Romance of the Boundary District, B.C.

By C. M. CAMPBELL*

The author, a well known mining engineer, worked at Phoenix as engineer and mine superintendent from 1902 to 1921. Here he reminisces about the early days and extols the beauty of this natural playground. He also puts in a plea for Canadians to stop exporting raw ores and concentrates for the enriching of other countries, and to erect our own facilities for processing through to the end products.

■"THE BOUNDARY", as it is familiarly called, is that part of Canada's western front located along its southern boundary and extending for 50 miles between the Okanagan and the Lower Arrow lakes. Its populated area is limited to a width of about 20 miles.

It is an area of mountains, free from rocky peaks and well timbered even along the summits which are about a mile high. It is served by the Kettle River and its tributary creeks. The climate is fine. Transport facilities are good.

Justification for this publicity is the fact that, during the first two decades of this century the area was the leading copper producer not only in Canada but in the Empire. Since then stagnation has ruled.

"One cannot but admire", said an early writer, "the pluck and determination of the pioneers who plodded over trackless wilderness and by their camp fires built castles in the air of future importance". Prospectors penetrated into the Boundary as early as 1857 and a century ago Rock Creek and Boundary Creek were worked for gold. Camp McKinney dates from 1884 and the Mother Lode mine from 1891. Staking in the Phoenix area followed.

In those days southern British Columbia was active. The Fernie coal mines were opened. There were silver-lead-zinc mines in the Slocan and there was a smelter at Nelson. There were mines at Moyie and Rossland and the Sullivan mine at Kimberley. There was a smelter at Trail and another just over the border at Northport that treated Le Roi ore from Rossland. Over the mountains to the west were the Boundary mines and smelters and beyond, in the Similkameen area, were the Nickel Plate and Copper Mountain mines.

Phoenix was incorporated in 1899. While the 1911 census reported only 866 people, the widespread homes and bunkhouses beyond brought the total to twice that number.

The Boundary moves into action

Three leading companies were then organized. They were Granby Consolidated Mining, Smelting and Power Company, the British Columbia Copper Company and the Dominion Copper Company.

Granby was financed largely by money from Granby, in the province of Quebec, and Spokane. The first president was S.H.C. Miner, president of Granby Rubber Company, and its head office was in Montreal. New York interests soon took over, the head office was moved there and Grand Forks, with the smelter and hydro plant, became the local headquarters.

British Columbia Copper Company, an American company, owned the Mother Lode mine and the Greenwood smelter. Dominion Copper, a Mackenzie and Mann project, with mines at Phoenix and a smelter at Boundary Falls, was later taken over by B. C. Copper and the ore treated at Greenwood.

It is seldom that an ore, with coke, can be treated directly in the furnace. A proper fluxing mixture is needed. The Boundary ore was self-fluxing and with one ton of coke and six tons of ore a molten product was obtained. This was converted to "blister copper", a 99 per cent copper product which was sent to New Jersey to be refined.

Revolutionary changes were taking place. Nobel invented dynamite. Drilling was by hand and drills were sharpened by hand. Clearing the surface was done with a team of horses hauling a scraper. One man held the handles and another drove the team.

*Mining Engineer

Looking east from the Gold Drop dump: Rossland and Trail are straight ahead beyond the horizon. Grand Forks is in the last valley at the right.

sure is sufficiently high to bring it to within 49 ft below surface, which will result in sizeable savings in pumping costs. This source is capable of delivering 35,000-40,000 barrels of water per day, sufficient to treat the ores and to meet human consumption.

The complex will involve moving 2,000-plus kilometres inland some 30,000 tons of supplies and chemicals for treating the ores per annum. Use will be made of the port of Cotonou in Dahomey from where there is a 400-kilometre narrow-gauge railway to Parakou. From that terminal there is a good all-season road to Niger's Tahoua, with a dirt-road for the home stretch. For outbound traffic the plant will turn out concentrates containing 70-80% metal to cut down on the expensive freight charges to France. It is noteworthy in this connection that Gabon's Mounana complex manufactures magnesium uranate, containing a mere 15% metal; this however is only 400 kilometres inland from the Atlantic. Shipments are refined to 99.99% nuclear purity at southern France's Malvezi plant, near Narbonne. This unit and the Bouchet refinery, in the greater Paris area, processed in 1966 over 1,500 tons of concentrates coming from the on-the-spot chemical treatment of 700,000 tons of ore. The natural uranium end product carries 99.3% U-238 versus a mere 0.7% U-235.

To be known as the "Société des Mines de L'Air", a joint Franco-Nigerian company is presently to be set up with an initial capital of $12 million. Ownership will be divided three ways between the host country, C.E.A., and private French interest, inter alia, the Compagnie de Mokta and the Compagnie Francaise des Mineràis d'Uranium.

C.E.A. has reportedly undertaken to purchase the whole local production under a long-term supply contract at all but the final stage of productions. When the Arlit complex is in full stride, output will not only meet all of the French uranium requirements but will also provide a 400-500-ton yearly surplus available for export outside the franc area. Preproduction costs are to be repaid out of the export proceeds. The host country will receive a 50% share in profits from the enterprise. □

ICON

a successful co-operative venture

■ A SMALL BUT PROFITABLE copper producer was officially opened 40 miles north-east of Chibougamau in northern Quebec on June 21. This mine, known as the Icon Sullivan Joint Venture, is the co-operative effort of four mining companies who united to split the risks and to share the profits, as well as to pool their combined technology. These are Gunnex Limited, Kerr Addison Mines Ltd., Newmont Mining Corporation of Canada Ltd., and Rayrock Mines Ltd. Already in production over a year, the mine produced 10,940,606 pounds of copper up to the end of May, 1968, permitting that rare privilege of "burning of the mortgage" to take place during the "opening" ceremonies.

The discovery and bringing into production of this relatively small deposit was the result of some 5 years of persistent effort by the partners who devised the ingenious idea of revolving the chairmanship between them. The mine site was a small portion of a much larger area subjected to an airborne electromagnetic survey during which an anomaly was recorded in February, 1964. Ground follow-up commenced in June, 1965, and 35 claims were staked. A diamond drilling program commenced in January, 1966 which, during the year, confirmed the existence of a mineable copper deposit. The production decision was made on November 1, 1967 after an expenditure of $354,000 on exploration and development of claims. Up to that time there was proven 756,400 tons of ore containing 3.58% Cu, located close to surface and amenable to economic mining. An important consideration also was the availability of the nearby (44 mile distant) mill of Merrill Island Mining Corporation which was nearing exhaustion of its own ore reserves and where satisfactory arrangements were concluded for treatment of the Icon ore.

The ore occurs as a flat-lying bed in quartz dolomite within Proterozoic sediments above the Archaen basement. The bed dips about 10 degrees, pinching out at the extremities and swelling up to 30 ft. thick. Three main zones have been outlined to date in the same horizon and reserves have been increased to 1,191,000 tons at 3.0% Cu. This is sufficient for about 5 years operation at the projected rate of 600 tpd. Mining is both by open pit and from underground by a modified room and pillar system. Approach to the underground operation is by a decline from surface. Rooms are 75 ft wide driven across the full width of the zone which is up to 400 ft, and pillars are 75 ft wide.

Capital expenditures for roads, yards, bridges have been $184,361, for buildings and ore bins, $398,480; and for machinery and equipment, $435,-056; for a total of $1,017,897. Payroll, including Merrill Island employees engaged on Icon account, total 59, with a yearly cost of close to $500,000. Amongst the contractors engaged in this operation have been: Jos. St-Croix & Fils Ltee. as general contractor, roads, bridges, ore bins, pit clearing and overburden removal; Pamo, Inc., buildings; Chibougamau Express Ltd., ore and concentrate hauling. □

many came from there to Phoenix. There was an appreciable number of Americans. Scandinavians and Italians came next and Finns and Austrians arrived in some numbers. In those days a miner got $3.50 per shift; on contract he would make more. A mucker got $3.

The Dominion Day celebration was a highlight. Across the main street was a streamer with the words, "Watch Phoenix Grow." There were the usual races. There were hand-drilling and machine drilling contests. There was a poll for the nicest girl in the camp.

The excess of drinking and gambling in the early days soon moderated. There was never any gun play. Dry belt conditions prevailed and the snowfall was light. Summer and winter temperatures were moderate. Where trees were removed there was often good soil and early vegetables were grown. Bulbs flourished in the spring. Buttercups were picked in Grand Forks in February.

There were four churches, and fraternal societies were well represented. The Miner's Union Hall was the finest in the Interior. Passenger trains on both railways ran daily except Sunday. When autos came that could take the hill, trips to Christina Lake, 35 miles away, or to Penticton, 100 miles away, were in order. Allowing for time to cool off the engine, put water in the radiator, patch an inner tube, or have a picnic at a creek, the trip to Penticton took four to five hours.

Dealing with the climate "A Girl from the Coast" wrote: "The invigorating mountain air is a delight. The golden tamaracks and the poplars in the fall, the clear winter skies with the sun shining down on the clear snow and on the clouds in the valleys, and the gurgling music of the streamlets as they worked their way down the hill in spring, were all new to me and unforgettable, while the summer offered an opportunity for exploration not only about Phoenix but further afield."

As salvage operations were completed, a granite shaft monument was erected on the low rock outcrop on the divide in memory of the fifteen men who made the supreme sacrifice in the First Great War.

What of the future?

Last year, we are told, British Columbia produced copper worth $75,000,000. Yet we produced no copper at all, only a 25% copper concentrate. We then paid millions to Japan to transport and treat it. While pure copper ore is one-third copper and the balance iron and sulphur, we are paid for the copper only and we subsidize the export of coking coal to treat it. It was probably due to this subsidy, in part at least, that Japan has been able to obtain a contract to import ore from the Maritimes in Canada.

A demand was made that Japan should build a smelter here as a Centenary project. Why are our great Canadian mining and smelting companies not interested?

We are warned against the exploitation of our parks by mining and logging interests. Yet in southern British Columbia, essentially one enormous park, if it were not for the mining industry and for industries of a self-perpetuating nature we would continue to have a wilderness much of which would remain inaccessible. Mining has opened up areas that can be utilized and enjoyed by a far larger population than now exists.

In B.C. however, anybody can

Left:

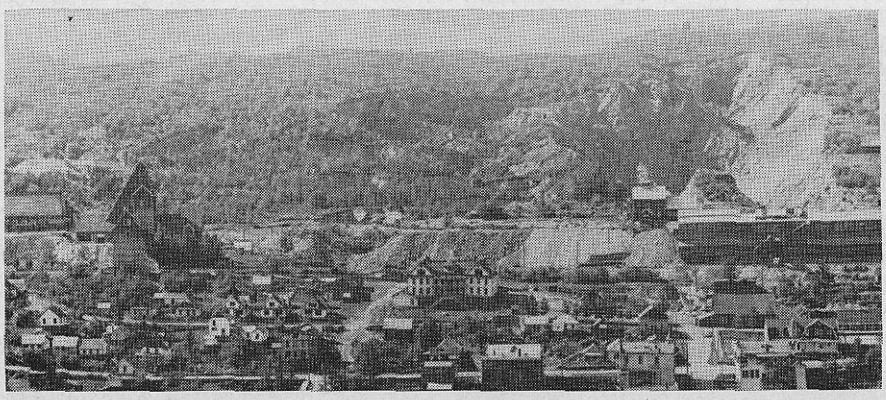
Then and now: The top picture shows the main Granby operation just above the town. Shown are the glory-hole and the No. 2 Shaft-house and bins. The footwall of the mineral zone, at the right, is smooth and steep.

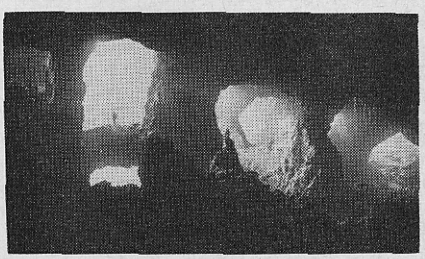
Lower picture, courtesy of P. R. Matthew, Granby Company, taken from the same spot, in 1964, shows the great change.

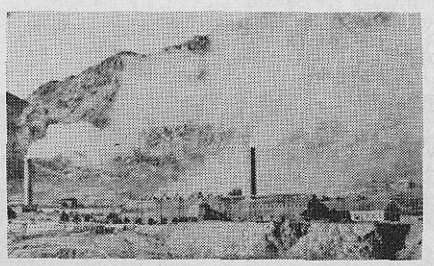
Right:

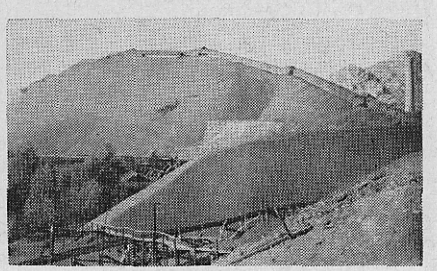
Top to bottom —

Open Stopes at Phoenix showing the pillars; **The Granby smelter** at its prime; **The Slag Piles:** Slag was poured molten.









Then came the twentieth century.

Phoenix ore was low-grade and costs had to conform. The mechanical department produced a drill sharpening machine before one was on the market and hand forges were eliminated. Wear and tear on equipment was heavy and a foundry was built in Grand Forks using mainly Phoenix and Grand Forks scrap. Machine shops were expanded and steel shapes brought in by the carload. Except for a few parts drilling machines were made on the job. Similar innovations were the rule at the smelter.

At the turn of the century one-ton capacity cars were loaded by hand and pushed by hand to the station. The next step was 1½-ton cars, in trains, hauled by horses. When ore pillars replaced square-set timbers, and large pieces of ore came down, small cars were inadequate. There were then on the market 10-ton, hopper-bottom cars and they were introduced. Large pieces of ore, however, hung up in the cars and had to be blasted and the doors seldom closed tightly. The problem was finally solved and the "Granby Car" turned over to the industry.

These cars were, in the main, of six tons capacity. In the smaller drifts they were three tons and in the open pit, referred to in those days as "the glory-hole" they were ten tons. They were supplied with roller bearings, springs and, in the smaller sizes, with automatic couplers. The main tracks were 3-ft gauge, with split switches, 30-lb rail and with grades and curves set by the engineer. The C.P.R. section-boss was hired to take care of the tracks.

In those days a large amount of surface ore passed down raises to the level below. In later years an electric shovel was used in the glory-hole and handled not only ore but a large amount of waste.

Granby had four railway outlets, all equipped with crushers which reduced the ore to six inches. Tonnage treated daily averaged 4,000.

Granby hits bottom

Large scale operation demands large reserves. The main deposit was about 2,500 ft long, 80 ft wide and the lowest level was 700 ft below the highest outcrop. In those days Michigan deposits went to great depth. Why not Granby ore? It was decided to sink deeper. Suddenly the deposit bottomed. This was announced and Granby stock dropped on the New York market from $151 to $29.

Knowledge of this vital, though shocking, detail saved Granby. Though there was still ore for a decade, it was essential to locate another deposit. Wide-spread exploration located the Anyox deposits north of Prince Rupert. Minor deposits were also found. A coking-coal deposit on Vancouver Island was bought and a smelter erected at Anyox. Granby carried on. Every other deposit in the Boundary, except Highland Bell, also ran out of ore. The deposits were confined to shallow formations.

The records show that a mine cost of $2.06 per ton in 1901 was reduced in 1913, the record year, to 75 cents. Ore mined, almost entirely underground, amounted to 1,264,000 tons and the total cost to the blister copper stage at Grand Forks, plus freight to New Jersey, refining, selling and all other charges was $2.65 per ton. B. C. Copper closed in 1917. Granby carried on until 1919, when an extended strike in the coal mines and lack of coke closed mine and smelter. Copper was low, costs high, and pay-ore limited. Men were needed at Anyox and the Boundary operations ended.

Phoenix was disincorporated in 1919. All debts had been paid and there were a few hundred dollars to turn over to the government.

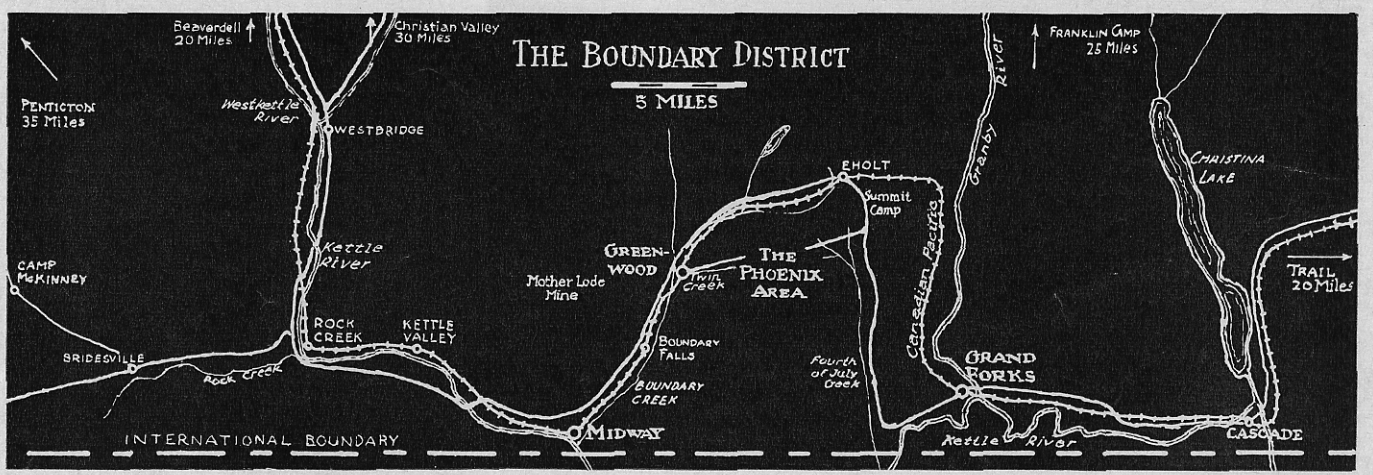
In all, Granby produced 13,724,000 tons of ore. The recovery was 0.046 oz gold, 0.28 oz silver and 23 lbs copper to the ton. Copper content ranged from 35 lbs per ton in 1901 to 19 lbs in 1919. With prevailing prices this was worth $65,000,000. Other Phoenix mine s produced 1, 903,000 tons worth $9,500,000, or a total for Phoenix of 15,623,000 worth $74,500,000. All other Boundary mines together produced 5,300,000 tons worth $39,500,000. In all 161 operating mines produced ore. Many of them were very small. In round numbers the ore mined would be of the order of 21 million tons worth $114 million or an average of, say, $5.50 per ton. During that period the average price was 18 cents per pound.

The price of copper was a trying handicap. In 1906-7 the average was 19.7 cents and in those days with a lower production Granby paid $2, 835,000 in dividends. For the next seven years, operating at the peak, the average price was 13.8 cents and total dividends were limited to $2, 400,000.

Forty years later Granby returned and took over the remnants. Buildings and railway tracks had disappeared. With huge shovels and trucks the entire surface and underlying ore remaining is being removed. The Upper Town location is now buried deep in waste and the ore goes to a nearby mill. To the end of 1966 ore mined has amounted to 4,196,000 tons. Concentrates are shipped to Japan and the recovery is about 12 pounds to the ton of ore mined.

Life in the Boundary

In the early days the citizens were mainly English speaking. The first Granby superintendent was William Yolen Williams and it was only natural that men from the slate quarries of Wales came with others from the Old Country. The McDonalds, McIsaacs and the McGillivarys came from Antigonish in Nova Scotia and, as the name "Granby" meant much to those in the Eastern Townships,



come, stake claims and help themselves, and the province will provide costly facilities. Very large areas are already alienated. In adjoining Washington, only an American or a person in good standing who has taken out his first citizenship papers, can stake a claim.

Ottawa acts

It is encouraging, therefore, to note that an act has been passed called the "Area Development Incentives Act". Areas have been designated for aid "in the establishment of a new facility or the expansion of an existing facility." The area designated for B.C. is the joint Okanagan and Boundary area. Industries have been started in the former and an industry based on forest products has been approved for Grand Forks.

Today refined metals are available from Trail in large amounts. Huge tonnages of raw ore to the west could be smelted and refined and made available. This would mean copper and molybdenum. Farm and forest products are in excess; why not use them here? Nearby also is beautiful Christina Lake.

Phoenix, at least, still has the makings of a park. Dawson and Barkerville bring tourists from far away. Phoenix, on the summit, is also on a short-cut highway over the mountain between Greenwood and Grand Forks. The Phoenix Alpine Ski Club is active.

Such is the Boundary. Such also is much of the entire province. Total mineral production for the province, to the end of 1966 was valued at $5, 909,863,341. In the main this was handed over to others for their benefit. Why continue this policy?

Solomon, milleniums ago, put it this way: "He that giveth to the rich shall surely come to want." □

THE STORY OF TRADE

Lübeck and the Hanse

By R. G. GROVES

■ Venice had given her subjects a constitution more democratic than might have been expected. She had a stable currency, based in the 13th century on a gold ducat called a 'zecchino', equal in value to a florin from Florence. She was the first exponent of colonial capitalism and even exported men overseas as settlers. Her gifts to the traders of the world included the first *public* bank, the first bills of exchange — the transfer of specific sums of money on a named date from debtor to creditor — which could be used for trade as if they were money.

The beautiful bridge over her Grand Canal is known as the Rialto, and here stocks were bought and sold and commercial news exchanged. Shakespeare's famous line: 'What news on the Rialto?' embodies this fact. Venice was also the first to make funded debts transferable. These debts are by agreement transformed into largely permanent debts on which fixed interest is paid.

We have seen that elsewhere in Europe the enlarging towns were being compelled to fortify themselves in defence of their trade. One such town became the nucleus of a group of North German communities which came together to form a Hanseatic League or 'Hanse'. This began in 1241, when Lübeck, Cologne and Hamburg united to defend the vital trade roads linking the Baltic to the North Sea from the predatory robber knights. In 1256 other German towns with large trading interests joined them, including Luneburg, Stettin, Wismar, Greiswald, Rostock, Stralsund and others. No fewer than 85 towns formed this defensive league.

During the centuries of decay, strife and bloodshed following the collapse of the Roman Empire, European trade had sadly diminished. These loosely federated cities did in their own waters what the Mediterranean traders had never completely succeeded in doing in the Mediterranean — they swept away the pirates.

The old city of Lübeck on the bay of the same name and on the Baltic coast had been destroyed by fire and rebuilt in 1158 A.D. by a combination of merchants in grain, timber, hides and other local products, who needed a harbour that could be defended from pirates and was well-placed for trade by sea with Russia, Flanders and England. The men of Lübeck brought wool from England to the Flemings of Antwerp. so founding their cloth industry.

Traders and shipowners were largely responsible for the city's administration, and their first step was to erect ramparts and fortifications against the robber knights and barons by whom she was surrounded. Traders were and always have been looked down upon by those who live by the sword. Lübeck's were no exception. No merchant dared put up a booth, office or mansion outside the city walls, since it would infallibly be plundered by the nearest noble. Many of these, having returned penniless from the Crusades and being in great need, regarded the merchants and traders as fair game. In effect, therefore, Lübeck and the other Hanse towns were little more than fortified for safety behind stone walls kept market places. Their need to huddle them small. In 1400 Lübeck herself had no more than 20,000 inhabitants.

In medieval times a Lübeck trader lived in a red brick house in a narrow street, and because there was scant room in the town, he combined home, office and storerooms in the one building. Carts dumped goods in his courtyard, whence they were lifted by block and tackle into roomy attics and stored till required. In what should have been his garden he kept horses for riding and transport, and possibly a few animals and poultry as well. In surviving Hanse towns the narrow box beds in which his assistants slept can still be seen, but some slept literally under the counter.

Chief of the Hanse towns, Lübeck had a direct interest in the rich iron mines of Sweden. With her associates she built up a great trading confederacy which governed with pride, skill and courage. Each Hanse town paid a subscription commensurate with its importance, and could appeal to the rest for help in emergency. All combined to suppress piracy, bring legal actions against defaulting debtors, establish warehouses and agencies in foreign cities, compel some overseas customers to buy their goods whether they liked it or not, challenge even kings who interfered with their trade or shipping — on one occasion the

Hanse fleet chased Edward IV of England into a Flemish port, when he was escaping from England and there had been trouble between them.

The Hanse also dabbled in the politics of their overseas customers, and might refuse to supply the goods they needed if their demands were resisted.

Side by side with all this went the building of dignified mansions for their wealthy trading families, soaring cathedrals and splendid town halls. In Lübeck the trader was honoured, the aristocrat despised. Thoman Mann's novel 'Buddenbrooks' paints a good picture of the city in modern times.

Yet the Hanse was not free from internal strife. Primarily a *maritime* trading town, Lübeck had trouble with the inland cities of the League, which on occasion refused to help her on the pretext that they had no interest in seaborne trade. There were also jealousies among them leading to quarrels. Nevertheless the majority kept the organization together, checking any attempt by one city to carve an empire for herself at her neighbour's expense.

Lübeck exchanged her salt fish and timber for the products of the south and west of Europe. Her trading posts there had sometimes to be defended by force of arms, and the power of the League became so great that even English kings had at times to accept a low price for their wool and pay through the nose for the cloth made from it in the looms of Flanders, sold to them by the Hanse merchants. One of the great debts England owes to Edward IV is that he encouraged the making of woollen cloth in his own country after temporarily expelling the Hanse traders from his shores.

A Lübeck merchant was subject to many restrictions. He could not deal in 'futures', i.e. buy up crops before they were harvested; fish before it was caught in the nets; or cloth before it had left the looms. He could not publicize his wares except at trade fairs, nor employ a barker to shout the virtues of his goods to passers-by. Nor could he set up in business without the League's permission. This was to prevent too many sellers of the same commodities, so causing prices to fall. Shoddy goods or lower quality materials could not be produced, and he had to conform to the traditional designs and standards. He and his rivals were expected to display their products in the great halls devoted to this purpose, of which the famous Cloth Hall at Ypres in Belgium was typical.

Whether he sold grain, timber, salt, wool, furs, fish, wax, honey, ale, malt or meat, a Lübeck merchant had to maintain the high reputation of the Hanse cities for first-rate and trustworthy goods, and was not readily forgiven if he failed to do so.

Lübeck's carved wooden beads for rosaries were so greatly in demand at one time that she made them all alike in size and material to save time and increase production. She thus became one of the first trading communities to adopt standardization. Counterfeiters of coinage could be lawfully boiled in oil on the town hall steps, as was done on one occasion.

The Hanse did not attempt 'big business' nor form combines or cartels. Their association was purely to safeguard their common commercial interests. Otherwise they functioned as individuals on a comparatively small scale. Transport difficulties kept their consignments small. The Lübeck traders travelled with those of other Hanse towns in primitive, unsprung carts, stacked high with bulging stacks and boxes. They laboured through bleak, dangerous Alpine passes into Switzerland, Austria and Italy. In winter their carts rattled and groaned along the deeply-rutted, unmetalled roads of Russia, axle-deep in mud, hard and dry in summer heat. They were ever on the lookout for bears, wolves or robbers. Or else they steered their small ships through fierce storms to the harbours of England or Iceland. They suffered from hunger, thirst, ague and the sores that afflicted long-distance travellers in medieval times. They were silent, sober, economical, phlegmatic, single-minded, tolerant and practical, except that they detested their great rivals in trade, the Jews.

The Hanse had counting houses and magazines at Novgorod, Bruges, Bergen, Boston, Kings Lynn, Yarmouth, Hull and the Steelyard in London, where lead and furs were marketed. Lawyers inevitably acquired great influence in towns such as Lübeck, which set great store by the law and respected it. Gradually the men of law took over much of the traders' legal affairs.

The great German merchant families, prospering, thirsted for what they had never had — titles and dignities — and if they could, bought them. One German wrote: 'There are some who are made noble; rich merchants, tailors, breadbakers and furriers; they all want to be noble, when they have money, for in our time the nobility had turned into a merchants' guild.'

The Hanse faltered and finally collapsed when Poland, Russia, Burgundy and Scandinavia grew powerful, and when kings and princes discovered that city walls could be breached by cannon. Their system of civic defence was thereby shattered. Pacific in habit, unorganized for collective military effort, widely separated and virtual amateurs in military tactics and strategy, they were no match for the great professional armies of kingdoms and principalities with which they now had to contend. Elizabeth I of England in 1597 was able to close down the London Steelyard of the Hanse with impunity, thus dealing a great blow to their trade.

Far to the south of the Hanse towns was another city state, that of Florence, perhaps the greatest medieval commercial and monetary centre of all. About 187 B.C. a tribe of hillmen is said to have come down from Fiesole to the banks of the river Arno expressly to develop their lowland trade. The city they founded had no great fleets and consequently no maritime trade such as had constituted the strength of Carthage, Venice and Genoa. She enriched herself at first by a profitable trade with the Turks of Constantinople, who preferred to do business with her because she was not a rival in seapower. When Alexandria fell to the infidels, many monks and nuns fled to Florence bringing with them the art and technique of spinning and weaving cloth, which was indirectly sold to the Turks through Venice; but later the Florentines took orders direct from Constantinople.

The great feature of Florence, as of other Italian cities, was not her strong, encircling medieval walls so much as her many fortified towers or 'torre'. These housed the offices and homes of her commercial plutocrats, the 'men of the towers', as they were called. Florence had no interest in a defensive league with other Italian cities, such as the Hanseatic. Within her walls each man's hand was against his neighbours', in both trade and the struggle for wealth, power and prestige, and each city warred against the next.

The Florentines made their money out of the surrounding peasantry, and their society was rigidly organized into guilds, graded in importance. The judges and notaries, the merchants from the roads between market hall and cathedral, came first. The big merchants from other streets second. Third came the linen weavers, and the medium-sized traders were fourth. Small shopkeepers, apothecaries and physicians ranked fifth, with fletchers and wine dealers, the small fry, last.

We shall have more to say about Florence, and the rise of Germany, and Spain, in the next instalment. □