <u>b/</u>	600	NSP <u>67/</u>	13.5	8,100 <u>b/</u>
Usti nad Labem (CKD Yard)	700 <u>68/</u>	700	NSP <u>69/</u>	N.A.	N.A.
Total Known Production					<u>25,500</u>

- a. Figures for 1948 and 1952 are reported; figures for 1953 are planned.  
b. Estimated.  
c. SP is an abbreviation for self-propelled; NSP, for non-self-propelled.  
d. Yard under construction 1947-48. 44/  
e. Yard also building pontoons, GRT of which is not included.  
f. Including 1,600 GRT from Hradec Kralove.

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Table 5

Maximum Production Capabilities of Major Shipyards in Czechoslovakia  
1954

Shipyard	Total Productive Area <sup>a/</sup> (Square Feet)	Maximum Number of Employees <sup>b/</sup>		Assuming Production of SP <sup>b/</sup> Vessels Only			Assuming Production of NSP <sup>c/</sup> Vessels Only		
		One Shift	Two Shifts	GRT per Employee <sup>d/</sup>	GRT per Year <sup>e/</sup>	Two Shifts	GRT per Employee <sup>d/</sup>	GRT per Year <sup>e/</sup>	Two Shifts
Bratislava (Former Semler Yard)	98,800 <u>70/</u>	490	610	4.9	2,400	3,000	10.7	5,200	6,500
Holesovice (Antropius Yard)	105,100 <u>71/</u>	520	650	4.9	2,500	3,200	10.7	5,600	7,000
Komarno Yard No. 1 (Old Skoda Yard)	176,950 <u>72/</u>	880	1,100	4.9	4,300	5,400	10.7	9,400	11,800
Komarno Yard No. 2 (New Skoda Yard)	444,625 <u>73/</u>	2,220	2,770	4.9	10,900	13,600	10.7	23,800	29,600
Liben (CKD Yard)	234,225 <u>74/</u>	1,170	1,460	4.9	5,700	7,200	10.7	12,500	15,600
Usti nad Labem (CKD Yard)	188,850 <u>75/</u>	940	1,170	4.9	4,600	5,700	10.7	10,100	12,500
Total		<u>6,220</u>	<u>7,760</u>		<u>30,400</u>	<u>39,700 f/</u>		<u>66,600</u>	<u>83,000</u>

a. See Appendix C for determination of productive area and employees.

b. Self-propelled vessels.

c. Non-self-propelled vessels.

d. See Appendix C for determination of GRT per employee.

e. One-shift production.

f. Including 1,600 GRT from Hradec Kralove (Skoda Works).

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Table 6

Estimated Input Requirements of the Shipbuilding Industry in Czechoslovakia a/  
1948 and 1952-53

Production (GRT)	Steel (Metric Tons)	Solid Fuel (Metric Tons)	Aluminum (Metric Tons)	Copper (Metric Tons)	Zinc (Metric Tons)	Lumber (Cubic Meters)	Electricity (Thousand Kilowatt-Hours)	Manpower (Thousand Man-Hours)
1948								
2,400 SP b/	2,700	1,100	Negligible	40	5	1,000	2,100	2,200
12,000 NSP c/	5,900	2,400	Negligible	Negligible	Negligible	2,200	4,200	3,700
Total	<u>8,600</u>	<u>3,500</u>	<u>Negligible</u>	<u>40</u>	<u>5</u>	<u>3,200</u>	<u>6,300</u>	<u>5,900</u>
1952								
15,400 SP	17,000	6,900	Negligible	200	50	6,500	14,000	14,000
1,600 NSP	800	300	Negligible	Negligible	Negligible	300	600	500
Total	<u>17,800</u>	<u>7,200</u>	<u>Negligible</u>	<u>200</u>	<u>50</u>	<u>6,800</u>	<u>14,600</u>	<u>14,500</u>
1953								
12,600 SP	14,000	5,600	Negligible	200	40	5,300	11,000	12,000
12,900 NSP	6,400	2,600	Negligible	Negligible	Negligible	2,400	4,500	4,000
Total	<u>20,400</u>	<u>8,200</u>	<u>Negligible</u>	<u>200</u>	<u>40</u>	<u>7,700</u>	<u>15,500</u>	<u>16,000</u>
Maximum d/								
30,000 SP	34,000	14,000	5	500	100	13,000	27,000	28,000
67,000 NSP	33,000	13,000	Negligible	Negligible	Negligible	12,000	23,000	20,000

- a. Including inputs for ship component installation.  
b. Self-propelled vessels.  
c. Non-self-propelled vessels.  
d. Computed on basis of one-shift production.

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Table 7

Estimated Input Requirements of the Czechoslovak Shipbuilding Industry as a Percent of Total Production  
1948 and 1952-53

Input	Total 1952 Production	Unit	Percent of 1952 Production Required by the Shipbuilding Industry				
			1948	1952	1953	Maximum Production of SP <sup>a/</sup> Vessels Only	Maximum Production of NSP <sup>b/</sup> Vessels Only
Steel	3,200	Thousand Metric Tons	0.27	0.56	0.64	1.06	1.03
Solid Fuel	60,000	Thousand Metric Tons	0.01	0.01	0.01	0.02	0.02
Aluminum	c/						
Copper	600	Metric Tons	6.33	40.83	33.33	80.83	Negligible
Zinc	c/						
Lumber	3,100	Thousand Cubic Meters	0.11	0.22	0.25	0.41	0.40
Electricity	10,000	Million Kilowatt-Hours	0.06	0.14	0.16	0.27	0.23

- a. Self-propelled.
- b. Non-self-propelled.
- c. No indigenous production of these inputs.



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figure represents only 0.27 percent of the electric power produced in Czechoslovakia in 1952. 76/

3. Manpower.

The shipbuilding industry employs less than 1 percent of the industrial labor force, 77/ or about 6,400 persons. The continuous expansion of the new Komarno Shipyard No. 2 and other expansion are expected to raise eventually the total employment figure to about 8,000 persons.

4. Capital.a. Investments.

A total of 1,631.64 million koruny, or approximately \$32,630,000, has been invested in shipbuilding during the period 1947-53. Of this amount, 1,042.64 million koruny, or approximately \$20,850,000, were invested during the Five Year Plan and represent less than 1 percent of the total investment under the Plan.

Table 8 lists the Czechoslovak investment in shipbuilding.

Table 8

Planned Investment in Shipbuilding in Czechoslovakia a/\*  
1947-53

		<u>Million Koruny</u>
<u>Two Year Plan</u> <u>(1947-48)</u>	<u>Five Year Plan</u> <u>(1949-53)</u>	<u>Remarks</u>
309.00		Required for partial renewal of the river fleet. <u>78/</u>
200.00		Invested in Komarno Shipyard No. 2. <u>79/</u>
80.00		Investment in shipyards on the Vltava and Elbe Rivers, <u>80/</u> presumably Holesovice on the Vltava and Liben and Usti nad Labem on the Elbe.
	2.40	Investment in Kresice Shipyard. <u>81/</u>

\* Footnotes for Table 8 follow on p. 16.

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Table 8

Planned Investment in Shipbuilding in Czechoslovakia a/  
1947-53  
(Continued)

		Million Koruny
Two Year Plan (1947-48)	Five Year Plan (1949-53)	Remarks
	7.00	CSDP shipyard investment, <u>82/</u> assumed to be the Bratislava shipyard.
	4.01	Investment in a shipyard on the Oder River, <u>83/</u> probably Cosel.
	911.63	Investment in vessels for CSPLD and CSDP. <u>84/</u>
	107.60 <u>b/</u>	Investment for import of vessels from Holland. <u>85/</u>
	10.00	Investment in bridge cranes from Hungary for Komarno Shipyard No. 2. <u>86/</u>
<u>589.00</u>	<u>1,042.64</u>	

a. Koruna valued at old rate of exchange: 1 koruna equals US \$0.02 approximately.

b. The original Five Year Plan had allocated a further 92 million koruny for imports (2 seagoing vessels worth 80 million koruny and 4 barges worth 12 million koruny), but this amount was officially eliminated in a later reduction in the Plan.

b. New Construction Costs.

Under the Five Year Plan the shipbuilding industry was scheduled to produce tugs and barges worth 900 million koruny. 87/ Table 6 shows 911,630,000 koruny to be invested in vessels for the various navigation companies. The reported cost of a barge is between 5 million and 6 million koruny 88/ and for a tug is between 30 million and 40 million koruny. 89/ The Two Year Plan called for the production of 45 barges and 4 tugs. The Five Year Plan called for the production of 90 barges and 12 tugs. Computed on an average of reported costs, the total production costs for each Plan would be as follows:

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S-E-C-R-E-TTwo Year Plan

45 barges at 5.5 million koruny equals 247.5 million koruny  
 4 tugs at 35.0 million koruny equals 140.0 million koruny

Total 387.5 million koruny

Five Year Plan

90 barges at 5.5 million koruny equals 495.0 million koruny  
 12 tugs at 35.0 million koruny equals 420.0 million koruny

Total 915.0 million koruny

The total of 915 million koruny for the Five Year Plan agrees within 1.7 percent of the reported figure of 900 million.

5. Transportation.

The shipbuilding industry of Czechoslovakia would require an estimated 11 million ton-miles of transportation for maximum production of self-propelled vessels. This figure represents less than 0.008 percent of the rail service available in 1951. 90/

V. Imports and Exports of Ships and Shipbuilding Materials.1. Imports from Non-Soviet Bloc Countries.

The Five Year Plan allotted an amount of 107.6 million koruny for the import of ships from the Netherlands. 91/ It was reported that Czechoslovakia purchased 20 river vessels from the Netherlands in 1952. 92/ Czechoslovakia has also acquired the Republika, a former Panamanian ocean-going vessel of 6,419 GRT. 93/

Although Czechoslovakia cannot build large ocean-going vessels, it can buy or charter this type of vessel to develop a small merchant marine. In this connection a new Czechoslovak shipping agency was established on 12 March 1952, under the registered name of CECHOFRACHT (Czechoslovak Shipping Company, Ltd.). The firm, capitalized at 200 million koruny, has its main office in Prague and has authority to establish branch offices abroad. Among the duties of CECHOFRACHT are the following: "purchase or otherwise acquire the services of ocean-going vessels, and dispose of

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vessels purchased or chartered and equip and maintain them." 94/ In December 1953, Czechoslovakia made an attempt to purchase from France the Volta, a vessel of 5,100 GRT. This sale was concluded in February 1954, and the vessel was renamed the Julius Fucik. 95/ This purchase clearly indicates continued Czechoslovak interest in procurement of ocean-going vessels from non-Soviet Bloc countries. This conforms to Bloc policy.

It is believed that very few, if any, shipbuilding materials are imported by Czechoslovakia from non-Soviet Bloc countries.

2. Imports from Soviet Bloc Countries.

Czechoslovakia does not import vessels from Soviet Bloc countries, and there are no indications that this policy will change in the near future. A few lifeboats, however, have been imported from the Altwarp Shipyard in East Germany. 96/

No shipbuilding materials, as such, are imported by Czechoslovakia from Soviet Bloc countries.

3. Exports to Non-Soviet Bloc Countries.

None of the non-Soviet Bloc countries are reported to be recipients of vessels constructed by the Czechoslovak shipbuilding industry.

Since 1948, Finland, Norway, and Trieste are the only areas known to be receiving any significant shipments of ship components from Czechoslovakia. 97/ In 1952, Finland received 1,300 metric tons of boiler plates, which were part of its raw material requirements to produce goods for the USSR. 98/ In the same year, Czechoslovakia agreed to export 400 metric tons of ship plate and 100 metric tons of other shipbuilding materials to Norway in exchange for 500 metric tons of aluminum. In 1951, ship components were supplied to a shipyard in Trieste which in turn supplied propulsion units to Poland. 99/

4. Exports to Soviet Bloc Countries.

The provisions of a 1948 Trade Agreement between Czechoslovakia and Poland called for Czechoslovakia to deliver an unspecified number of small dredges, valued at 4.5 million koruny, to Poland. 100/

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In 1949, several barges were under construction at Komarno Shipyard No. 2 for Bulgaria. 101/

An unknown number of antiaircraft artillery boats were built during 1952 at Komarno Shipyard No. 2 for Hungary. 102/

East Germany, Poland, and the USSR are the main recipients of Czechoslovak exports of ship components. 103/

VI. Limitations, Vulnerabilities, and Intentions.

1. Limitations.

The major limiting factor in regard to type and size of vessel construction by the shipbuilding industry in Czechoslovakia is the limits of navigability, or safe draft, of its various rivers. Table 9 gives the safe draft of rivers at the major shipyards. 104/

Table 9

The Safe Draft of Rivers  
at the Major Shipyards  
in Czechoslovakia

<u>Shipyard</u>	<u>River</u>	<u>Safe Draft (Feet)</u>
Bratislava (Former Samler Yard)	Danube	4.7
Holesovice (Prague) (Antropius Yard)	Vltava	7.7
Komarno Yard No. 1 (Old Skoda Yard)	Danube	4.7
Komarno Yard No. 2 (New Skoda Yard)	Danube	4.7
Liben (Prague) (CKD Yard)	Vltava	7.7
Usti nad Labem (CKD Yard)	Elbe	7.0

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From Table 9 it can be seen readily that no large merchant or naval vessels can be constructed by the Czechoslovak shipbuilding industry but that river vessels with shallow draft may be constructed. Small naval patrol vessels such as torpedo boats probably could be built if the situation demanded it.

The supply of skilled labor and ship components is believed to be adequate for present and estimated maximum production of the shipbuilding industry.

2. Vulnerabilities.

The Czechoslovak shipbuilding industry is indirectly susceptible to the effect of copper shortages, since it is dependent upon the country's ability to import this metal.

Four of the 6 major shipyards are located in 2 cities, Prague and Komarno. These 4 shipyards, concentrated in only 2 areas, constitute about 80 percent of the total production of the industry.

3. Intentions.

Almost complete control of production of the Czechoslovak shipbuilding industry is now exercised by the USSR. This control will continue, as far as can be ascertained, while there are any benefits to accrue to the Russians.

It has been reported that all the shipyards of the Satellite countries located along the Danube will soon be united into one Soviet company which will coordinate shipbuilding operations for the USSR and for the Satellite countries themselves. <sup>105/</sup> This company would include the Bratislava Shipyard and both Komarno shipyards. Such a company would seem to indicate an expanding Soviet interest in Satellite shipyards and may be a portent of things to come: that is, direct Soviet control of selected Satellite shipyards. This would result in increased production of river vessels in Czechoslovakia for the USSR.

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APPENDIX A

GENERAL DESCRIPTION OF THE SHIPBUILDING INDUSTRY

I. Scope of the Industry.

The shipbuilding industry includes the construction and repair of all water-borne vehicles and the production of components. The study of the industry also involves an examination of the local plant administration, the national political control, the research and development involved in shipbuilding, and the economic factors that influence the operation of the industry.

1. Design.

The determining factors in the formulation of the general design characteristics of a planned vessel are the services required of the vessel, the size and speed needed to perform these services, the propulsion machinery available, and the type of waters in which the vessel will operate.

To successfully design a vessel with the required characteristics, the naval architect has a large volume of data gleaned from past experience by every branch of the shipbuilding and shipping industries. He also uses the facilities and technical experience of private and governmental research and experimental stations equipped to make model tests of the hull and any or all of the individual parts entering into the vessel. From these data, naval architects and marine engineers develop the final design.

2. Shipbuilding and Repair.

A ship is the largest piece of mobile machinery ever built. Therefore, unlike most commodities, the production of a ship requires the skills and knowledge of many engineering fields.

The actual building or repair of a vessel takes place in a shipyard having facilities to build or repair the specified type of vessel. The modern large shipyard is a combination of a steel fabrication plant, a mechanical assembly plant, an electrical installation firm, and many other industrial enterprises. The shipyard is not a

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manufacturing plant in the true definition of the word but performs a "value added" type of operation usually of the job shop variety. It is at this stage that shipbuilding calls upon the nation's industrial production to fill the many orders for raw, semifinished, and finished material that goes into the building of a vessel. Steel is obtained in the form of plates and shapes which will be cut, formed, and assembled into the required shape for the vessel's hull. Machinery, electrical apparatus, furniture, and many other components are obtained in varying stages of assembly for installation in the vessel's hull.

3. Component Production.

The production of components for the industry is carried on by the normal manufacturers of civilian goods and by special plants producing principally for the shipbuilding industry. This production is vital to the satisfactory completion of a vessel.

4. Inspection and Classification.

During construction of a merchant vessel, inspection and classification are usually accomplished by an independent organization for the purpose of insuring compliance with governmental regulations and insurance standards. The independent classification organizations have set standards for hull and machinery. These classification organizations came into being because of the demands of marine insurance companies and ship operators for standards regulating the design and measurement of vessels. They may be governmental agencies or privately owned firms.

The inspection of naval vessels is accomplished by navy engineers.

5. National Policy.

The dependence on foreign trade to sustain the national economy dictates, in a large measure, the national policy regarding the ownership, operation, construction, and maintenance for the merchant fleet. Capital investment of private or public funds and subsidization of the industry is largely determined by the national policy.

The vulnerability of the nation's military defense through water approaches, the protection of the merchant fleet, and national aspirations dictate the national policy regarding the construction and maintenance of a naval fleet.

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II. Shipyards.

1. Definitions of Ship Construction and Repair.

Merchant vessel construction and repair involve the construction or repair of all sizes of vessels employed in the movement of cargo and/or passengers. This work includes passenger ships, tankers, dry cargo vessels, fishing vessels, tug boats, dredges, barges, and so forth.

Naval vessel construction and repair involve the construction or repair of all sizes of warships, naval auxiliary vessels, troop support craft (for either naval or army units), hydrographic vessels, and so forth.

2. Classification of Shipyards.

Shipyards generally are divided into two classes, as follows:

a. Coastal shipyards which build and/or repair vessels for ocean navigation. These yards may be located many miles from the open sea, such location being dependent upon a sufficient depth and width of channel to permit ready access to the sea.

b. Inland shipyards are those building and/or repairing vessels for operation upon inland waterways.

3. Ship Construction Procedures.

The basic shipyard is purely a steel erection and assembly plant where steel plates, shapes, and bars are cut, shaped, and assembled into the required hull form. The outfitting (installation of machinery, deck equipment, furniture, and so forth) may be carried on at this basic yard or at some other installation.

The method of constructing a vessel varies from one yard to another. General descriptions, however, can be given as follows:

a. Standard Construction Procedure.

This method involves the building of a vessel from the keel up by erecting individual items or small subassemblies in proper sequence. A great part of the hull may be in place before any one section is completed.

S-E-C-R-E-Tb. Prefabrication Procedure.

This method involves the building of a vessel by the erection of subassemblies which have been prefabricated at some point other than on the shipbuilding ways. This procedure is generally divided into two separate and distinct practices. The first practice, and most common, is the erection on or near the shipbuilding ways of subassemblies, none of which, however, form a completed transverse section of the hull. These subassemblies usually are lifted in place on the shipbuilding ways. The second practice, and common in some yards building small vessels, is the so-called sectional method. This method involves the joining together on the building ways of completed transverse hull sections. These completed sections usually are not lifted into place but are moved on mobile cradles or skids to the ways where the several sections are joined together.

c. Serial Construction (Production Line Method).

This method involves the construction of a number of vessels of the same type by use of the prefabrication procedure with operations repeated at scheduled intervals.

4. Description of Shipyards by Types.a. Naval Shipyards.

These shipyards are operated by the governmental department concerned with the construction, repair, and operation of naval vessels. These yards generally have more facilities than a commercial shipyard because of the type of work handled on repairs and for operational purposes of the fleet. Leaving out these special purpose facilities, the naval shipyard is similar to the large commercial shipyards.

The naval shipyard generally constructs vessels by the standard or prefabrication procedure, employing the subassembly method. Generally the vessels are completely outfitted and made ready for sea service within the yard.

b. Coastal Shipyards.

This type of shipyard constructs vessels for ocean transportation, coastal vessels, fishing vessels, and tugs. Depending upon the extent of the facilities, the yards generally specialize in

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certain sizes and types of vessels. The larger yards are complex plants covering a wide range of trades.

The method of constructing vessels is generally by the standard construction procedure or prefabrication procedure. Some of the smaller shipyards use the serial production method when the quantity of similar vessels to be built warrants the setting up of such facilities.

Only when these shipyards are emergency or temporary yards are the facilities at a bare minimum to perform the construction of certain vessels.

Repair work is carried on simultaneously with construction at some of these shipyards. The larger yards have floating drydocks and/or graving docks, whereas the smaller installations have marine railways and/or floating drydocks for repair work.

c. Inland Shipyards.

This type of shipyard can be the simplest form of yard, even to the extent that there are no permanent shipbuilding ways. Here, again, the type of work handled determines the extent and magnitude of facilities. Such yards construct barges, river towboats,\* tug boats, miscellaneous commercial craft for special operations, and so forth.

The smaller inland yards usually construct vessels by the standard construction procedure. As the volume of work increases, the construction procedure changes into the prefabricated subassembly and the sectional method. Inland craft are ideally suited for the sectional method of construction, especially in case of serial production. Very often vessels are constructed on marine railways or adjacent to the marine railway and launched by such means.

Most of the inland shipyards handle repair work to varying degrees. The yards that have drydocking facilities, such as marine railways or floating docks, handle the complete repairs, and others without such facilities do topside and machinery repairs.

\* Towboats are used in long-haul operations, whereas tug boats are used in short-haul operations.

S-E-C-R-E-Td. Ship Repair Yards.

Certain shipyards specialize only in ship repairs. The facilities of such yards are selected and laid out primarily to accommodate vessels to be repaired. Drydocking facilities consist of marine railways and floating and graving drydocks. Equipment for handling steel fabrication is limited, but the machine shops are well equipped. This type of yard, although strictly a repair yard, will also fall within one of the types listed above.

5. Shipyard Facilities.a. Shops.

The principal shops located in a shipyard can vary over a wide range, depending upon the size and type of vessels built or repaired and the need for a self-supporting facility. Depending upon the size of the shipyard, the shops will include the following special installations either in separate buildings or combined in one or more buildings:

- (1) Mold Loft -- where plans are laid down full size by the loftsmen from the blueprints for purposes of making templates (patterns) for use of the steel trades.
- (2) Plate Shop -- where steel plates are cut, beveled, punched, and shaped by layers-out and shipfitters. This shop is sometimes referred to as a boiler shop.
- (3) Angle Shop -- where steel shapes are formed into the curvature of the hull by anglesmiths. This involves heating the steel shape and bending it to the determined shape on bending slabs.
- (4) Fabrication Shop or Structural Shop -- where steel plates and shapes are joined together to form subassemblies of varying sizes depending on the crane facilities and method of construction.
- (5) Rigging Loft -- where ships' rigging is made by riggers.

The titles of other shops are self-explanatory, such as carpenter shop, machine shop, foundry, forge, pipe shop, paint shop, and so forth.

S-E-C-R-E-Tb. Special Facilities.

Certain other facilities are entirely peculiar to a shipyard and will not be found elsewhere. These facilities are the actual shipbuilding ways and drydocking facilities. These installations are as follows:

(1) Shipbuilding Ways, Longitudinal -- refers to the space where a vessel is constructed and includes the ground or stationary ways and the sliding ways. It slopes gently down toward the water with sufficient slope to cause the vessel to move under the impulse of gravity when disengaged from the holding appliance. The ways are built perpendicular or at an angle to the shore line, and the vessel is launched stern first into the water.

(2) Shipbuilding Ways, Transverse -- similar to the longitudinal building way but lying parallel or at an angle to the shore line from which the vessel is launched sideways into the water.

(3) Building Basin -- an excavation in the shore in which vessels are built. In construction and layout, it is similar to the graving dock, being provided with dock gates and a pumping plant, and differs principally from a graving dock in that the rate of pumping out the water is much slower.

(4) Graving Dock -- an excavation in the shore, enclosed by walls and a floor which usually are of concrete or stone construction. Ships in need of cleaning or repair are floated in and then the water pumped out, leaving the vessel resting on blocks. The entrance is closed by some form of gates, floating, swinging, or sliding. This type of dock may be used for the construction of vessels.

(5) Marine Railway -- a track, cradle, and winch used to draw a ship out of the water and onto the bank for inspection and repair. The track extends far enough into the water for the cradle to pass beneath the ship. The ship is brought to rest over the cradle, which is then drawn onto the bank. A marine railway may be for hauling a vessel either endways or sideways (transverse way) from the water, the difference being that the transverse railway has more tracks and cradles and generally shorter tracks than the longitudinal railway. They are sometimes used for building of vessels.

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(6) Floating Drydock -- a U-shaped floating structure of either wood, steel, or concrete which is fitted with watertight compartments. It is submerged by flooding these compartments. Ships enter it while it is submerged. The compartments are then pumped dry, and the dock rises until the ship is completely out of water. These docks are open at either one or both ends, usually the latter.

(7) Fitting Out Pier (Dock or Quay) -- a pier at which the vessel is moored after launching for the final installation of components and testing. This amount of work may vary over a wide range, depending upon the procedures followed by the individual shipyard. These facilities are also utilized for "above-water" or "topside" repairs and machinery repairs.

6. Personnel.

The modern large shipyard requires the services of many people trained and experienced in the field of business, law, and engineering and in the numerous industrial trades. Total employees may number from a dozen or so in a small yard to over 15,000 in a large yard. A typical list of the trades involved is as follows:

Anglesmith	Driller	Painter
Blacksmith	Electrician	Passer
Boilermaker	Erecter	Pipe coverer
Bolter and reamer	Fitter	Pipe fitter
Brazer	Furnaceman	Press operator
Burner	Grinder	Puncher
Caulker and chipper	Insulator	Rigger
Designer	Joiner	Riveter
Draftsman	Layer-out	Sheetmetal worker
Carpenter	Loftsman	Shearman
Coppersmith	Machinist-outside	Shipfitter
		Welder

The following are also employed on production: laborers, helpers, apprentices, and so forth. The nonproductive trades include maintenance, storekeeping, trucking, crane operation, and so forth.

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III. Ship Component Production.

1. Scope of Work.

A standard merchant vessel requires approximately 7,000 different items ranging from such standard items as curtains, medical supplies, and kitchen equipment to specialized items such as marine engines, anchors, booms, and compasses.

2. Commercial Components.

The standard goods flowing into a shipyard are about as varied as the equipment needed to supply any small community but represent only a small percentage of this type of goods produced by a manufacturer.

3. Marine Components.

Components that are classed as specialized marine items for ships fall into two categories, (a) standard marine parts and (b) specially designed items for the vessel on which they are to be used. The latter items have to be designed for the operations required. Such design work is started as soon as the naval architect has reached the stage in the hull design and calculations where he can supply the marine engineers with the necessary specifications.

4. Component Producers.

Components generally are produced by a nation's own industrial plants. Some of the larger shipyards have auxiliary shops capable of building specially designed marine parts. In small countries, however, it may be necessary to import many vital components without which vessels could not be completed.

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## APPENDIX B

INDIVIDUAL YARD STUDIES AND LAYOUTS1. Bratislava Shipyard.

The Bratislava Shipyard (former Samler Yard) is located on the northern bank of the Danube River, at the western end of a southern winter harbor in Bratislava, the principal inland waterway port of Czechoslovakia. 106/ River vessels use the winter harbor during the period the Danube is icebound and during the navigation season for loading and unloading purposes. There is, therefore, easy access to the shipyard for any required repairs.

The shipyard has the following facilities for construction and repair of river vessels. (See Fig. 4\* for yard layout.)

<u>Location Number on Yard Layout</u>	<u>Facility <u>107/</u></u>
1	Workshop (260 ft x 60 ft x 25 ft, 2-story)
2	Marine Railway (260 ft x 230 ft)
3	Administration Building
4	Warehouses
5	Winter Harbor

This shipyard is under the administrative control of CSDP.

The shipyard was almost completely destroyed by bombing in 1944-45. The reconstruction and repair of yard installations started immediately after World War II and were completed in 1948. 108/ The marine railway was modernized in early 1952 and is electrically operated. 109/ A sum of 7 million koruny was scheduled for investment in the yard during the Five Year Plan, 110/ and the modernization of the marine railway would account for part of this investment.

The yard employs approximately 300 workers 111/ and has access to the extensive road and rail system which serves the port area.

\* Following p. 32.



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The Bratislava Shipyard is primarily a repair yard for all types of river vessels. 112/ In early 1953, however, it was reported that new construction of non-self-propelled barges had been started at this yard. 113/

2. Holesovice Shipyard.

The Holesovice Shipyard (Antropius Yard) is located on the south-east bank of an inlet of the Vltava River in the Prague-Holesovice area. 114/ It is one of three shipyards in the Prague area.

The shipyard has the following facilities for construction and repair of river vessels. (See Fig. 5\* for yard layout.)

<u>Location Number on Yard Layout</u>	<u>Facility <u>115/</u></u>
1	Harbor Basin
2	Crane Installations: 8 on west side of basin, each with 10-ton lifting capacity. 7 on east side of basin, 2 with 10-ton lifting capacity and 5 with 5-ton lifting capacity.
3	Warehouses (330 ft x 65 ft x 25 ft)
4	Launching Slip (410 ft x 180 ft)
5	Workshop (200 ft x 80 ft x 25 ft) containing: 1 overhead traveling crane. Unknown number of lathes, boring machines, cutting machines, and bending machines.
6	Storage Area
7	Carpenter Shop (100 ft x 30 ft x 20 ft)
8	Administration Building
9	Guard House

This shipyard is under the administrative control of the Main Administration for CKD. The yard, however, is under the operational control of the shipbuilding department of Liben Shipyard (CKD Yard) in Prague-Liben. 116/

\* Following p. 32.

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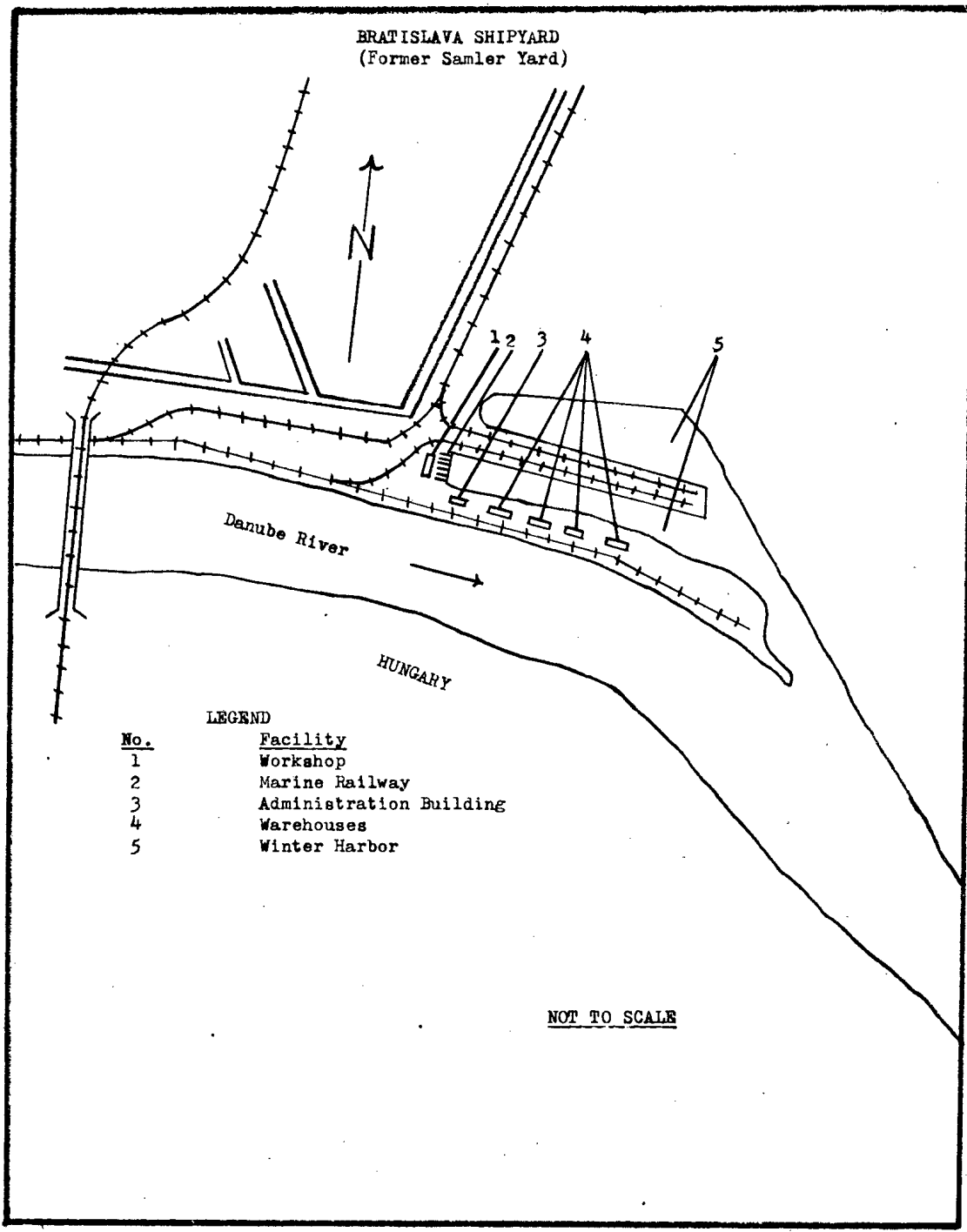


FIGURE 4

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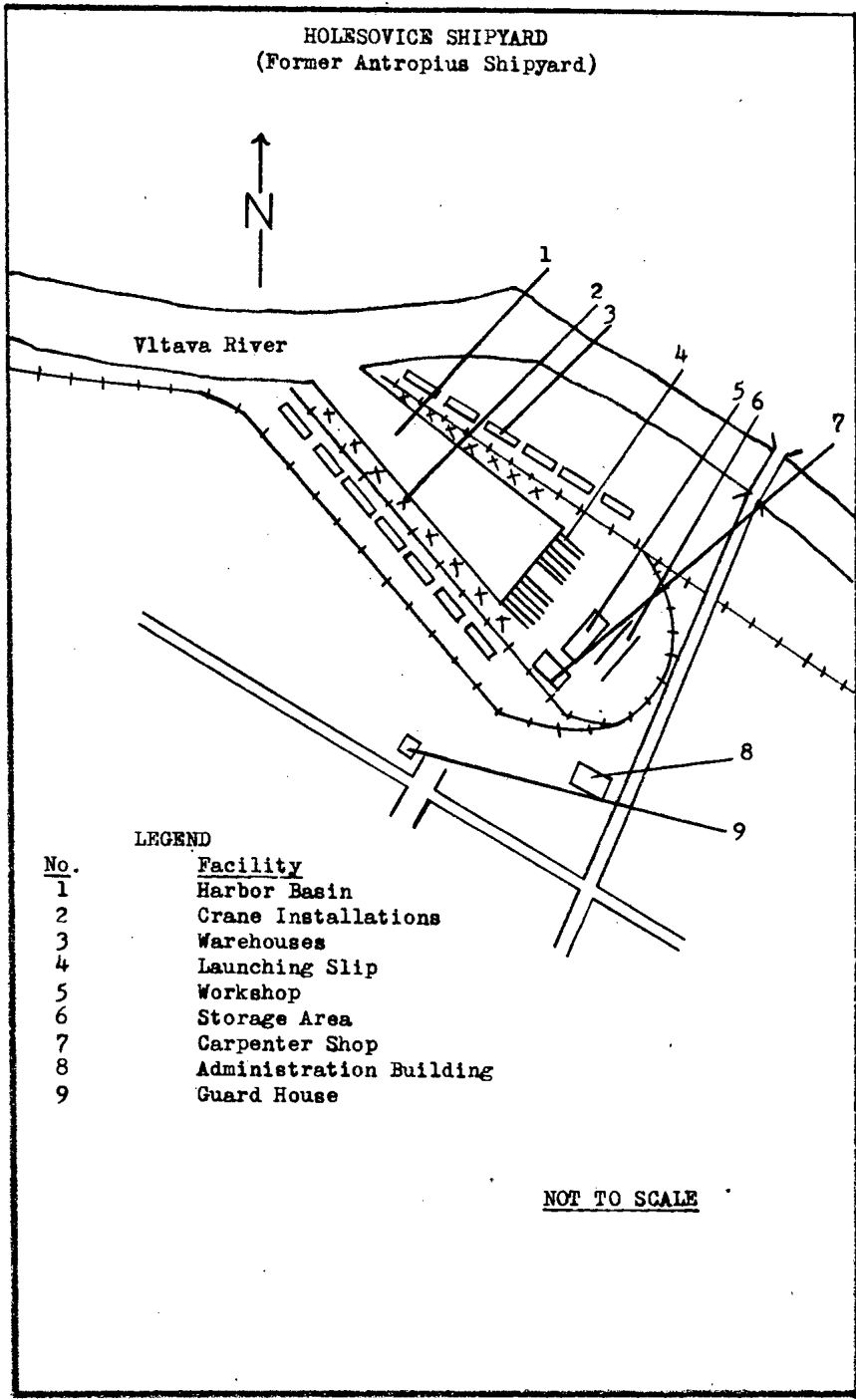


FIGURE 5

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The shipyard is said to employ about 150 workers. 117/ Some workers are occasionally sent here from the shipyard in Prague-Liben for various jobs as needed. 118/

During World War II this shipyard constructed assault boats and pontoons for the German army. 119/ At present it is engaged in the production of non-self-propelled barges. 120/

3. Komarno Shipyard No. 1.

The Komarno Shipyard No. 1 (old Skoda Yard) is located on the eastern tip of Cervena Flota (Red Fleet) Island, at Komarno, on the Danube River. 121/

The shipyard has the following facilities for construction and repair of river vessels. (See Fig. 6\* for yard layout.)

<u>Location Number on Yard Layout</u>	<u>Facility <u>122/</u></u>
1	Machine Shop (260 ft x 80 ft, 2-story) containing: 23 lathes of various types 5 Siemens drill presses 5 milling machines 4 shaping machines 4 tool-sharpening machines 2 offices, department head and welding chief
2	Forge containing: 1 Siemens-Martin forge Unknown number of electric presses Unknown number of electric forges Unknown number of air compressors 1 office, forge section chief
3	Joinery containing: 3 electric planing machines 3 circular saws 1 band saw
4	Carpenter Shop (100 ft x 40 ft, 2-story) containing: 1 planing machine 1 saw

\* Following p. 34.

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<u>Location Number on Yard Layout</u>	<u>Facility <u>122/</u></u>
5	Gas and Electric Welding Shop containing: 15 electric welding machines 2 gas welding apparatuses
6	Warehouse (390 ft x 50 ft)
7	Main Warehouse
8	Administration Building (100 ft x 50 ft)
9	Building Ways: 1 - 490 ft x 145 ft (north side of island) 1 - 260 ft x 130 ft (Danube side of island)

This shipyard is under the administrative control of the Main Administration for Skoda.

The shipyard was built during 1930-39. During the Two Year Plan the yard was enlarged to its present proportions. 123/

It was reported that in 1948 the shipyard had 860 employees, 124/ in late 1950 had increased to about 1,200, 125/ and in 1953 had been scheduled to reach 1,400. 126/

This shipyard formerly built non-self-propelled river vessels for the river fleet, for Bulgaria and for the USSR. An estimated 50 percent of the yard's production in 1948 went to the SDGP (Soviet State Danube Shipping Company). 127/

Since completion of Komarno Shipyard No. 2 (new Skoda Yard), the old yard has been used solely for the repair of vessels, principally those of the SDGP. 128/

#### 4. Komarno Shipyard No. 2.

The Komarno Shipyard No. 2 (new Skoda Yard), sometimes referred to as the Gottwald Yard, is located at the northwest end of the winter harbor at Komarno, on the Danube River. 129/

The shipyard has the following facilities for construction and repair of river vessels. (See Fig. 7\* for yard layout.)

\* Following p. 34.

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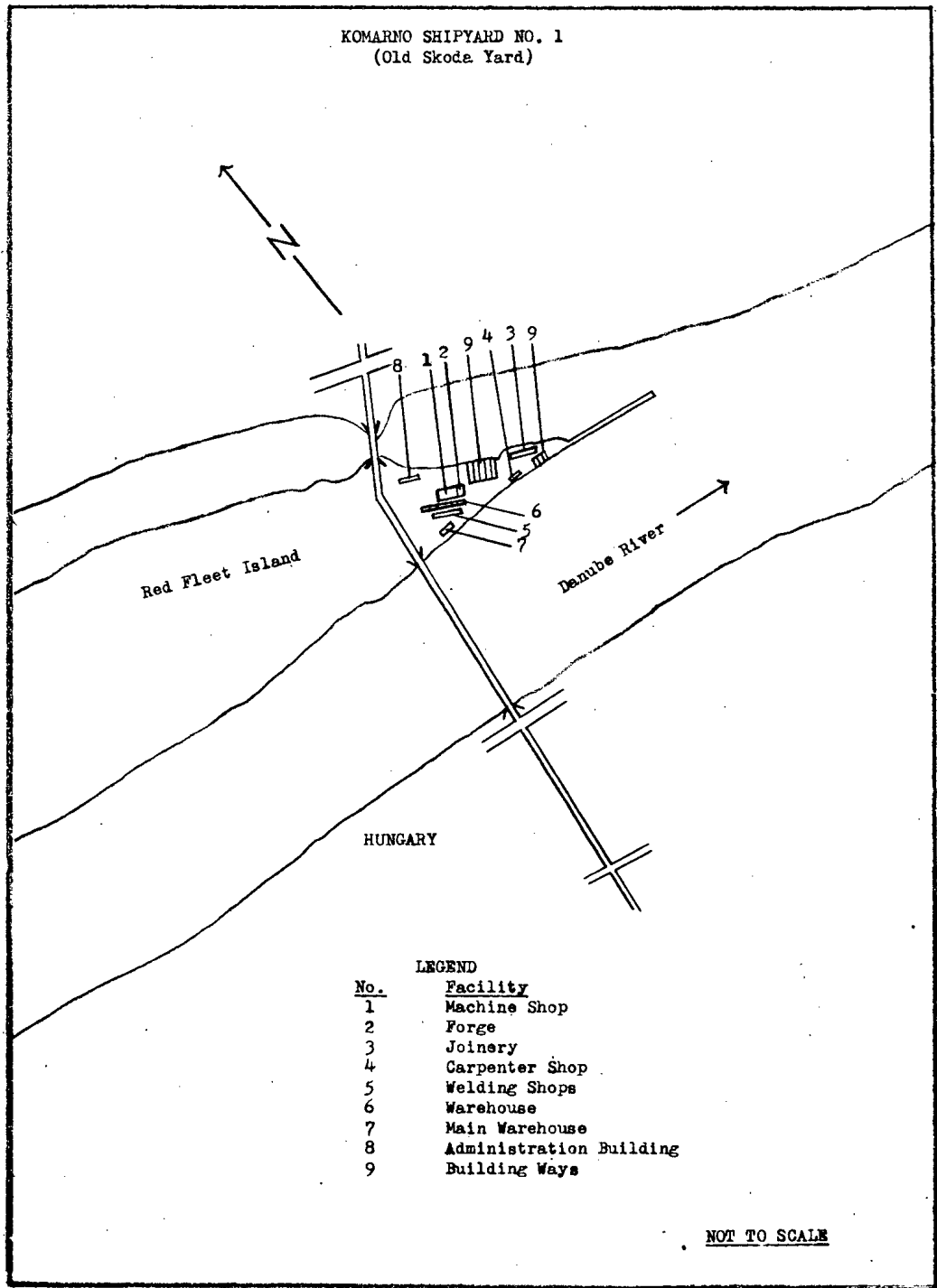


FIGURE 6

S-E-C-R-E-T

S-E-C-R-E-T

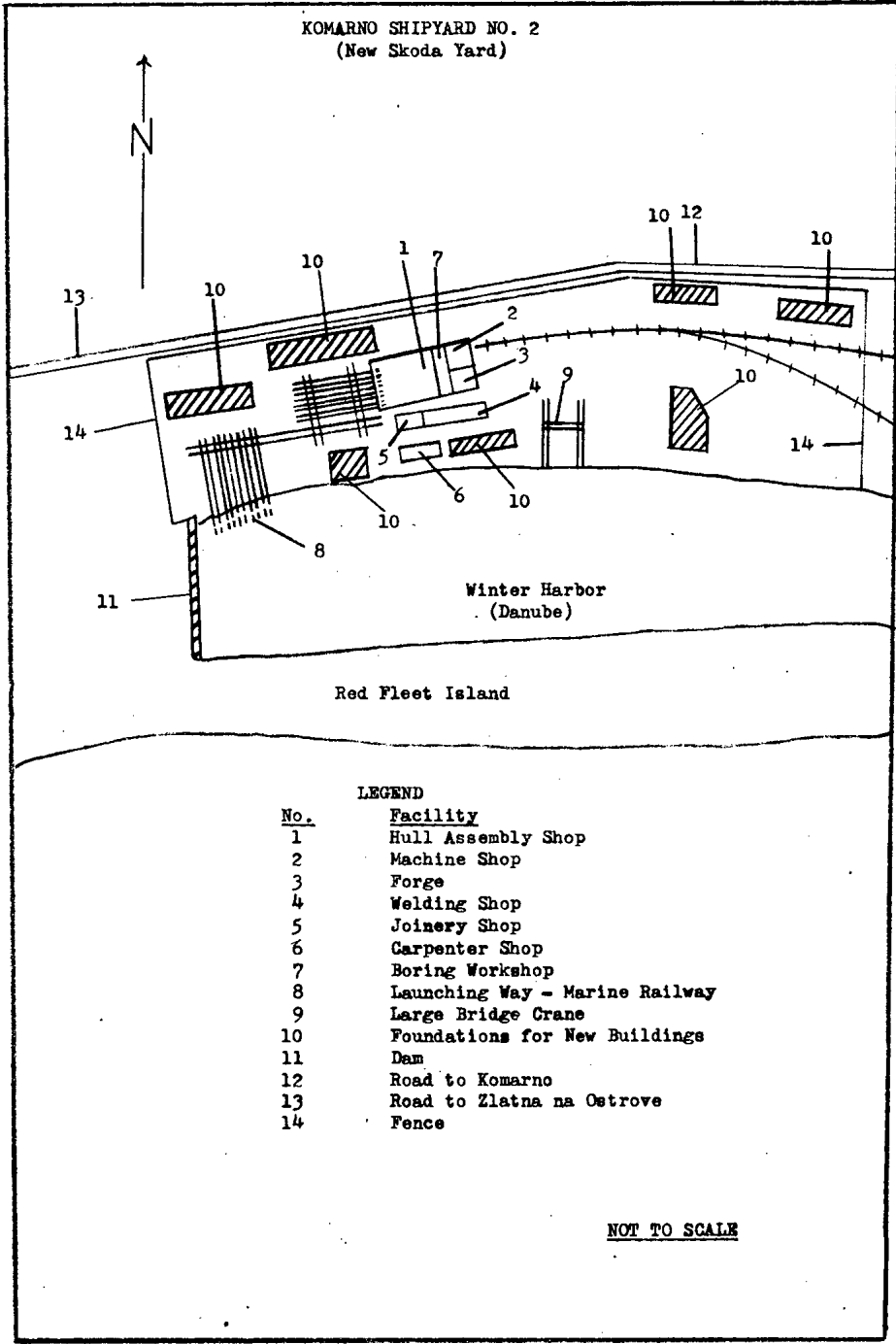


FIGURE 7

S-E-C-R-E-T

S-E-C-R-E-T

<u>Location Number on Yard Layout</u>	<u>Facility <u>130/</u></u>
1	Hull Assembly Shop (980 ft x 230 ft) containing: 1 machine shop forge 1 boring workshop
2	Machine Shop containing: 2 lathes 2 boring machines 2 grinding machines 1 small planing machine
3	Forge containing: 1 drilling machine 1 large shears 1 small shears 1 punch press 1 electric welding set 7 electric furnaces
4	Welding Shop containing: 20 electric welding sets and gas welding apparatuses
5	Joinery containing: 2 wood-planing machines 1 circular saw 1 band saw 1 polishing machine
6	Carpenter Shop (490 ft x 330 ft) containing: 1 wood-planing machine 1 circular saw 1 band saw
7	Boring Workshop containing: 5 boring machines 1 crane for transporting plates
8	Launching Way (Marine Railway) (295 ft x 165 ft)
9	Large Bridge Crane
10	Foundations for new buildings

Komarno Shipyard No. 2 is under the administrative control of the Main Administration for Skoda. However, supervisory control of this yard is exercised by Soviet technicians and engineers. 131/



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The shipyard is the newest, largest, and most important shipyard in Czechoslovakia. Construction of the yard started during the Two Year Plan at an initial cost of 200 million koruny. 132/ It was reported that future plans include construction of a fully integrated yard with facilities for the building of motors and making ship plate. 133/ The yard is continually expanding, and, as of March 1953, construction of yard facilities was still under way. 134/

This shipyard employed about 2,000 workers in 1952. 135/ The number of workers, however, is steadily increasing because of the continuing expansion. The yard's expert personnel are Czechs, and half the laborers are Hungarians. 136/ The shipyard apparently has definite priority on personnel, since workers have been transferred here from shipyards in the Prague area and from the Hradec Kralove plant of the Skoda Works to work on orders for the USSR. 137/ New employees are sent here by the labor exchanges. Those who refuse employment are sent to the mines. 138/

The current production program of the shipyard consists of tugs, barges, antiaircraft artillery boats, and passenger vessels. Production is almost exclusively for export to the USSR for use on the Volga-Don Canal or other Soviet inland waterways. 139/ The anti-aircraft artillery boats are for the Hungarian Danube Flotilla and are built according to Soviet blueprints. These vessels will carry a 37-millimeter antiaircraft gun and a 12.7-millimeter antiaircraft machine gun as armament. They are designed to protect river shipping in case of war. 140/

This shipyard has completed at least 8 and perhaps 10 river passenger vessels for the USSR. 141/ The yard has also built 18 tugs for the USSR. 142/ Photographs of the Rossiya, the first passenger vessel built at this yard for the USSR, are shown in Figures 2 and 3.\* 143/ The names of other passenger vessels built for the USSR at the yard are as follows: Armeniya, Azerbaydzhan, Byelorussiya, Gruziya, Gruzov, Kazakhstan, Ukrainiya, and Vilniya. 144/

##### 5. Liben Shipyard.

The Liben Shipyard (CKD Yard) is located on the east bank of the Vltava River in the Prague-Liben area, almost opposite the Holesovice Shipyard. 145/

\* Following p. 8, above.

S-E-C-R-E-T

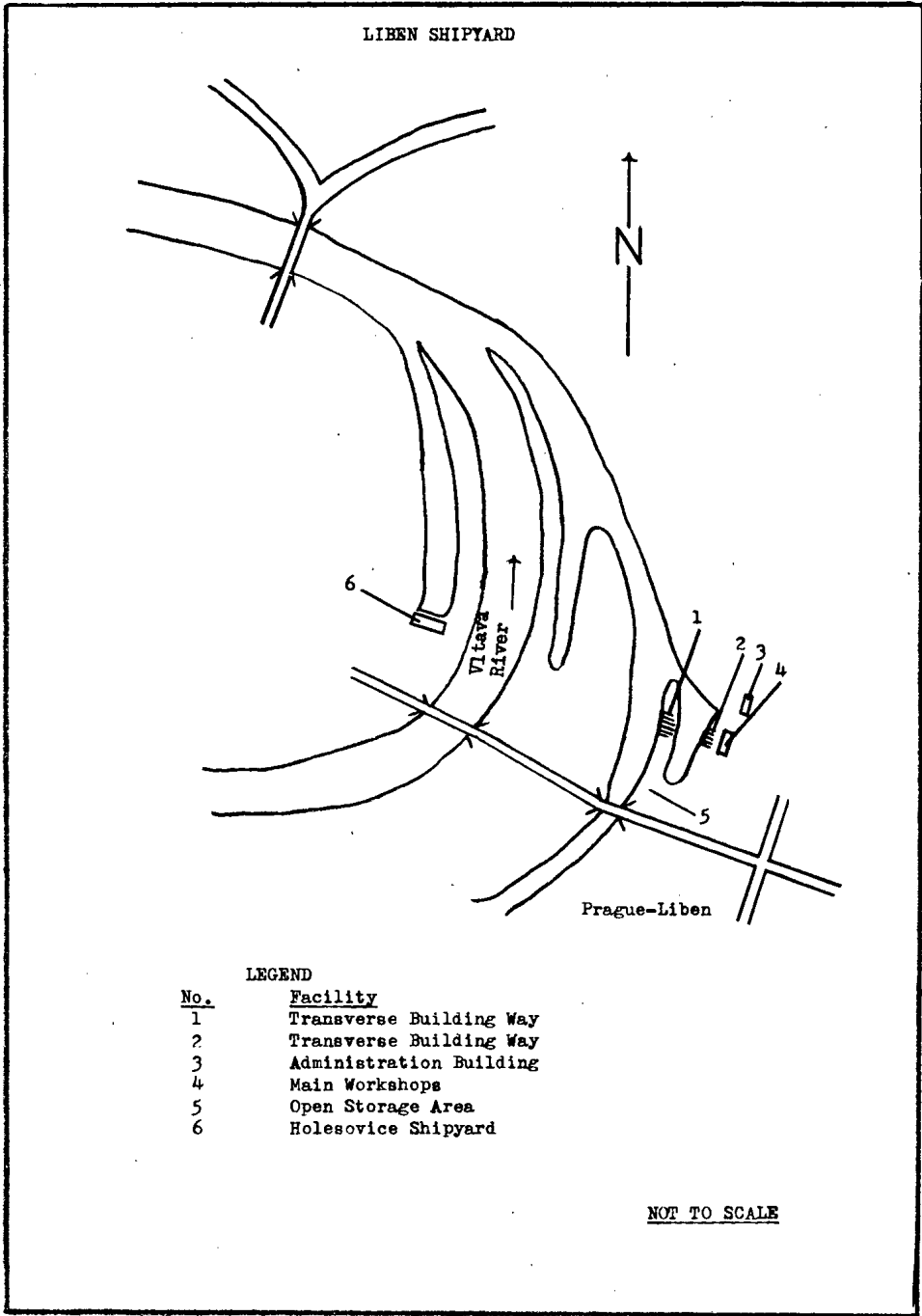


FIGURE 8

S-E-C-R-E-T

S-E-C-R-E-T

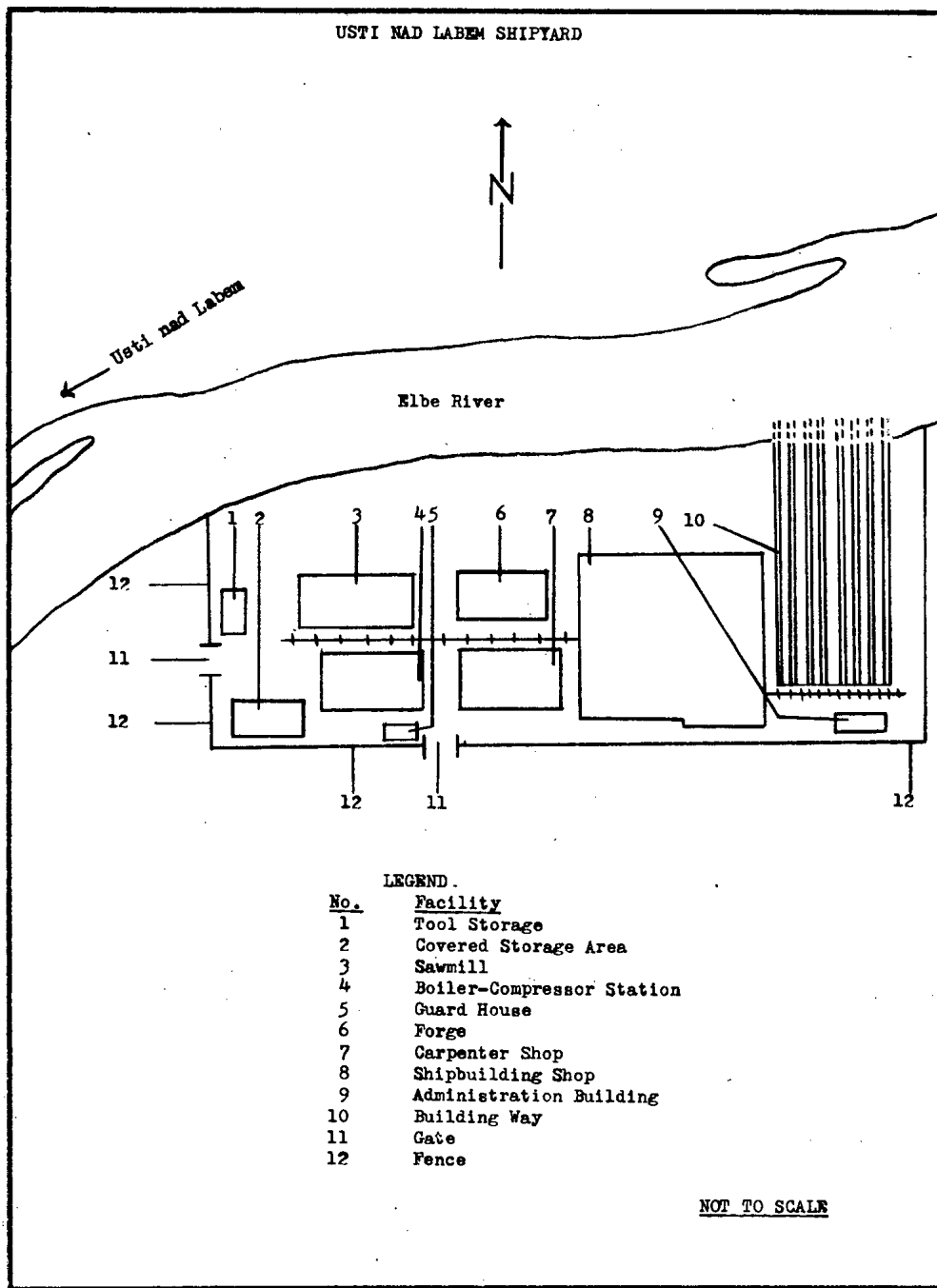


FIGURE 9

S-E-C-R-E-T

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The shipyard has the following facilities for construction and repair of river vessels. (See Figure 8\* for yard layout.)

<u>Location Number on Yard Layout</u>	<u>Facility <u>146/</u></u>
1	Building Way (570 ft x 100 ft)
2	Building Way (500 ft x 150 ft)
3	Administration Building (65 ft x 65 ft x 25 ft)
4	Main Workshops (425 ft x 165 ft)
5	Open Storage Area (340 ft x 165 ft)

The shipyard is under the administrative control of the Main Administration for CKD, but production control is under Soviet technicians.

In 1949 this shipyard had about 300 employees. 147/ The number of employees at present is not definitely known. In April 1953, however, an intensive recruiting drive for workers was launched in order to fulfill orders for the USSR. 148/ It is believed that estimated future production will more than double the number of employees in 1949.

Up to the latter part of 1952 this shipyard built self-propelled barges. Since that time the yard has commenced production of a new and improved type of suction dredge for the USSR. The designs and production procedures for the dredges were developed by the yard in cooperation with Soviet experts. The fourth dredge was launched in September 1953, 149/ and the yard was scheduled to complete six of these dredges in the same year. 150/ The superstructures of the dredges are sent separately to Stettin for final assembly, as the completed dredges are so large that they would be unable to pass under the bridges on the Elbe and Oder Rivers. 151/

#### 6. Usti nad Labem Shipyard.

The Usti nad Labem Shipyard (CKD Yard) is located on the south bank of the Elbe River about 1-1/4 miles east of Usti nad Labem. 152/

The shipyard has the following facilities for construction and repair of river vessels. (See Fig. 9\* for yard layout.)

\* Following p. 36.

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<u>Location Number on Yard Layout</u>	<u>Facility <u>153/</u></u>
1	Tool Storage
2	Covered Storage Area
3	Sawmill
4	Boiler-Compressor Station
5	Guard House
6	Forge
7	Carpenter Shop
8	Shipbuilding Shop (490 ft x 165 ft)
9	Administration Building
10	Building Way (600 ft x 150 ft)

The shipyard is under the administrative control of the Main Administration for CKD.

In 1953 this yard had about 700 employees. 154/

Until July 1952 the shipyard built self-propelled and non-self-propelled river vessels. 155/ Since that date the yard has been building pontoons. It was reported that in February 1953 some 2,400 pontoons were constructed at this yard and shipped to the USSR. 156/ In March 1953 a group of military experts accepted approximately 50 pontoons which were painted red. These pontoons are welded, consist of three parts, and have a total length of about 29 feet. Additional pontoons were observed under construction at that time. 157/

Table 10\* lists the minor shipyards and any information known about them. It is possible that there may be other minor yards.

\* Table 10 follows on p. 39.

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Table 10

## Information on Minor Czechoslovak Shipyards

Shipyard	Remarks
Brno (J.F. Cernil Co.)	Not an actual shipyard; builds three models of kayaks of wood or duralumin. <u>158/</u>
Cosel (Poland)	Minor repair of Czechoslovak river vessels; 16 employees. <u>159/</u>
Decin	Deactivated October 1951; former repair yard, but built canoes, rowboats, and sailboats. <u>160/</u>
Hradec Kralove (Skoda Works)	In 1952, built four self-propelled barges for the USSR under terms of 1951 trade agreement. <u>161/</u>
Kralupy (Ruzek Shipyard)	Minor repair yard; in 1952, reportedly built one floating crane. <u>162/</u>
Kresice (Former J. Walter Yard)	Repair yard for Elbe River vessels; construction of sailboats and other small boats; 130 employees. <u>163/</u>
Melnik	Repair yard until late 1952; presently under military supervision and making pontoons and small motor boats for military use; 20 employees. <u>164/</u>
Smichov (Prague)	Small barge production. <u>165/</u>
Stechovice	Probably a minor repair yard.
Stettin (Poland) (Staruvka Yard)	Minor repair yard; is former German sea barge reconstructed as a repair ship. <u>166/</u>

S-E-C-R-E-T

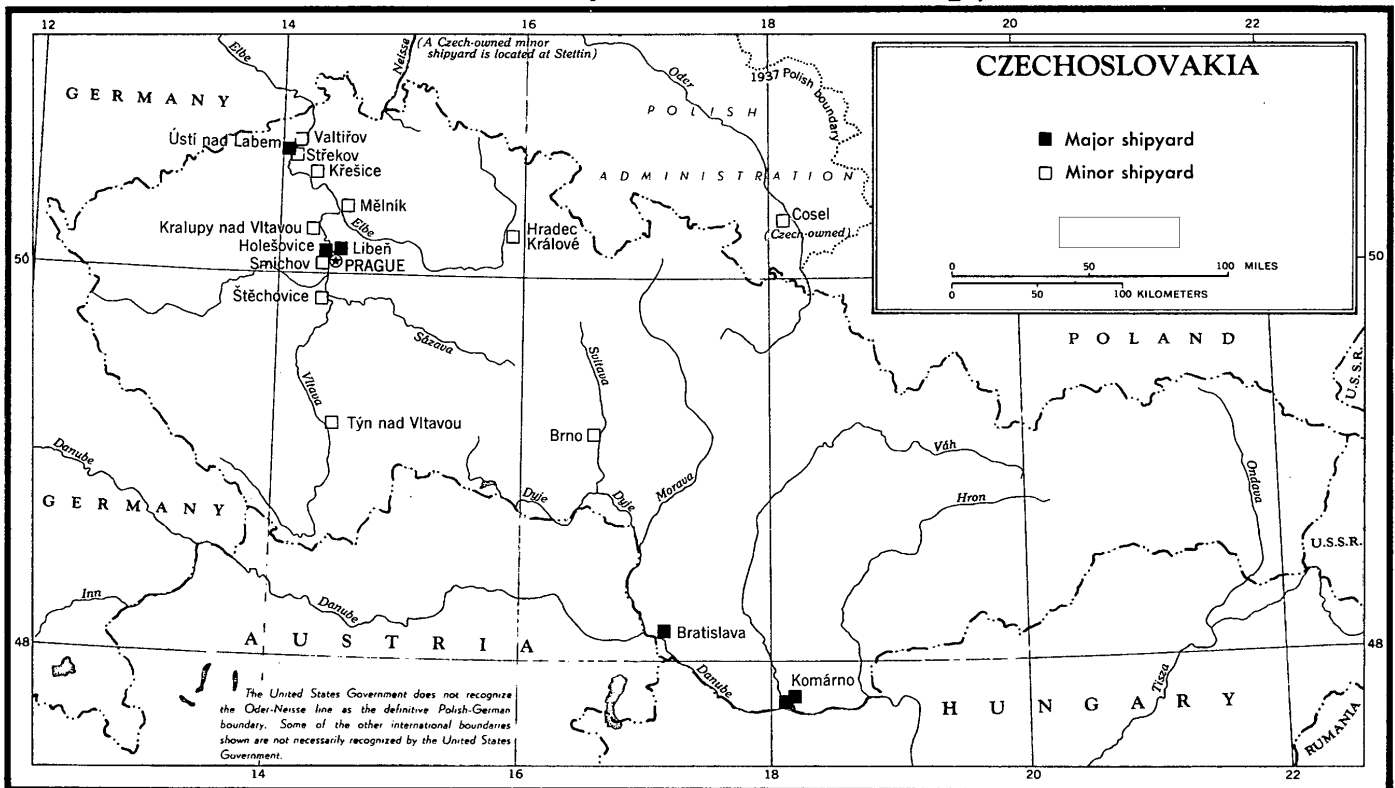
Table 10

Information on Minor Czechoslovak Shipyards  
(Continued)

Shipyard	Remarks
Strekov	Minor repair yard. <u>167/</u>
Tyn nad Vltavou	In 1951, built wooden sand barges, 26 ft x 6 ft x 2 ft; 1 per week; 20 employees. <u>168/</u>
Valtirov	Repair yard; in 1951, building river dredge. Administrative and technical sections of yard merged with those of Usti nad Labem yard; 81 employees. <u>169/</u>

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