The Unesco Courier

JUNE 1984 — 6 French francs

Great trade routes

A time to live...

24 Senegal

Dance and gesture

Dancers of *Mudra-Africa,* the African Training and Research Centre for the Performing Arts, Dakar, Senegal, perform a *pas de deux.* This interdisciplinary, intercultural experimental centre was founded in 1977 at the instigation of the former President of Senegal, Léopold Sédar Senghor, and the French choreographer Maurice Béjart (earlier, in 1970, Béjart had founded in Brussels a school of dance which he called "Mudra", a Sanskrit word meaning "gesture"). For an initial period Mudra-Africa received financial assistance from Unesco's International Fund for the Promotion of Culture and the Calouste Gulbenkian Foundation. Directed by Germaine Acogny, it has provided intensive training for African dancers and cultural organizers. The school plans to make its permanent home in Senegal. A series of ballets has been created and presented in several capitals in Africa and Europe.

Photo © Germaine Acogny, Dakar

The Unesco Courier
A window open on the world

Editorial

June 1984
37th year

CARAVANS slowly wending their way across desert wastes; stately galleons laden with spices sweeping before the Trade Winds *en route* for the ports of western Europe; supertankers the size of small towns bringing oil to an energy-hungry world... The bold lines traced across the globe by the world's great trade routes, past and present, readily conjure up images like these. They also raise the question of the immense contribution that long-distance trade has made to the shaping of world history, the spread of cultures and ways of life.

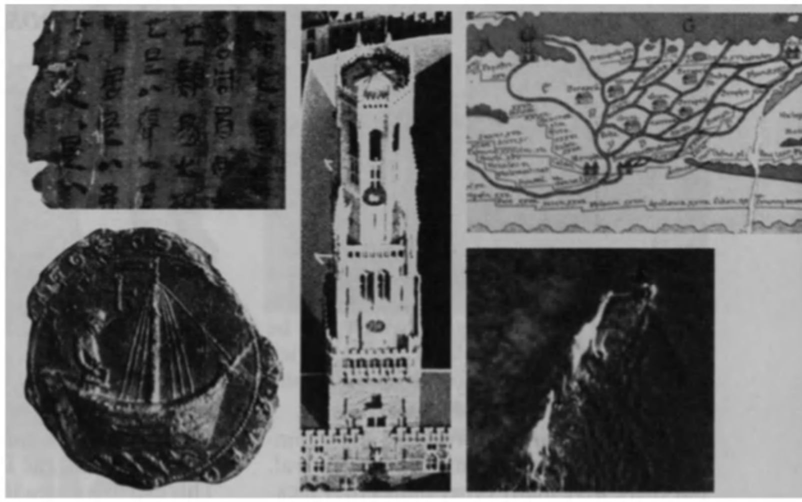
The articles in this issue of the *Unesco Courier* are an attempt to rediscover some of the great arteries for the flow of goods and ideas which have since early times linked distant lands and peoples. Some of these links have been enduring: modern highways that are a natural outgrowth of ancient road systems that developed with commercial expansion; modern cities owing their location to an ancient pattern of trade. Some have been more transitory: the trade network built in the Mediterranean by Carthage in Antiquity came to a sudden end when the city was reduced to rubble by Rome aspiring to world power. Bruges, on the other hand, was a city which brilliantly survived commercial decline to become a glittering centre of art and, today, a model of urbanism integrating old and new. Some, such as the overland route which brought tin from the British Isles to the bronze craftsmen of Ancient Greece, and the paths by which amber from the shores of the North Sea filtered southwards, remain in places tantalizingly elusive, a challenge to the skills and imagination of modern archaeologists. As for others, such as the old east African trade patterns which existed long before the arrival of the Europeans in the fifteenth century, their importance is only now beginning to be understood. And perhaps the most classic trade route of all was also the most versatile: the Silk Road which for 1,500 years linked China to the West and was a conduit for technological innovation and religious change as well as commerce.

But there is a darker side to the story which should not be forgotten. The world's great trade routes have been the focus for bloody struggles for supremacy, and the channels of infamous forms of traffic and exploitation: the slave trade.

The preparation of this issue, on a theme, suggested by the Urdu edition of the *Unesco Courier*, which more than most reaches across the oceans and continents, has been largely due to the magazine's own form of international exchange—close collaboration between the staff of its worldwide network of editions now published in twenty-seven languages.

Cover: Illustration from a 15th-century French translation, now in the *Bibliothèque Nationale*, Paris, of Marco Polo's own description of his travels entitled *Il Milione* ("The Million", known in English as "The Travels of Marco Polo"). *Il Milione* was dictated by Marco Polo to a fellow prisoner, Rustichello da Pisa, during his three years of imprisonment by the Genoese following their defeat of the Venetians at the battle of Curzola in 1298.

Photo © Edimedia, Paris



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FROM BARTER TO BIG BUSINESS

The adventure of world trade

by A.J. Barbosa Lima Sobrinho

IT is difficult for anyone who has even only a superficial idea of the complex pattern of world trade today to conceive of its modest origins, which can be traced back to Palaeolithic times, when men ceased to get their food by hunting and began to produce it themselves.

These small farmers produced a few commodities for their sustenance and survival, but there were many other things they lacked, and they realized at an early stage that they could exchange what they had for some of the things they needed. This led them to produce surpluses with which they could obtain the goods they lacked. This is how barter originated.

Barter was initially practised between neighbours, then at the level of villages and la:ger communities. The barter system had to overcome many obstacles. It was, for instance, necessary to produce the articles which were needed by the owners of other goods.

Trade in the strict sense started in the Mediterranean, in the valleys of the Nile, the Jordan and Euphrates, along the coasts of the Red Sea, the Dead Sea and the Gulf. This extensive area in which Egypt, Arabia, Palestine, Syria, Mesopotamia and Assyria came into being in a sense constituted a geopolitical and physical unit that was to influence the destiny of its inhabitants.

Egypt played a leading role in this initial stage of trade because of the wealth it derived from the fertilizing floods of the Nile. She established regular relations with Asia. Her caravans set out in search of the products of Phoenicia, Syria and the Red Sea area. The Bible tells us that the brothers of Joseph transported the most precious articles to be found in their land—balsam and honey, perfumes and myrrh, pistachios and almonds. Egypt's imports included wood, ivory, gold, wine and oil, and she exported grain, textiles and manufactured articles, especially arms. Trade took place overland because the Egyptians were not great sailors; it was still conducted on a barter basis and sometimes consisted in the payment of tribute by subject peoples.

Governments began to take an interest in trade, encouraging and sometimes controlling it. Although money was still unknown, barter operations between private traders became easier and more frequent once they had a fixed weight of metal—gold or silver—as a common standard of reference.

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Photo of the bazaar at Damascus (Syria) was taken by the French photographer Félix Bonfils (1825-1885). It belongs to a remarkable collection of historical photos on the Middle East in the possession of the Semitic Museum of Harvard University. A series of posters on the history of the Middle East, based on the photographic documentation of the Semitic Museum is currently being published with the support of Unesco's International Fund for the Promotion of Culture.

The tip of a Chaldean stela (gravestone) dating from the time of Hammurabi (c. 1792-1750 BC), founder of the first Babylonian empire.
Photo © Giraudon, Paris. Louvre Museum

A purple shell of* Murex brandaris *from Tyre (c. 1st century AD). In Antiquity a deep crimson colouring matter was derived from this mollusc and used for dyeing clothes. Purple from Tyre was more highly prized than any other.
Photo from *Tyre through the Ages*
© Dar el-Mashreq publishers, Beirut

This terracotta figurine unearthed at Carthage is a typical product of the potteries of the Greek islands (6th century BC). Bardo Museum, Tunis.
Photo Luc Joubert © *Archéologie Vivante*

An Athenian coin dating from c. 480 BC is adorned with an owl, the emblem of the protectress of Athens, the goddess Athene.
Photo © Henri Stierlin, Geneva

The bronze she-wolf in the Capitoline Museum, Rome, is Etruscan work dating from the 5th century BC. According to the legend Rome was founded by Romulus and Remus, the twin sons of a Vestal Virgin, who were suckled by a wolf.
Photo © Alinari-Giraudon, Paris

Photo © Interpress, Poland, Elblag Museum

Already used in the 12th century to designate associations of merchants in Germany, England and northern France, the term* Hanse *was later applied to leagues of trading cities. In the 13th century Bruges (see p. 16) played a central role in Hanseatic trade. Above, seal of the Hanseatic town of Elbing (today Elblag) on the Baltic coast of Poland.

Babylon, then inhabited by the Semites, also became an excellent market for products from the south (Arabia), the west (Syria) and even the east (Persia). These commodities included precious metals, wool, building materials and cereals, the values of which fluctuated, as indicated in the famous Code of Hammurabi, with a tendency for priority to be given to silver.

This kind of trade did not affect the situation of the mass of the people. Its chief purpose was to meet the demand for luxury goods. Essential commodities did not come from abroad but were obtained through barter at local or regional fairs.

This was still the situation when the Phoenicians came to dominate maritime trade. Situated on a coastal strip of Palestine which did not offer favourable conditions for the survival of their cities of Tyre, Sidon and Beirut, the Phoenicians turned to the sea in search of wealth. Despite the enormous difficulties in those times of sailing in small vessels without navigational aids, the Phoenicians transformed the Mediterranean into a kind of private sea and established small colonies in the Mediterranean basin.

Under pressure from their neighbours, and also because of internal dissensions, the power of the Phoenicians gradually declined, and was inherited by Carthage, a city which the Phoenicians had founded in the ninth century BC. The power of Carthage grew to such an extent that it threatened the dominant position of Rome, and the famous words of the Roman statesman Cato, "Carthage must be destroyed", became a programme for the assertion of Roman claims to world supremacy.

There is no evidence that the Phoenicians had a money economy. In the fourth century BC, however, Carthage decided to mint Spanish silver and Mauretanian gold for trading purposes. Herodotus describes how the Carthaginian traders went about their business. On arrival at some point or other on the coast "they would land their wares, spread them out on the beach, and then return to their vessels from which they would release columns of smoke. Seeing these, the natives would approach with gold..."

Athens inherited the commercial hegemony which the Phoenicians had exercised from Tyre, and held on to it for a long time. The products of China and India followed an arc-shaped route through Syria to Athens, whose tanneries, foundries and establishments producing arms and works of art turned out the goods on which this trade was based. Relations were developed with the north in order to obtain timber for ship-building. The slave market flourished side by side with the trade in commodities. Certain foodstuffs such as cereals, meat and fish from the Black Sea were eventually included in these commercial operations.

With the Mediterranean still the setting for these exchanges, Greece made a contribution of inestimable value to the development of trade by creating a money economy. The coin made its appearance in the middle of the seventh century BC, facilitating barter and other forms of trade.

The glorious expansion of Athens, and of Greece as a whole, was followed by the rise ▶

A nutmeg seller is depicted in this detail from a 15th-century French illuminated manuscript (now at Modena, Italy) of a treatise in which the Greek physician Dioscorides (also known as Pedanius, 1st century AD) details the properties of some 700 plants. The aromatic kernel of the fruit of the nutmeg tree is still widely used as a spice (see article page 20 on the "spice route").

Photo © Giraudon, Paris

Photo © Musée de l'Homme, Paris

Silver sandals of a mummy from Ancón, on the coast of central Peru (1000-1400 AD).

of Rome, based on the force of its legions. At the same time great cities such as Alexandria, Seleucia and Antioch, with more pressing commercial needs, were starting to emerge. Rome's impact was particularly strong in the slave trade, and in the extension of the tribute system to conquered peoples.

The decline of Rome contributed to the rise of feudalism. The conditions necessary for the growth of trade disappeared. Trade ebbed, threatened by serious dangers. Sea traffic declined with the disappearance of the powerful governments which had protected and promoted it. Overland trade had to follow routes which were no longer in the state in which the Romans had left them. There was a constant risk of attacks, many of them carried out with the protection and complicity of the feudal lords.

Hence the need arose to restore the foundations on which trade was based. In order to ensure the necessary co-operation, the traders formed associations such as the Hanseatic League. This consolidated the existence of a new social class—the merchant class. Fairs, which had always been a regional tradition, grew in importance, with the collaboration of the feudal lords, who realized the advantages to be gained from their development. Seaborne trade was fostered by the introduction of the compass. Under the patronage of the King of Portugal's brother Henry the Navigator, a training school for navigators was set up at Sagres, and Christopher Columbus was to obtain from the rulers of Castile the support he needed for his hazardous voyage. Taking the African route, Vasco de Gama reached India, and setting out for the same destination, Pedro Alvarez Cabral reached Brazil. This was the age of the great discoveries which would complete the map of the world; and exchanges with the newly discovered lands infused fresh life into trade.

Up to that time international trade was mainly concerned with luxury goods—spices such as pepper, cloves, cinnamon, nutmeg, ginger and aloes; perfumes like balsam, benzoin and camphor; scarce commodities like salt, precious stones, diamonds, emeralds, rubies, sapphires; pearls from the Indian Ocean, African ivory, dyes for colouring cloth, rare silks and brilliant purple.

With the discovery of America, gold and silver began to reach Europe in unexpected quantities from Mexico and Peru. Trade, for so many centuries limited to barter, could now rely upon sufficient quantities of the metals required for minting coins under a system of bimetallism, not without hesitation and controversy throughout the world.

Thanks to the ducat, and the new currencies minted by European States, trade acquired the facilities it needed for its expansion; owing to the intrinsic value of the metal and the trustworthiness of the issuing government, these currencies constituted a measure of value and a means of exchange. At the same time traders, who in Antiquity had been treated as an inferior class, acquired a new status, forming a solid, powerful bourgeoisie, and beginning to consider themselves the equals of the ruling classes.

Commercial supremacy passed from Spain and Portugal to England and Holland, with France and Germany in constant competition. Then came the turn of the United States. The Industrial Revolution had a multiplier effect on commercial activity, creating new varieties of merchandise, increasing the volume of commercial goods, and intensifying a struggle for commercial supremacy which sometimes led to war. Companies such as the India Companies and other similar organizations which flourished at this time, were established or supported by the States and began to organize trading monopolies.

The moment came when Britain won mastery of the seas—a position she held for a long time and for which she equipped her ports. She also increased her overland trade, which after the invention of the steam engine, was soon being carried by a vast railway network. It was also during the period of British preponderance that the world entered the age of coal, which strengthened Britain's dominance both of the seas and of railways, which she financed in many parts of the world for the export of her manufactured goods.

The end of the nineteenth century saw the invention of the internal combustion engine, with the result that oil became an essential commodity. Here too the British were in a dominant position until the cost of two world wars obliged them to share their power with the United States. Thanks to the power now exercised by its cartels, trusts and consortia, this vast country, with its enormous resources, has taken over the position occupied by Britain in the nineteenth century.

At the same time communications, an essential auxiliary of commercial activity, have progressed from the organization of postal services (already a great advance) to the invention of the submarine cable, radio, the telephone and telex. Land and sea transport use and benefit from air transport. Now everything is so close that the world seems to have shrunk.

■ **A.J. Barbosa Lima Sobrinho**

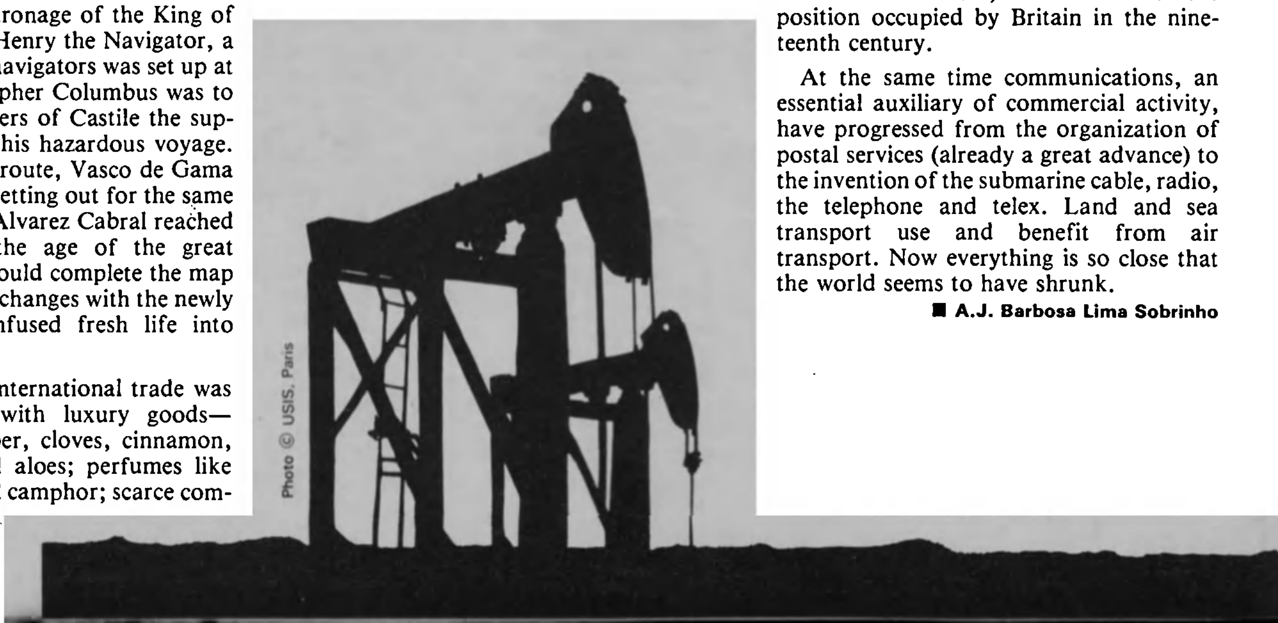

Photo © USIS, Paris

NORTH AFRICA'S GREAT ROMAN ROAD

by Eugenia Equini Schneider

THE existence in Roman times of a great coastal highway linking all the African provinces facing the Mediterranean, from Alexandria in Egypt to the Pillars of Hercules, is attested, not so much by archaeological remains, as by two famous documents dealing with ancient highways: the Antonine Itinerary and the Peutinger Table.

Both these documents date from the Late Roman Empire, but they appear to reflect historical facts of an earlier period. They mention two East-West routes which largely followed different itineraries. The Antonine Itinerary speaks of a route which kept close to the coast most of the time, although it swung inland at a number of places which were recognized as being marshy or inaccessible. The itinerary mentioned in the Peutinger Table generally runs parallel to the coast but further inland than the other. Apart from these documents, milestone inscriptions found so far are a valuable source of information about the construction of the individual sections of the main highway.

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There is no doubt that the great coastal highway linking Alexandria and Tingis (Tangiers) was originally mapped out in such a way as to take account of the topographical relief, and met certain military and commercial needs as well as encouraging the growth of urbanization. It was still incomplete in the time of Tiberius, but was very extensive at the end of the first century AD. It probably acquired its final form under the Emperors Trajan and Hadrian.

In Roman times, several sections of the highway followed routes previously taken by the Phoenicians and the Greeks, stretches of which were joined up or corrected as the Roman dominion was extended or confirmed in each region. Indeed, then as now, the northern coast of Africa was marked by two places of major importance: in the east the Nile delta on which the great port of Alexandria was built in the fourth century BC, and in the west the promontory of Bizerta, on which the Phoenicians established Carthage, which dominated all trade in the western Mediterranean until its destruction by the Romans in 146 BC.

In ancient times trade between Alexandria and Carthage, through Cyrenaica and the region of the Carthaginian trading stations (Sabratha, Oea-Tripolis, Leptis) must have been quite considerable. The existence of a sea-current flowing from east to west which, according to some experts, hampered the movement of ships coming from Egypt, must have encouraged the overland transport of goods, at least from Alexandria to Cyrene.

Sources of information about the pre-Roman road network are, however, very fragmentary. The only trustworthy document which has come down to us is the so-called *Periplus of Scylax*, dating from the fourth century BC. It suggests that there was at that time either a coastal maritime itinerary divided into several short stages from Egypt as far as Hesperides (Benghazi), or a guide to longer overland routes along the Cyrenaican and Syrtic coasts. The latter were taken in 308-305 BC by Ophella and his Greek army when, as the ally of Agathocles of Syracuse, he mounted an offensive against Carthage from Cyrene. But the journey cannot have been an easy one, because Diodorus of Sicily reports that ▶

Wharf scene in the port of Alexandria, photographed in the second half of the 19th century by Félix Bonfils.

Photo © Fuad Debbas, Beirut

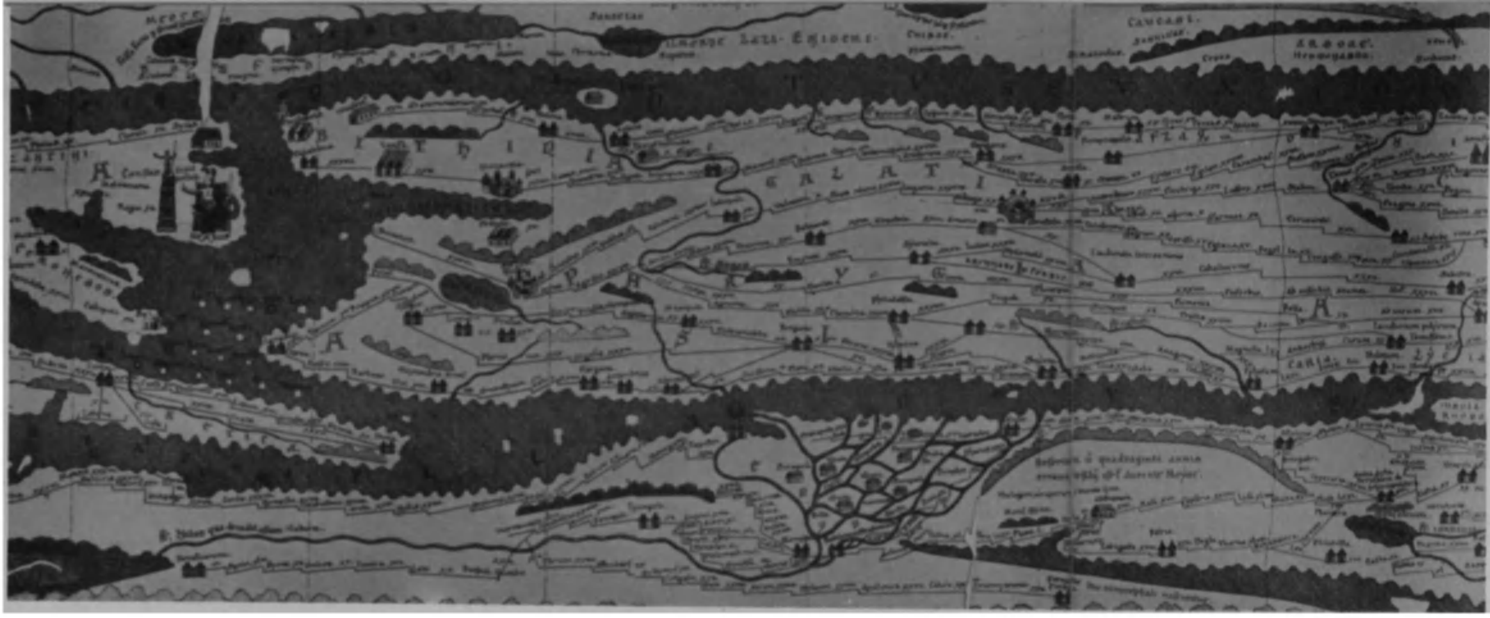

Photo © Lauros-Giraudon, Paris

Detail of the **Peutinger Table,** ***a copy made in 1265 by a monk of Colmar (Alsace) of an ancient route map of the Roman empire in the 3rd and 4th centuries. The copy was found at Worms in 1494 and later came into the hands of the German humanist Konrad Peutinger (1465-1547). The map consists of 12 sheets of parchment, the elongated shape of which (6.82 x 0.34 m) causes grave deformations. Recognizable at left is a "stretched" representation of the island of Crete, and below, almost at centre, is the Nile delta. The map is now in the Hofbibliotek in Vienna.***

▶"Ophella's army advanced with great difficulty in territory without water and infested by wild animals", and that a large part of the army was decimated by the privations suffered when rounding Syrtis Major (the Gulf of Sidra) on the way to Leptis. The Greek geographer Strabo tells us that between 48 and 47 BC Cato of Utica also crossed the Syrtis Major region in thirty days with 10,000 men, probably following a difficult coastal route.

The rebuilding of Carthage, undertaken on the orders of Julius Caesar and completed under Augustus, and of its port, to which the products of North Africa soon began to flow, especially wheat for the imperial capital (one and half million bushels—enough to feed 600,000 people for a year—were delivered annually to Rome) stimulated the revival of trade. It also contributed to the development of the great coastal highway which ran across the Libyan desert from present-day Tunisia to Sabratha, the most westerly city of Tripolitania. The principal geographical feature of the region is the *jebel*, a rocky plateau which rises to 700 metres, just behind the coast. It was in this region where a Mediterranean climate and seasonal rains contribute to the fertility of the soil, that the great trading centres of Sabratha, Oea and Leptis arose. They were focal points of Carthage's maritime empire and natural outlets, even in Roman times, for the commercial traffic which was conducted from the Sudan and central Africa across the Sahara to the Mediterranean. Trade in ivory and in wild animals for the Roman circus must have flourished as is indicated by the marble statue of an elephant found at Leptis Magna, and the figure of an elephant (the emblem of the Sabratha merchants) in the mosaic in the Square of the Corporations at Ostia, the port of ancient Rome.

Forty miles from Sabratha, Oea-Tripolis possessed a fine natural harbour, abundant supplies of fresh water, and olive-groves in the hinterland. The amount of oil produced was such that Julius Caesar could demand a tribute of a million measures to punish the city for having supported the enemy. Leptis Magna was the third city of Tripolis, and undoubtedly the most important of those on the Mediterranean littoral between Carthage and Alexandria. Leptis possessed a small, natural river-port, formed by the estuary of the Lebda wadi and sheltered from the Etesian winds by a promontory. The port was certainly already equipped and commercially active in the first century AD, but probably not very functional. Its final layout was due to the Emperor Septimius Severus, who was a native of Leptis. His plan included a breakwater to facilitate the runoff of the torrential waters, powerful embankments made of enormous blocks of stone to protect the harbour on the sea side, and a series of quays for mooring and unloading. A lighthouse stood at the end of the breakwater. Communications by land and sea thus became increasingly efficient, and large-scale interprovincial and international trade was henceforth organized on a sound basis.

Heads of a white woman and a black woman are joined to form a two-handled Greek terracotta cantharus or drinking cup (late 6th century BC, height 19.2 cm).

Photo © Museum of Fine Arts, Boston

From Leptis, the great coastal highway passed along the sandy coast east of the town as far as the Altars of the Philaeni, which marked the border between Tripolitania and Cyrenaica. On this long stretch between the promontory of Carthage and that of Cyrenaica lies the depression of Syrtis Major, much feared because of its inhospitable coast and its reptile-infested land. The inscription *Dissio—aqua amara* ("brackish water") in the Peutinger Table shows that it was not always possible to get fresh-water supplies at the various "stationes" along the highway.

After passing through many towns, the highway traversed Berenice (Benghazi), Hadrianopolis (Driana), Tauchira (Tocra) and Ptolemais (Tolmeita) before reaching Cyrene which, with its port of Apollonia (Marsa Susa), occupied a highly favourable geographical position and formed a road junction of strategic importance. During Antiquity an extensive coastal strip of Tripolitania was cultivated to a depth of at least sixty kilometres from the coast, and the plateau was covered by a dense network of secondary roads linking the coastal centres with the hinterland. A magnificent caravanserai, dating from the second century BC and capable of accommodating most of the port-bound commercial traffic, was recently identified near the entrance to the town. This proves that Cyrene was a collection-point for all kinds of products from the pre-desert hinterland and neighbouring regions and destined for export overseas.

From here the highway led towards Egypt via Antipyrgos (now Tobruk). At this stage the route was no longer marked by milestones but by heaps of stones at in-

Photo Edouard © AAA, Paris

Roman ruins at Leptis Magna (today Labdah) on the Mediterranean coast east of Tripoli. The capital of the ancient province of Tripolitania, Leptis Magna achieved great prosperity in the 3rd century. It was a centre of trade with the African hinterland and a starting point for caravan routes.

tervals of twenty miles (a day's journey) where the *stationes* and fresh-water wells were located. In those days the traveller would first pass through Taposiris, on the great bay of Sinus Pilinthinus (Marmarica), the first Egyptian coastal town of any importance; then after a further day's journey he would reach the outskirts of Alexandria. "There is an island called Pharos in the sea off the coast of Egypt. Here there is a bay with good anchorage from which ships head out to sea after taking on fresh water". This is how Homer, in the *Odyssey* describes the promontory on which the great lighthouse of Alexandria was built under Ptolemy II in the third century BC "in honour of Jupiter the Saviour, for his sailors". The great port of Alexandria, the finest and best equipped of the ancient world, rose on the west of the Nile delta. In Roman times the city, exceptionally well situated between the Mediterranean and the Red Sea on the route to India, was a huge emporium not only for foodstuffs (Roman Egypt was the empire's granary) but also for glass, linen, textiles of all qualities, papyri, precious woods, ivory and precious metals.

In 42 AD the Emperor Claudius officially annexed Mauretania, a vast region of mountains and desert comprising present-day Morocco and the whole of coastal Algeria. By restoring and widening a Carthaginian trail and gradually extending it westwards as far as Tingis and southwards to Rabat, the Romans created a continuous coastal highway stretching for 2,100 miles from the Atlantic to the Nile. West of Carthage the road system was very simple: it followed the coastline as far as possible, passing through and connecting the coastal towns. From Chillu, on the coast, it continued westwards through Mauretania to Icosium (Algiers), Caesaria (Cherchel), capital of the province of Caesarian Mauretania, as far as Rusaddir (Melilla) and Tingis—the chief town of Tingitian Mauretania. It then continued along the Atlantic coast through Zilis (Asilah), Lixus (Larache) and Salé (near Rabat). The Romans imported from Mauretania the famous cedarwood used for making fine tables, as well as pearls, ivory, purple dye, asphalt and copper.

■ Eugenia Equini Schneider

Photo W. Hugentobler © Museum of Ethnography, Neuchâtel, Switzerland

Detail of a marble mosaic from Thysdrus (today El Jem in Tunisia). The whole mosaic shows a Dionysiac procession in a rustic setting. Shown here, the two figures in the rear of the procession: a drunken Silenus outstretched on the back of a dromedary and a bacchante (female reveller) beside whom a panther calmly pads. Bardo Museum, Tunis.

WAS THERE A 'TIN ROAD' ACROSS EUROPE 2,500 YEARS AGO?

by Hanni Schwab

DURING the sixth century BC the Greeks used tin from Cornwall for making bronzes. This precious metal was transported by boat along the Atlantic coast, through the Straits of Gibraltar and across the Mediterranean to Greece. Around the middle of the sixth century Carthage became an important sea power, and in 540 concluded a treaty with the Etruscans against the Greeks who were then the dominant Mediterranean power. In 535 the Greeks were defeated at the Battle of Alalia and lost control of the Mediterranean. They could no longer even reach their colony of Massalia (Marseilles) and were compelled to find a new overland route across the Alps to transport their tin from England. As far as possible they used inland waterways, rivers and lakes, and the points where their wagons were transshipped were the most critical stages in the journey.

It may seem an exaggeration to describe as a "tin route" a line on the map of Europe of which only a few scattered points can be traced. But these points, which represent the sites of discoveries—in France, Mont Lassois and Vix, Bragny-sur-Saône, the fortified camp at Salins-les-Bains; Châtillon-sur-Glâne in Switzerland—are so important and have so many features in common that they can be related to one another. Archaeological finds dating from the late sixth and the early fifth century BC which have been unearthed along the route include objects imported from Greece and Phocaea, as well as from the region of Marseilles. All these sites, which are located between the upper reaches of the Seine and

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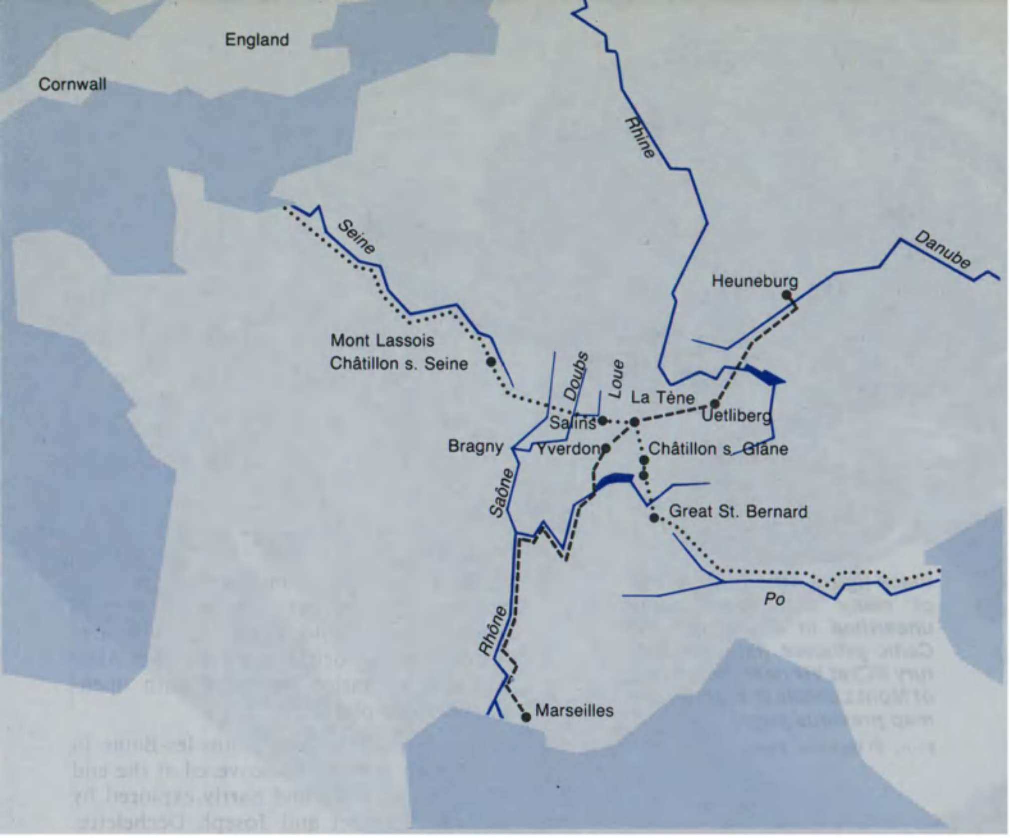
A major centre in the trade between northern and southern Europe some 2,500 years ago, Heuneburg is today a deserted flat-topped hill overlooking the stripling Danube (bottom of photo) southwest of Ulm in the Federal Republic of Germany. Right, reconstituted amphora and amphora fragments unearthed at Heuneburg were manufactured in the Marseilles region.



Unesco Courier Map

Map shows commercial arteries linking the Mediterranean to northern Europe around the late 6th century BC. In the absence of good roads, rivers and lakes assumed great importance as vectors of trade. A number of the sites now being investigated by archaeologists seeking to retrace ancient European trade routes are located at loading and unloading points where rivers ceased to be navigable and cargoes had to be transferred from boat to wagon and vice versa.

Right, specimens of pottery which, with other objects unearthed in recent years at Châtillon-sur-Glâne near Fribourg in Switzerland indicate that this fortified site may have played an important commercial role in early Iron Age Europe. The finds are strikingly similar in type to material discovered at other fortified markets and staging posts along the trade route between the east Mediterranean basin and the British Isles, Salins-les-Bains and Mont Lassois in France (see map). Above, fragment of Attic black-figure pottery. Below, a piece of imitation Phocaean ware. Phocaea was the mother city of several Greek colonies including Massilia (Marseilles). At the end of the 6th century BC Marseilles craftsmen were producing imitation Phocaean pottery for the European market. The discovery of examples of this "pseudo-Phocaean" ware at Châtillon-sur-Glâne suggests that in ancient times the site was linked by trade not only with the east Mediterranean but with the south of France, along a route which has not yet been fully identified.

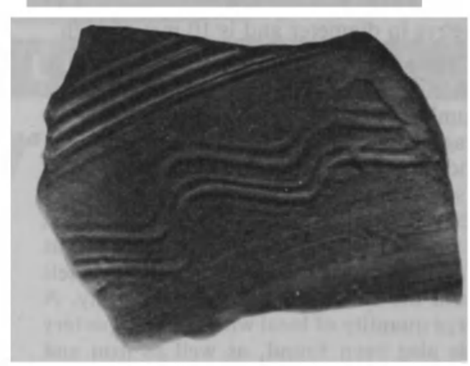


Photo © Hanni Schwab, Fribourg, Switzerland

the Great Saint Bernard Pass, were occupied at the same period (around 540) and abandoned at the same time (about 480).

They were trading posts where tin and other commodities must have been transshipped from one form of transport to another. Since the risk of theft was always greater at the moment of transshipment than during transport by boat, chariot or on the backs of animals, it was essential to ensure that transshipment took place in conditions of security. This security was provided in the late Hallstatt period by local lords. [The Hallstatt period, which takes its name from an archaeological site in Austria, refers to the late Bronze and early Iron Ages in central and western Europe, beginning about 3,000 years ago and ending around 500 BC.]

An important lordly fortification of this type has been discovered at Heuneburg on the Upper Danube and has been systematically explored over some thirty years.

Most of these transshipment points were located at places where rivers cease to be navigable for vessels of a certain size. The Danube is navigable as far as Heuneburg; the Seine as far as Vix, near Châtillon-sur-Seine; and the Sarine as far as Au Port, near Châtillon-sur-Glâne (see map). Bragny-sur-Saône, on the other hand, lies at the junction of the Saône and the Doubs, both of which are still navigable further upstream. The Loue, which forms an eastward extension of the Doubs towards the Jura Massif, is navigable as far as Port Lesney, near Salins-les-Bains.

Objects from the Marseilles region, mainly wine jars, have also been discovered at Heuneburg. A commercial highway linking the Marseilles region with that of the Upper Danube doubtless crossed the Swiss plateau. Yverdon, La Tène, and Uetliberg, near Zürich, lay on this route from Geneva to the Rhine. The fortified site of Châtillon-sur-Glâne, which was recently discovered in the Sarine valley, lies off this direct axis between Lake Geneva and the Rhine. It also lies away from the region of the three Jura lakes and the lower valley of the Aare. This site is not, therefore, directly related to the trade route connecting Marseilles and the Heuneburg. The question arises, therefore, whether the site at Châtillon-sur-Glâne was situated on a trade route which ran from France to Greece via the Great Saint Bernard Pass.

The valley of the Sarine provides the most direct access to the Great Saint-Bernard from the Swiss plateau, since there was no passage by land along the north shore of Lake Geneva in prehistoric and protohistoric times. The rocks which plunge into the lake would have made such a passage impossible. Were it not for this rocky barrier near the Castle of Chillon, south of Montreux, the easiest and most direct route between Salins and Pontarlier to the Great Saint Bernard would have been by the Col de la Jougne, Orbe, the north shore of Lake Geneva and the Lower Valais. In prehistoric and protohistoric times this barrier made necessary a detour ▶

Photo © Jean-Claude Revy, Paris

Black-figure Attic bowl is one of many rich Greek finds unearthed in the tomb of a Celtic princess (late 6th century BC) at Vix near the hill-fort of Mont Lassois in France (see map previous page).
Photo © Giraudon, Paris

▶through the Val de Travers, the region of the three lakes on the western Swiss plateau, the valley of the Sarine and the Col des Mosses to the Valais. Hence the location of Châtillon-sur-Glâne away from the important routes of more recent origin.

The site was discovered in 1974 by an amateur archaeologist. The presence of Attic potsherds decorated with black figures, and of bronze *fibulae*—brooches or clasps—from the late Hallstatt period, enable us to date the site, which was protected by an earthen rampart and moat at the end of the First Iron Age. A series of very limited exploratory excavations confirmed the hypothesis that it was a late Hallstatt princely fortification. This conclusion is strengthened by the surrounding ring of large burial mounds, the biggest of which, in the forest of Moncor, measures 85 metres in diameter and is 10 metres high.

The archaeological material unearthed at Châtillon-sur-Glâne includes a large number of imported articles such as fragments of Massalian, pseudo-Phocaean and pseudo-Ionian wine-jars. There are also some forty fragments of Attic pottery decorated with black figures, which was manufactured in Greece, as well as fragments of Etruscan vases and vessels from the Este region of northern Italy. A large quantity of local wheel-turned pottery has also been found, as well as iron and bronze objects which testify to the presence of craftsmen's workshops inside the fortifications. Hallstattian sites, mainly burial mounds, are very frequent on both sides of the Sarine, and also in the upper valley of the river. There is a fortified site on the hill of the Bois d'Everdes, northeast of Bulle, at the base of which rises a thirteen-metre-high mound which, like the fortification, has not yet been excavated. Further up the valley of the Sarine, at Grandvillars, several burial mounds from the Hallstatt period were destroyed in the last century.

The fortified site on Mont Lassois has been partially examined during several exploratory excavations. Much interesting material has been discovered there and been preserved, some of it in the museum at Châtillon-sur-Seine. Of particular importance are the Attic potsherds with black figures imported from Greece, and many fragments of Massalian amphorae.

The archaeologist who explored the site, René Joffroy, made a surprising discovery in 1952 when he excavated the princely tomb of Vix at the foot of Mont Lassois. This, the richest known tomb from the Hallstatt period, contained a massive bronze bowl imported from Greece, a diadem in solid gold, silver cups, a bronze jug of Etruscan origin, a black figure Attic cup and a chariot decorated with openwork bronze plates.

The magnificent bronze** crater **(mixing bowl or vase) discovered 30 years ago at Vix is the most spectacular piece of material evidence for intense economic activity between northern Europe and the Greek world 2,500 years ago. It stands 1.64 metres high and weighs 208 kilos, and is of Greek workmanship. The "Vase of Vix", below, is now preserved in the Museum at Châtillon-sur-Seine, a few kilometres from the place where it was found.
Photo © Giraudon, Paris

The fortified site at Salins-les-Bains in the French Jura was discovered at the end of the last century and partly explored by Maurice Piroutet and Joseph Déchelette. Many specialists were surprised that imported Greek pottery should have been discovered in the Jura. It was accepted that the settlement had relations with the Phocaean colony at Marseilles. The objects discovered had affinities with those found on Mont Lassois and at Châtillon-sur-Glâne. They differ from the latter only through the presence of Greek pottery with red figures.

The site of Bragny-sur-Saône, which dates from the end of the Hallstatt period, was discovered in 1968. Since then several rescue excavations have been carried out in this locality which have resulted in a series of remarkable discoveries. These include *fibulae* identical in form to those found in the settlements mentioned above. There are also Attic potsherds with black figures, and pseudo-Phocaean potsherds. Workshops for the smelting of iron have also been discovered. No fortifications, which would have been present if it were the seat of a prince, have so far been found at Bragny. But it could have been a site in open country which constituted an extension of a fortified place, similar to that discovered near the fortification at Heuneburg. At Bois-de-Châtillon, near Fribourg in Switzerland, scattered finds, including iron and copper slag, suggest the presence of workshops in a dwelling outside the rampart and moat.

For the moment we do not know for sure whether the rulers of the princely sites where transshipments were supervised were local notables who were rewarded with gifts, or Greek colonists whose task was to ensure free passage through the different regions. It can be said, however, that relations between the lords of the princely sites and the local leaders were excellent, as testified by the great quantity of imported objects found in the tombs.

The hypothesis of a tin route which we have put forward here is based on evidence that is far from complete. It remains for future investigators to confirm it through further excavations and discoveries.

■ **Hanni Schwab**

Lumps of amber (translucent fossil resin) often contain insects trapped when the resins flowed from the trees millions of years ago.

FROM THE BALTIC TO THE LEVANT

Forever amber

by Walter Raunig

LONG before regular long-distance travel was possible in central and northern Europe, close links existed in the Near East, North Africa, India and China between centres and areas of high culture. These links and contacts were mainly if not exclusively made possible by the spirit of enterprise and daring of independent merchants, and in spite of numerous military conflicts were never completely or permanently broken off. They led to exchanges of goods and ideas which in turn helped to stimulate and develop cultural exchanges, indeed to a large degree made such exchanges possible.

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From the middle of the third millennium onwards the use of metals (copper, bronze, iron) was accompanied by an intensification and extension of this trade, which played a decisive role in the cultural history of mankind.

In Europe, around 1800 BC, with the transition from the Neolithic (in the later stage of which copper was already being used) to the Bronze Age there was also a perceptible growth in trade. The increasing use of wheeled vehicles from the middle of the third millennium onwards played an important role in this phenomenon.

Like salt, the highly prized ores used for producing bronze and, later, iron were found, mined and worked only in certain places. Copper, bronze and iron were far more convenient to use than stone, and a demand soon arose for them and for objects made from them for domestic use, hunting, war and adornment. The intensification of trade in Europe also led to a wider and more rapid distribution of other commodities. Some of them were transported and marketed along certain routes and this led to the growth of trade-routes such as the "tin road" (see page 10) and the "salt road". One of these commodities was the petrified wood resin known as amber, which was greatly prized in ancient times and still is to some extent today.

Amber is formed when liquid resin is buried under a layer of sand or mud, and achieves a stable state. Deposits of amber have been found in various parts of Europe, Asia and America, but in western Europe the word *amber* was long applied only to the fossil resin found in the Baltic and North Sea regions. Similar fossil resins from twenty million to 120 million years old, have also been discovered elsewhere—in the Lebanon, Siberia, Burma, Sicily and the Dominican Republic. It mainly occurs in smallish lumps and pieces; it can be crystal clear or cloudy opaque; and because it often contains animal or vegetable matter, drops ▶

of water or air bubbles, it is of great interest to zoologists and palaeontologists. Its colour ranges from light yellow to dark brown; but it may be reddish or even blue.

The use of amber can be traced back to early historical times. In Europe it has been used for at least 10,000 years in the manufacture of ornaments, implements and utensils, works of art, for medicinal purposes (amulets) and as a perfume (when burnt). Modern compressed amber, produced from very small or waste pieces, is used as gem material or for technical purposes as an insulator. For thousands of years, long before the arrival of Europeans, Asian and American amber was worked in quarries and galleries by local craftsmen and traded over extensive areas.

It was highly prized in ancient Rome to which large quantities were brought from all parts of the Empire to be fashioned into gems and works of art. But its importance declined towards the end of this period and amber only came back into favour in the Middle Ages when it was used for making rosaries. A further revival began in the sixteenth century and in the seventeenth and eighteenth production flourished of a wide variety of art objects, made either from amber or from a combination of amber and other precious materials. Imitation amber objects made from mixtures of powdered amber, synthetics, or artificially coloured copal (a resin of recent geological origin) are also found. These imitations are still widely used in Africa, Tibet and elsewhere.

From earliest times this "stone" which was so highly prized in many parts of the world was transported and traded over long distances. In Europe the biggest and most important supplies of amber traded in early times were found at Samland on the Baltic coast and in smaller quantities on the North Sea. The chief mining area was near Kaliningrad (formerly Konigsberg). From there a western branch of the ancient "amber

Thought by early man to be sunlight solidifying on the ocean waves, amber has always been prized as a material for gems and ornaments. Near right, 19th-century Ethiopian necklace of glass and amber beads with decorative silver plaque (35 cm long); above, necklace with amber pendant from Burma (18 cm long); far right, amber necklace from a Germanic tomb (400 AD) at Bergheim in Bavaria (35 cm long).

road" passed through the region of the Lower Elbe and the Lower Rhine, then up the Rhine through the Burgundian Gate or along the Aare and the shores of Lake Geneva to the Rhone, then following the Rhone southwards as far as the famous Greek port of Massilia (Marseilles). An important eastern route ran from the Baltic coast along the Vistula and through the territory of Kiev southeastwards to the Black Sea. Here this Eastern amber route linked up with the long and ancient overland connections to the Near East, central and east Asia and India. But by far the most important amber route ran in Antiquity from the North Sea or the Baltic across the Vistula, through the Moravian Gate to Carnuntum, on the Danube east of Vienna, then along the edge of the eastern Alps and across them southwards to the important trading centre of Aquilea on the north Adriatic coast.

From earliest times small quantities of amber were carried from northern Europe by sea around the Iberian Peninsula to Mediterranean centres of civilization and to the Near East. However, the sea-borne amber trade from the Adriatic and Black Seas to southern Italy, Greece, north Africa, the Levant and Egypt was more important.

Even earlier there was a regular long-distance commercial traffic, by land or sea, not only in the Near East, north Africa and Europe but much further afield, from central, south, southeast and east Asia, as well as from various parts of west and east Africa. Thus precious amber reached nearly every part of the ancient world, alongside a wide variety of other goods traded over huge distances, such as tin from Britain, silver from Spain, incense from southern Arabia, *lapis Lazuli* from Afghanistan, ivory from Africa, furs from Siberia, precious stones from India, and silk from China. Some of the amber sold in Asia came from Burma.

Exquisitely carved amber miniature (9.5 cm high) depicting the homage of the shepherds to the infant Jesus. It is thought to have been produced around 1650 in northeast Germany.

Photo © Bavarian National Museum, Munich

A time-honoured form of travel, ox-carts ply through rugged terrain in Anatolia, a region in which some of the oldest wheeled vehicles have been found. One of man's most important technological discoveries, dating from around the 3rd millennium BC, the wheeled vehicle played a fundamental role in the development of trade and travel.

Photo © Omnia, Berne

From about 3000 BC at the latest Egypt was in contact with its neighbours to the south, west and, somewhat later, east by caravan routes. These links soon extended eastwards as far as the Tigris and Euphrates from where contacts were prolonged to southern Arabia, India and the highlands of central Asia. Traffic increased in Ptolemaic and afterwards in Roman times, together with sea-borne trade through the Red Sea, the Indian Ocean and the seas of southeast Asia as far as China, as well as by the great overland routes. Two of these great Asian overland links acquired special importance for the commercial and cultural history of mankind. One was the "incense route" which led, on the one hand from the ancient kingdoms of southern Arabia along the western coast of the Peninsula to the centres of the Levant, and on the other, across the desert to the Gulf. The other was the "silk road" which ran from thousands of kilometres from Antioch (founded about 300 BC) to China dividing into branches through Persia, Bactria, the Pamirs and the Tarim Basin. Amber was amongst the many goods and products carried along these trade arteries which linked together countries and centres of high culture.

Today, the once highly coveted fossilized resin plays a very limited role in trade. Despite still quite intensive and extensive mining—highly mechanized by the use of dredgers in the Baltic region, by hand in narrow galleries in the Dominican Republic as centuries ago (amber ceased to be exported from Burma years ago)—for all practical purposes amber is now used—and only to a limited extent—solely in the production of insulators and mass-produced ornaments and jewellery. But lovers of the beautiful soft "stone" with its dull or radiant lustre can still be found in every part of the world.

■ **Walter Raunig**

Photo Georg Gerster © Rapho, Paris

Bruges

TOWARDS the end of the fifteenth century Duke Philip the Fair brought his young bride Joanna of Castile to his native city of Bruges. On her return from a walk in the city the future mother of the Emperor Charles V, surprised by the rich apparel of the patrician ladies, is said to have remarked: "I thought I was the only queen in this country, but I have seen many others!" The story may be apocryphal, but it says much for the opulence and splendour of what has been called "the Venice of the North". One might just as well speak of Venice as "the Bruges of the South" without in any way offending the prestige of the city of the Doges. Numerous canals crossed by picturesque bridges, imposing public buildings, rich patrician houses, winding old streets make up the charm of both cities—each of which, however, has its own special character and each of which was a nerve centre of trade in the Middle Ages.

The sea wind still blows in Bruges, although nowadays the city is about fifteen kilometres from the sandy beaches of the North Sea, to which it was connected in the Middle Ages by the estuary of the Zwin, which provided access to the city for vessels of every kind. Today the Zwin is a protected natural reserve where fauna and flora typical of the region continue to survive.

Although he never set foot in Flanders, in his *Purgatorio* Dante mentions the Flemish towns, which were amongst the most important of his time. Bruges comes first on his list. These towns which developed very early in medieval Flanders were soon known all over the western world for the quality of their fabrics, manufacture of which was one of the chief industries in the Middle Ages.

Trade grew very rapidly. Initially it was conducted mainly during annual or biannual trade fairs, when merchants travelled from town to town according to a well-regulated calendar. Although a system of fixed trade centres came to be preferred to this arrangement, this did not mean that fairs ceased to exist, at least not immediately. It was at this time that the rise of Bruges began. Its growth was stimulated by a favourable geographical situation at the heart of busy, densely populated western Europe, where important countries and kingdoms met on the frontiers of two currents of civilization, the Germanic and Roman. The town was easily accessible by land and sea. When the silting-up of the Zwin estuary, by which Bruges was connected to the North Sea, later prevented vessels from entering the town itself they could still come within a short distance of it and moor in the outer harbour of Damme.

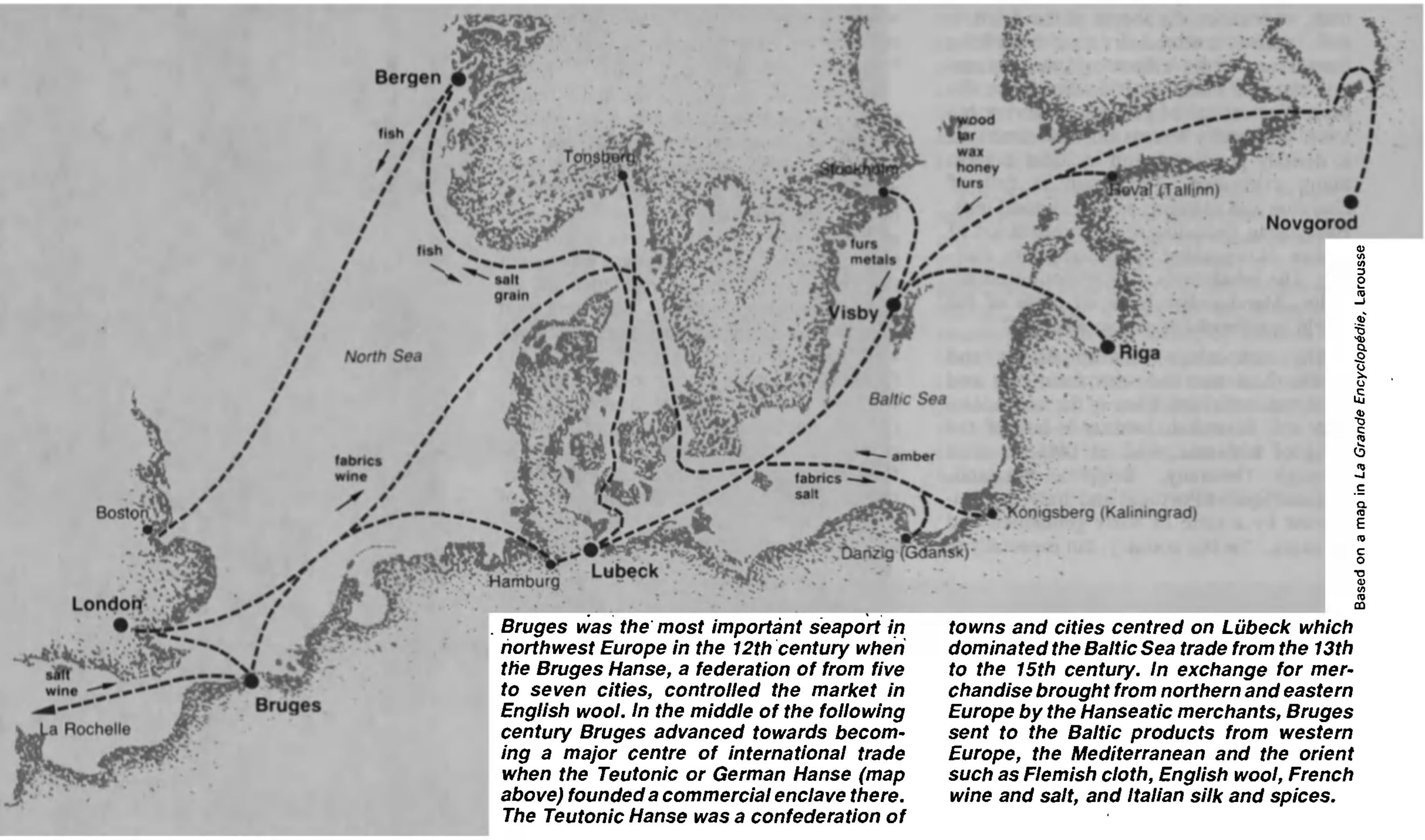
The people of Bruges were actively engaged in trade until the thirteenth century. They travelled to England and Scotland for their precious wool and they

Air view of Bruges, one of Europe's most flourishing commercial and artistic centres in medieval times. At centre is the Markt (the main square), with the governor's palace to the left. Above, the covered market, begun 1248 and altered in the 16th century, is surmounted by an 84-metre-high belfry, one of the finest in Belgium.

A MEDIEVAL CENTRE OF COMMERCE

FAIR CITY OF FLANDERS

by Paul Morren



Based on a map in *La Grande Encyclopédie*, Larousse

Bruges was the most important seaport in northwest Europe in the 12th century when the Bruges Hanse, a federation of from five to seven cities, controlled the market in English wool. In the middle of the following century Bruges advanced towards becoming a major centre of international trade when the Teutonic or German Hanse (map above) founded a commercial enclave there. The Teutonic Hanse was a confederation of towns and cities centred on Lübeck which dominated the Baltic Sea trade from the 13th to the 15th century. In exchange for merchandise brought from northern and eastern Europe by the Hanseatic merchants, Bruges sent to the Baltic products from western Europe, the Mediterranean and the orient such as Flemish cloth, English wool, French wine and salt, and Italian silk and spices.

sailed along the Atlantic coasts, from which they brought back grain, wine and cheese. Bruges was a leading member of the Hanseatic League of Flemish towns.

A profound change took place in this economic pattern when the English merchant adventurers started to bring wool to the continent themselves. Bruges gave up active trade and concentrated on other activities. First it became an industrial town where the manufacture of cloth and clothing was stimulated and improved. Other textile-related industries also developed, as well as the manufacture of furniture, tapestries and other articles of interior decoration. Amber rosary beads were a highly esteemed speciality.

Above all, Bruges became a major international trading centre, the greatest market north of the Alps. Merchants came there to get supplies of the striped or single-coloured cloth from which the best clothes were made. This product was highly appreciated throughout Europe and even beyond. Thirteenth-century German poets sang the praises of Bruges breeches and in Russia the word *bryukish* was coined to describe Bruges cloth. Actually Bruges did not have a monopoly of this speciality but shared her skill in making it with a number of Flemish and Brabançon towns.

Those who frequented Bruges were sure of finding top quality goods at a reasonable price. But they were also sure of finding an outlet for the goods they brought with them, and of finding other interesting products brought there by their fellow-merchants from elsewhere. Henceforth, goods were no longer made for local consumption, but for international trade. It was this direct exchange of foreign products with all its attendant activities that brought great wealth to Bruges and enabled it to remain prosperous after the heavy cloth industry declined.

Towards the end of the thirteenth century the communal authorities issued a document which gives an idea of the products that could be procured in Bruges and of their countries of origin. It mentions no less than thirty-four different regions (in some cases, like the kingdom of Germany, the regions were grouped). All the regions of Europe were mentioned, from Sweden to Andalusia, from England to Russia. Also mentioned were Tunisia, Morocco, Constantinople, Jerusalem, Egypt, the Sudan, Armenia and Tartary. The document ended as follows: "From all these kingdoms and lands merchants and goods come to the land of Flanders, not counting those who come from the kingdom of France, from Poitou, Gascony... whose merchants come every year to Flanders, and from many other countries too. This is why no land can be compared with Flanders for merchandise".

Five main routes ended in Bruges—from London; from Genoa and Venice by the Mediterranean and the Atlantic coast; from Hamburg, Lübeck and the Hanseatic towns; from Cologne along the Rhine; and from Genoa overland via the Rhône valley and Champagne.

Many foreigners settled in Bruges, where they organized themselves into groups and depended on what might be described as consulates. The most influential of these organizations was that of the Hanseatic cities (the great German Hanseatic League, not to be confused with the league of Flemish towns mentioned above). During a ducal visit in 1440 a procession of foreign residents included 136 members of the Hanseatic League, forty-eight Spaniards, forty Venetians, an equal number of Milanese, thirty-six Genoese, twenty-two Florentines, twelve representatives of the town of Lucca and an unknown number of Portuguese and Catalans. For some reason the English, preponderant though they were in numbers, were absent that day.

In 1438, the Spanish chronicler Pedro Tafur set out on a journey "in search of ▶

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adventure, and opportunities to prove my personal merit and that of my family and country". He had the excellent idea of keeping a diary of his journey in which he confides that he found Bruges to be superior to Venice, because it was a meeting-place for people from many countries, whereas on the shores of the Adriatic the natives attended to everything themselves. "I have been told that on certain days as many as 700 ships leave the port. The capital of Flanders is a very big town with pretty houses and fine streets. It is densely populated and includes a great many craftsmen. The town is full of churches and convents as well as good inns. Everything, including the administration of justice, is organized in an exemplary manner. The inhabitants display boundless activity. Merchandise from all parts of the world is offered for sale in Bruges."

The comparison between Bruges and Venice does not end with their sites and economic activities. Here is the account of Leo von Rozmital, brother-in-law of the King of Bohemia, who in 1466 travelled through Germany, Belgium, England, France, Spain, Portugal and Italy, accompanied by a suite of forty gentlemen and servants. "In this country, but especially in Bruges, it is customary at the beginning of carnival for people of importance to disguise themselves, vying with each other to have the richest apparel. The colour chosen by the lord is also worn by his servants. But the wearing of masks prevents their being identified. Thus attired, they go wherever there are balls and other entertainments, accompanied by players of trumpets and drums."

In the fifteenth century the many feudal principalities which had arisen on what is today the territory of Belgium and the Netherlands were united under the sceptre of the Dukes of Burgundy. For several decades this extensive State was the richest and most powerful in western Europe. It had no fixed capital, but Bruges was one of the favourite places of residence of the Dukes and the Court. It was here that Charles the Bold and Margaret of York were married and that Philip the Good founded the Order of the Golden Fleece. It was at Bruges that much of the splendour of the Burgundian era was displayed. This included the development of music, the flowering of secular and ecclesiastical flamboyant Gothic and the fabulous school of painting which began with Jan Van Eyck and whose members have infelicitously

Photo Charles Philippe © Rapho, Paris

The canals and monuments of Bruges form a magnificent urban landscape which today attracts large numbers of tourists. Bruges is linked by a canal to its seaport, Zeebrugge, 10 km away. Zeebrugge is Belgium's second most important port.

Photo H.W. Silvester © Rapho, Paris

The béguinage, *right, is one of the most famous sites in Bruges. A* béguinage *is an enclosed district which is the home of "Béguines", pious women who belong to a religious community although not under vow. The movement began in the 12th century and became particularly widespread in Belgium.*

Photo © Bulloz, Paris. National Gallery, London

been dubbed the Flemish Primitives, although this school was, in fact, one of the great achievements of plastic art.

For economic, social and political reasons the proud and valiant city of Bruges, which had even taken the liberty of imprisoning Maximilian I, then Regent of the Burgundian State, was obliged at the end of the fifteenth and the beginning of the sixteenth century to give ground to other cities, above all to Antwerp, which was to become the most important commercial and financial centre of the sixteenth century.

Foreign merchants abandoned Bruges which fell asleep and became a quiet provincial town, whose atmosphere was evoked by the novelist Georges Rodenbach in a book published in 1892 under the title *Bruges-la-Morte*. Today, thanks to its economic recovery and to the influx of tourists in search of beauty and the past, it is a dead town that has come to life again. It takes jealous care of its medieval character and the unity of its architectural style. For this it was awarded the European Prize for Urbanization in 1975.

■ **Paul Morrren**

In the 15th century Bruges became the cradle of Flemish painting. Not all the artists who brought distinction to the city were natives of it. Jan van Eyck (c. 1390-1441), whose powerful and meticulous realism opened up a new way of painting, settled in Bruges in 1431. Left, one of his masterpieces,* The Betrothal of the Arnolfini *(1434) may be the first example of a full-length portrait. Hans Memling (c. 1433-1494) was another great master of the Flemish School. A painter of religious subjects and portraits, he worked in Bruges throughout his career. Below, Memling's* The Virgin, St. John and Three Holy Women *is the right hand panel of an altar diptych portraying the deposition from the Cross.

Photo © Bulloz, Paris. Sao Paulo Museum

CLOVES, NUTMEG, PEPPER, CINNAMON

The life of spice

by Khoo Joo Ee

ACCORDING to sources from the Mediterranean world, during the Roman empire there was a "cinnamon route" between southeast Asia and the east African coast. The Roman author Pliny recounts that cinnamon obtained in Ethiopia in the first century AD was brought across distant seas on rafts without rudders, oars or sails. Sailed by Malayo-Polynesians of southeast Asia, these rafts were the ancestors of the double outrigger boats still to be seen today along the East African coast opposite Madagascar. During the winter solstice the dominant east winds would drive the rafts from gulf to gulf well past the Maldive Islands, where the northeast wind blowing off India would take over and blow them towards the east African coast north of Madagascar. After reaching the Red Sea, the cargoes would take an overland route, passing from people to people until they eventually reached the Nile valley. Arabian merchants controlled this coastal cinnamon trade.

At this time, roughly 2,000 years ago (with the Roman empire at its apogee and the Han Chinese empire firmly established), the international trade of the central Asian overland route reached southeast Asia via a series of links. Around the second century AD, however, the central Asian overland route was disturbed, and southeast Asia was drawn into international maritime trade as a link between the Mediterranean, West Asia and China. The volume of trade was small: the region's early trading centres were dependent on the fluctuations of the international market. Both on the regional and the international level, it was essentially a luxury trade in aromatics, drugs, textiles and metals. Spices from the eastern islands of the Malay-Indonesian archipelago were collected at Java for shipment to China. The Chinese had no access to these islands which would later be known to Westerners as the Spice Islands, and recorded them vaguely and *en bloc* as "Ocean Islands".

The trade in luxury goods from southeast Asia to mainland Asia continued until around the tenth century when Indian and Chinese traders started to appear on the sea route for the first time in large numbers. Their intention was to cut out the middlemen and to go right to the source of these southeast Asian products, especially spices, which were now in worldwide demand.

With the rise of new ports in southeast China and the growing commercial and military strength of south China from the eleventh to the thirteenth century, Chinese, Indian and Arab traders themselves journeyed to southeast Asia in search of goods, just as Europeans would do three centuries later, instead of waiting at home for the precious cargoes to be delivered. Besides the usual trade in aromatics, drugs, silks, Indian cotton and Chinese porcelain, the foreign traders obtained an increased flow of spices through the intermediary of

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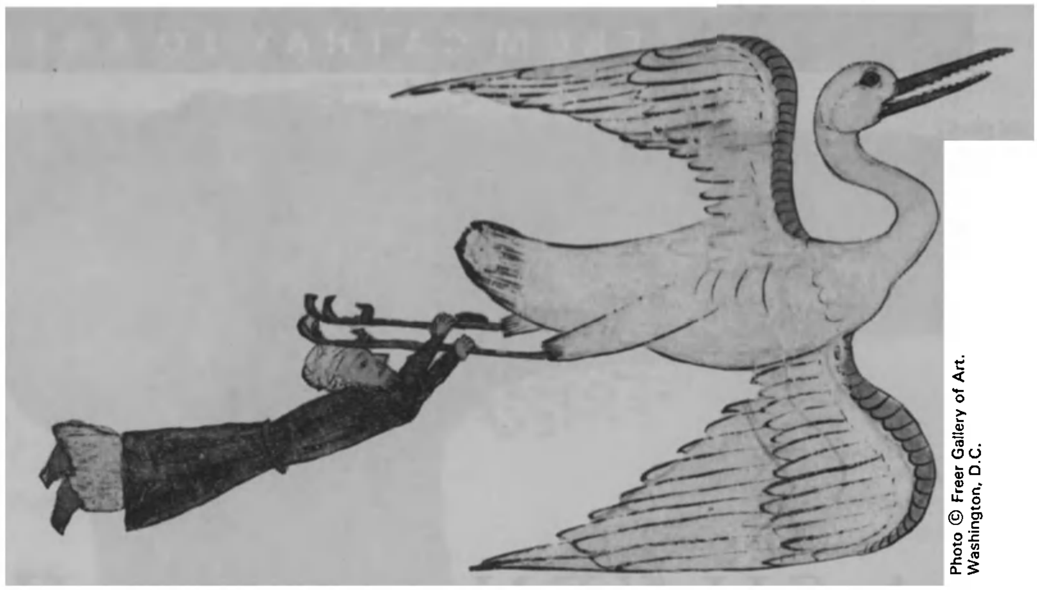
Photo Roland Michaud © Rapho, Paris

◄ *Peppers drying in the sun, Andhra Pradesh, India.*



The Traveller's Rescue by the Roc. ***Illustration from a 14th-century manuscript from Iraq, the*** **Ajaib al-Makhlukat.**

Photo © Freer Gallery of Art, Washington, D.C.

the Javanese, who from around the thirteenth to the fifteenth century controlled the trade in spices collected from the eastern archipelago.

At the European end, Marco Polo the Venetian reported in 1292 that pepper and ginger were imported from India, and in 1484 the Genoese Christopher Columbus also dreamt of Indian spices. After the Portuguese discovery of the route to India via the Cape of Good Hope, the spices which arrived in Europe came largely from the forest regions of the Malabar coast of west India. But the spice trade also followed various routes to the Middle East through either the Gulf or the Red Sea.

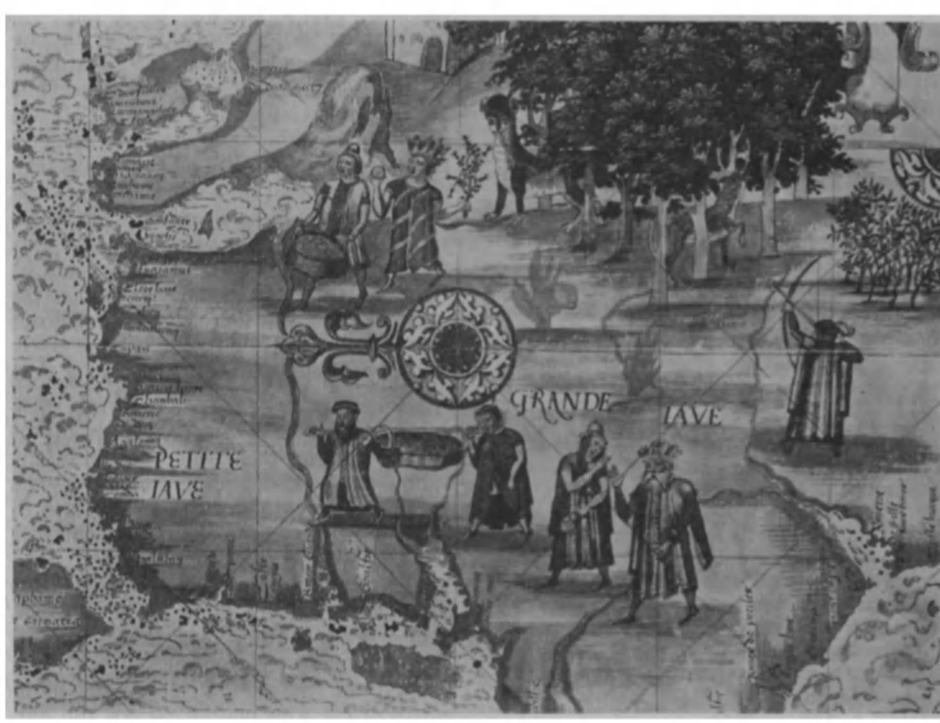
The Malay-Indonesian archipelago was also criss-crossed by trade-routes, and ships from many countries took part. But all routes led to the Strait of Malacca, to which there was no safe alternative. The produce of the archipelago was funnelled through this natural channel because before the days of steam, the seasonal reversals of winds obliged sailing ships to pass back and forth through this channel connecting India and the archipelago. By the mid-fourteenth century, Malacca was already the collecting centre of spices sent by Java from the Banda Islands and the Moluccas, and the distribution point for Indian textiles. Malacca had developed into an international entrepot by the fifteenth century.

At the beginning of the sixteenth century, the Spice Islands were still not known to Europe. Then, after the discovery of the new sea route to India where several European "East India companies" became established, the Portuguese made a spectacular entry into the Malay-Indonesian archipelago. They captured Malacca in 1511, penetrated the Spice Islands in the following two years, and broke Java's commercial supremacy. As the Portuguese entered the Asian sector of the trade in India, the Arab and Indian merchants were eclipsed, and after their conquest of Malacca, the Portuguese monopolized the spice trade. By 1513, nutmeg from the Moluccas had reached Lisbon via the port of Malacca. The Portuguese monopoly also caused the Malabar coast of India to be closed to the other European companies in India. Thus, both Asians and Europeans converged on the southeast Asian archipelago. The Spaniards, who were also established in the Philippines, for the first time advanced claims on the Spice Islands in 1522 following Magellan's voyage in search of a western passage to the Spice Islands, but reluctantly renounced them in 1529. In the seventeenth century, the monopoly passed into the hands of the Dutch and at the height of the spice trade the Dutch even had spice farms in the Moluccas and in the Banda Islands. All the European powers recognized the pivotal position of Malacca which lay at the junction of the Indian, China and Java seas as the chief emporium of spices like the Golden Chersonese of ancient Greek geography.

In the eighteenth century, a Frenchman by the "spicey" name of Monsieur Pierre Poivre ("Peter Pepper") took clove and nutmeg plants to the Botanical Gardens in France and from there "introduced" the spice trees to French colonies in the Indian Ocean such as Mauritius. Today, the Moluccas are no longer the only spice-growing region; Zanzibar and Madagascar supply cloves to Europe and America for flavouring food and for medicinal and dental preparations. The existence of a direct sea route between the Malay-Indonesian archipelago and the east African coast during the Roman empire 2,000 years ago, gives grounds for wondering whether the cultivation of spices on the East African coast did not begin before the eighteenth century.

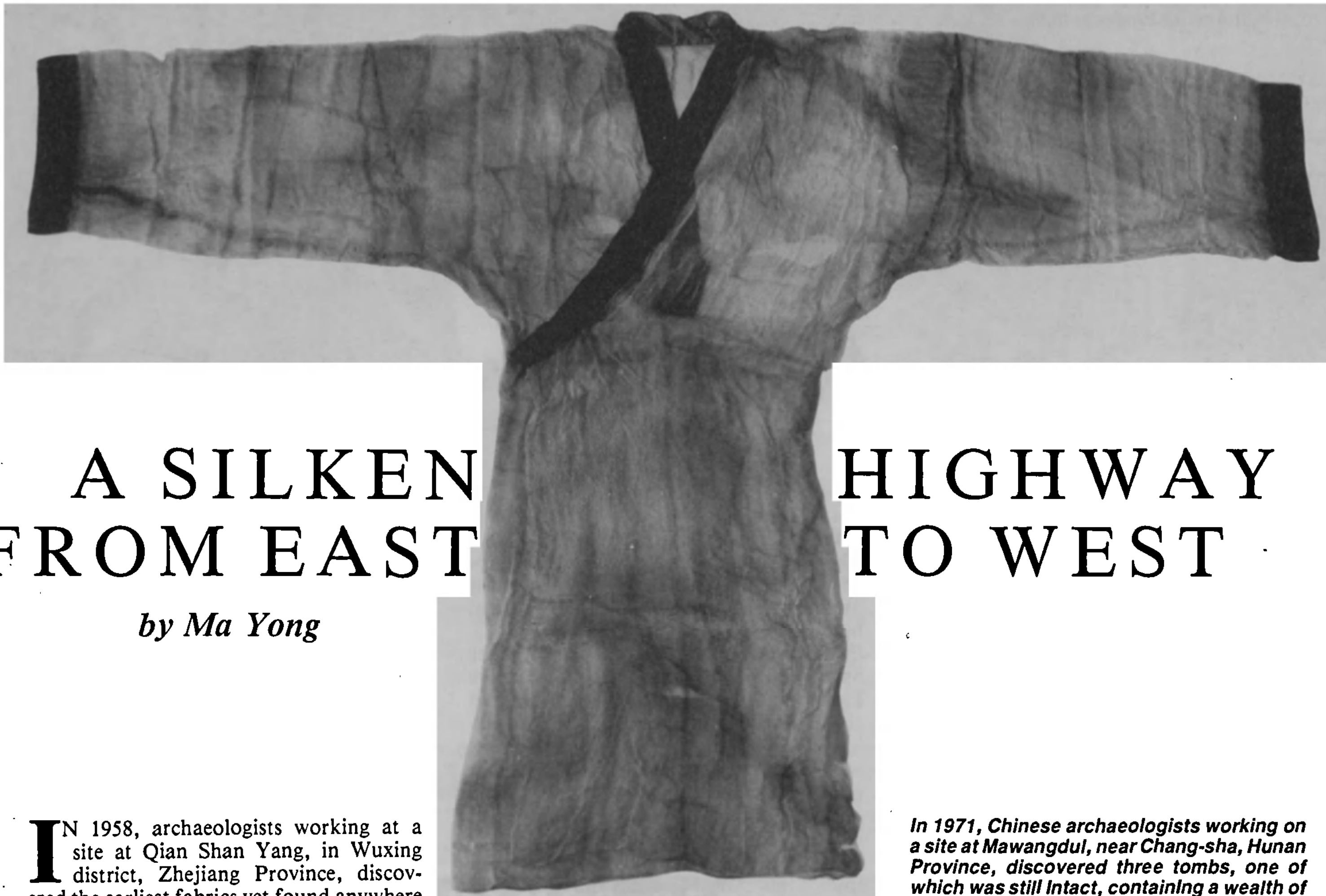
Cloves, nutmeg and pepper, useful and pleasant condiments, offered a road to great wealth. The story of the spice trade is a history of fierce struggle for supremacy in the Spice Islands. The trade bred conquest, rivalry and quarrels. Entrepreneurs of many nations sailed across unknown seas in search of spices, and discovered new countries. Spices have influenced the destinies of more countries than one; politics, diplomacy and conquest have been spiced with pepper, nutmeg and cloves. Empires rose and fell but nothing ever arrested the steady and growing flow of the spice trade, which formed a solid link between the centuries and brought the Orient and the Occident into permanent contact.

■ **Khoo Joo Ee**



This detail from an Atlas drawn up by the French navigator and cartographer Guillaume Le Testu in 1556 depicts European merchants in Java returning to their ships laden with spices.

Photo © Laffont, Paris. Bibliothèque du Ministère des Armées



A SILKEN HIGHWAY FROM EAST TO WEST

by Ma Yong

IN 1958, archaeologists working at a site at Qian Shan Yang, in Wuxing district, Zhejiang Province, discovered the earliest fabrics yet found anywhere in the world. Here, in China's Tai Lake region, long famous for its silk industry, among other cultural relics of the Neolithic Age, they found relics of silk fabrics including silk yarn, silk belts and pieces of spun silk fabric.

Examination showed that the pieces of fabric were woven from the silk of domestic silkworms which had been reeled before weaving. The weave is plain, the yarn of both warp and weft is almost identical in thickness and the average density of the cloth is of forty-seven threads per centimetre. Chronological tests indicate a date for these fabrics of 2,750 ± 100 years. In view of the advanced levels of the technique used, the silk textile industry had already evolved beyond the primitive stage when these fabrics were made, and it can safely be assumed that China's silk industry has a history of more than 5,000 years.

We do not know for certain how silk first came to be shipped abroad, but China's silk industry must have been experiencing a period of great prosperity when its much-prized products began to spread to the West sometime between the sixth and the fifth century BC.

During the early years of the Spring and Autumn Period (770 to 476 BC), the Jin and Qin Kingdoms, situated in the southern and central part of Shanxi Province and in the southeastern part of Gansu Province, had extended their influence to the region of the nomadic peoples to the northwest, thus establishing closer contacts with the inhabitants of the regions of the Great Bend of the Huang He River (Yellow River) and the corridor west of the Huang He. It was probably from there that the first shipments of silk to the West were made. However, it seems that at that time there was no direct established trade between the Chinese interior and the regions of central Asia. Silk was carried to the Eurasian hinterland by nomadic tribes such as the Xianyun and the Yue-chi and from there spread to Europe via the Scythians.

Chinese silk fabrics have been unearthed from the huge stone-capped tomb of a fifth-century chief of the Altai region of the USSR. Among them was a splendid silk saddle-cloth with a phœnix embroidered on it. Beside it lay a bronze mirror, also of Chinese manufacture. Silk fabrics and silk fringes sewn on to woollen garments have also been found in sixth- and fifth-century BC graves in Greece, Germany and Luxembourg. All this would seem to indicate that the oldest Silk Road started at the Great Bend of the Huang He River, passing to the north of the Alps via the eastern and northern parts of the Altai and across the steppes of Kazakhstan and south Russia, to reach the shores of the Black Sea and on to regions inhabited by Greeks and Etruscans.

Although some silk from China reached Europe via this route, it can hardly be said that a proper trade route existed at this time. The Greeks, whose curiosity was aroused by the novel luxury of silk, had only the vaguest ideas about the far off eastern land they called simply the "Land of Silk", a name which persisted until the Roman era.

Chinese silk may also have been introduced to India at that time. It is said that the word *Cinapatta*, which means "Chinese silks", is mentioned in the *Artha-sastra* (Handbook of the King), written by the fourth-century BC Indian writer Kautiliya. Furthermore, the Sanskrit vocabulary indicates that ancient Indians already knew that silk was a secretion from a kind of insect.

However, the credit for the opening of the real Silk Road belongs to Emperor Wu of the Han dynasty (middle of the second

In 1971, Chinese archaeologists working on a site at Mawangdui, near Chang-sha, Hunan Province, discovered three tombs, one of which was still intact, containing a wealth of valuable artefacts, all of which are over two thousand years old. They included silk garments and coverings and a number of documents printed on bamboo and silk. The tombs are believed to be those of a high-ranking nobleman, the Marquis Da, his wife and son, who lived during the early years of the Western Han dynasty (202 BC to 9 AD, approx.). Right, fragment of a copy, printed on silk, of the* Tao Te Ching *(The Book of the Way and Its Power), one of the most sacred books of Taoist literature. Above, a silk gauze dress, 1.28 metres long.

Photos © China Pictorial, Beijing

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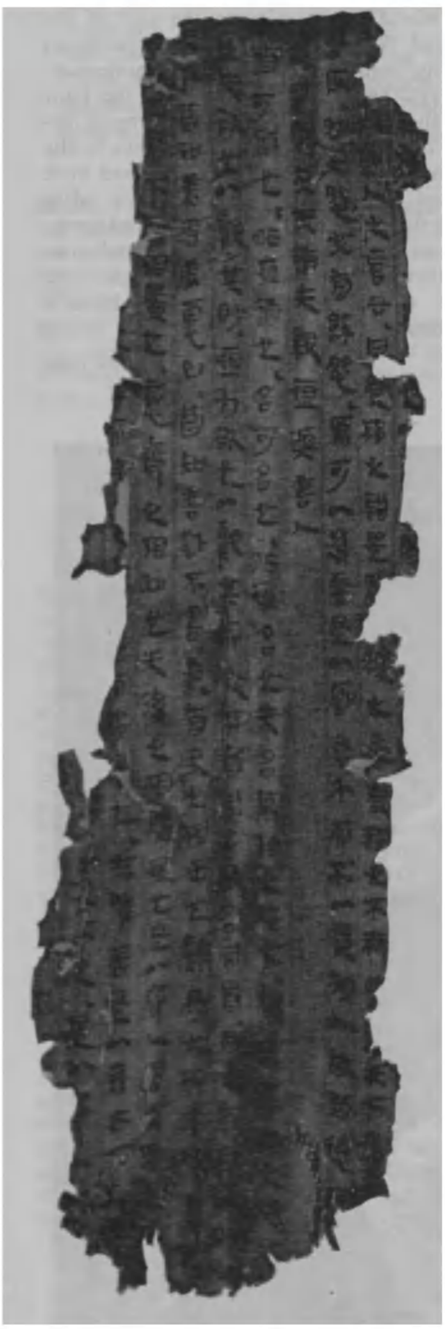
The main routes of the ancient Silk Road.

Map © John Murray, London



century BC) and his general Zhang Qian. Anxious to forge an alliance with the people of the Great Yue-chi of central Asia to offer common resistance to the Xiongnu (the Huns), Emperor Wu sent Zhang Qian to the western region as an envoy in 139 BC. Some ten years later, Zhang Qian reached the northern part of present-day Afghanistan, thus opening for the first time a direct line of communication between the interior of China and central Asia.

Later, the Han dynasty began to exploit the western region systematically, devoting to this task huge resources of manpower and materials. The opening of an official post road along the southern and northern fringes of the Takla Makan desert was only possible due to the military strength and efficient administrative organization of the Han dynasty. The road was extended beyond the Pamirs and connected up with already existing roads in central, western and southern Asia. Chinese silk was shipped continuously to the West along these roads, while products from central and western Asia also began to reach the Chinese interior in large quantities.

When the Silk Road first opened, this trade was probably carried mainly by the diplomatic envoys of China and the countries of central Asia. Later, however, it became the monopoly of merchants of Sogdia, Kushan and Parthia. The "Hu merchants" (merchants of non-Han nationalities), as they were called in Chinese historical records, were heavily-bearded men with deep-set eyes and large noses who spoke a variety of Iranian dialects. They organized camel caravans, heavily laden with goods such as perfume, jewels and glassware, which travelled across the snow-covered Pamirs, stopped at the oases of the Tarim Basin, passed through the corridor west of the Huang He River and over Mount Long before finally arriving at Chang'an or Luoyang.

On the return journey they carried with them cargoes of silks, the round trip taking anything from one to two years. Although they experienced countless natural dangers, risking their lives along the route, there were huge profits to be made. They amassed fortunes by shipping silks to the West—to Rome and later to Byzantium. This wealth became the economic basis of the prosperity and embellishment of many a famous city of central and western Asia.

Along the Silk Road travelled not only silk but also the technology of the silk industry, and in ancient times many a legend grew up about the propagation of silk-making techniques. One famous story recounts that when a Chinese princess was married to the King of Khotan, as she passed the customs officials at the frontier, she hid some silkworms in her hat and thus succeeded in bringing the silk industry to the Khotan region. Another legend relates how two Byzantine priests hid some silkworm ova in hollowed-out bamboo sticks and brought them to Constantinople, thus revealing the secrets of silk manufacture to the West.

In fact, the introduction of the silk industry to the western regions occurred quite early. Frescoes can be seen in graves dating from the Wei and Jin dynasties, found in the west of Jiuquan, Gansu Province, depicting members of the family of the deceased collecting mulberry leaves in his orchards. This seems to indicate that the silk and mulberry industry was already very developed to the west of the Huang He River during the third century AD. ▶

Archaeologists examine a 2,300-year-old silk quilt recently unearthed in Hubei Province, central China, from a tomb dating from the period of the Warring States (480 to 221 BC).

Photo © *China Features*, Beijing

Documents of the fifth century AD unearthed at Turfan in the Autonomous Region of Xinjiang Uighur show that the silk industry already existed both in Qoco (now the Turfan Prefecture) and Kucha at that time. Indeed, it seems that brocades were also being made there.

During the sixth century AD, the techniques of silk weaving were known in central Asia and Persia. The Sassanid dynasty of Persia once tried to monopolize the silk-weaving industry and to prevent its spread to the West. The story about the Byzantine priests is, perhaps, a factual reflection of the introduction of the silk industry to the West in spite of the Sassanid ban.

The introduction of the silk industry to the West had little effect on economic and cultural exchange along the Silk Road. By the seventh and eighth centuries these exchanges between East and West had reached unprecedented heights, due principally to the prosperity, power and high level of civilization of the Sui and Tang empires. After the ninth century, although trade along the Silk Road was not quite so intense as in earlier periods, it remained quite active, with both Uighurs and Mongols playing an active part.

With the profound changes in the world situation that occurred in the middle of the fifteenth century, the historical importance of the Silk Road came to an end. There were three reasons for this decline.

First, the improvement in navigation and the development of maritime routes made the hazardous journey across the hinterland of the Eurasian continent unnecessary.

Second, after the death of Tamerlane in 1405, the permanent political instability, economic depression and gradual cultural decline of the central Asian regions meant that they were no longer capable of playing their role of intermediaries between East and West. Finally, following a decision adopted in 1424 by Emperor Yongle of the Ming dynasty, China closed her borders to the northwest. Economic and cultural relations were maintained, however, with a number of countries in central Asia west of the Pamirs. With the coming of the Qing dynasty, these relations were greatly intensified, even exceeding those established under the Han and Tang dynasties. But these were regional relationships which were not of world significance. The Silk Road, with a glorious career as the trunk route of communication between East and West which had lasted for more than 1,500 years, gradually faded from the world scene.

In recent years, however, rapid changes have been taking place in central and western Asia. Movements of national resurgence are making themselves felt. Furthermore, there have been great changes in the world situation since the end of the Second World War. The energy problems arising from the development of modern industry, the strategic position of the Gulf and the development of aviation are all factors that are giving new importance to the regions through which the Silk Road once passed. It is more than likely that, after lying dormant for some five hundred years, this great trunk route of international communication will once again prosper and take on a new mission of historic importance.

■ Ma Yong

Turfan, in the Sinkiang Uighur Autonomous Region of China, is situated in a fertile oasis and has always been an important trade centre. Located on the traditional border between the nomadic peoples of the north and the settled oasis-dwellers of Sinkiang, Turfan was a key staging post on the northern branch of the Silk Road. Below, the Imin mosque at Turfan, built in 1779.

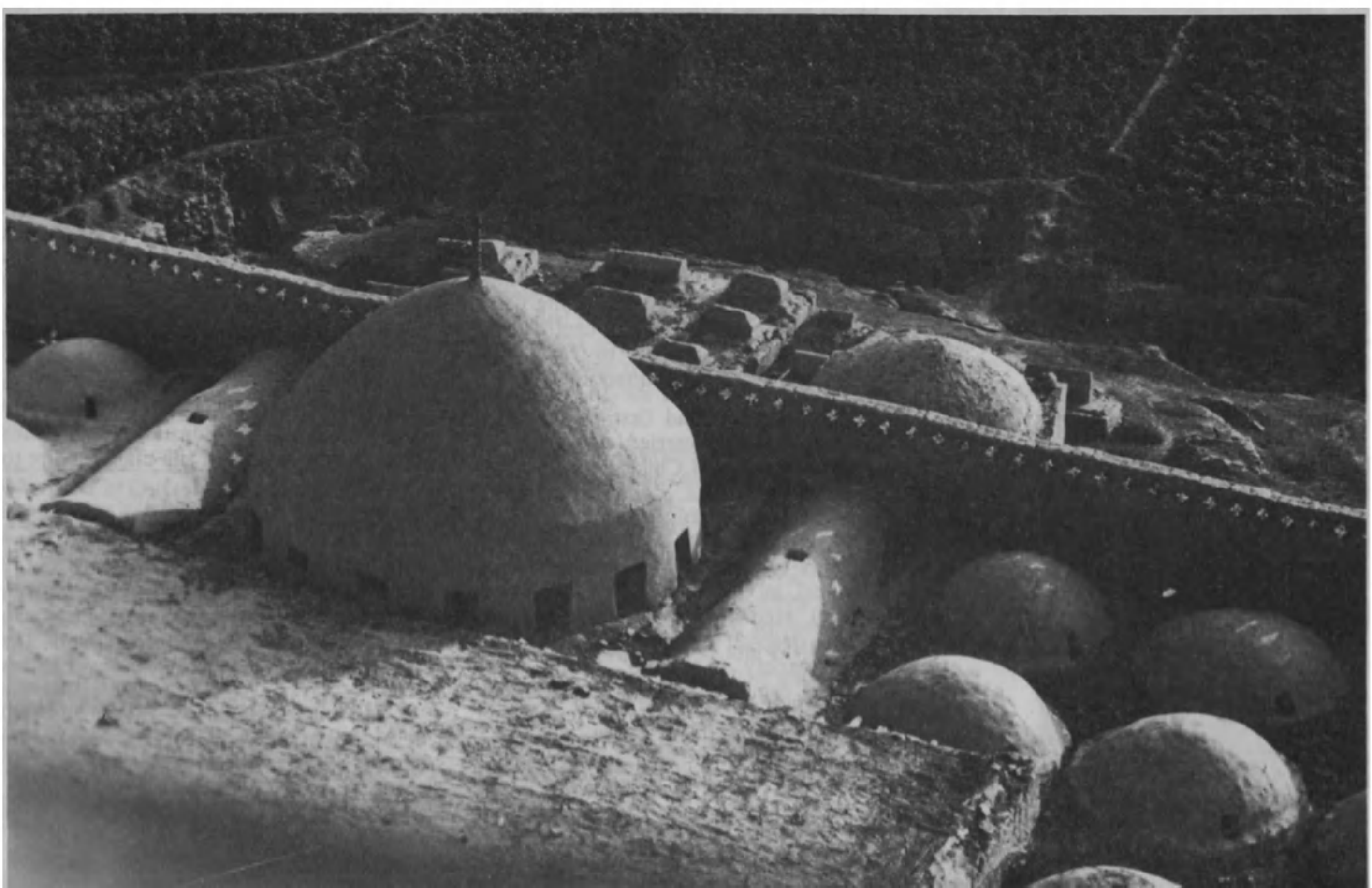


Photo © P. Colombel, Paris

Sea, silk and sutras

by Rinnie Tang and Pierre Colombel

MANY stories tell of the exchanges between ancient China and other countries along the "Silk Road" which wound across the deserts of central Asia. Little is known, however, of the seafaring exploits which also made such commercial and intellectual exchanges possible for over 2,000 years.

Ancient annals describe how at the time of the eastern Zhou (770-256 BC) the Qi kingdom possessed many ships that plied through the Yellow Sea. Under the western Han dynasty (306 BC-23 AD) sea-borne trade became an official State activity, and Canton became a major port from which Chinese ships regularly sailed to trade with what is now Viet Nam, Malaysia, Sumatra, India and the Middle East. The return journey along this route took four years.

The Tang dynasty (618-907) was a time of great expansion in shipbuilding and maritime trade. There were two major sea routes, one leading eastwards, the other to the west:

- ships sailed from Dengzhou on the Shandong peninsula across the Yellow Sea to Korea and from there to Japan;
- from Canton a route led across the South China Sea to the Malay archipelago and Sumatra, a major place of call for Chinese traders. Continuing their voyage across the Gulf of Bengal, Chinese vessels sailed to India and then on to the Gulf where they traded with the Arabs before embarking on the return journey during which they took on passengers and cargoes at the different ports of call.

The outbreak of armed conflict on the northern frontiers caused the Tang to impose strict controls on exported goods, especially iron objects—it was feared that the nomad warriors would transform them into weapons—and silk, which was used as currency to obtain horses from the people of the steppes. At the same time the Government accorded privileged treatment to foreign traders who reached China by sea from the south; they were protected and exempted from certain forms of taxation.

In the fields of intellectual exchange, accounts have come down to us of Buddhist monks from India, Persia and other regions of central Asia who risked the perilous journey across the desert to spread their faith in China, just as Chinese monks took the same route in the opposite direction, as they travelled to India in quest of *Sutras*, or sacred Buddhist scriptures.

Light has been shed on the penetration of Buddhism into China by sea during the eastern Han Dynasty (25-220 AD) by the remarkable rock carvings which have recently been identified on Mount Kongwang, near the port of Lianyungan in Jiangsu province.

In 399 the famous monk Faxian, accompanied by three other Chinese Buddhist monks, left Changan for India in search of *Sutras*. Their journey took eleven years. They followed the Silk Road, and travelled through some thirty countries before returning to China across the southern sea and landing at Canton.

Later Faxian settled at Nankin where he translated the *Sutras* he had brought back with him and wrote an account of his journey to the countries of the Buddhas. One of his travelling companions, the monk Zhi-Yan, set out at an advanced age on a sea voyage to India and died on the return journey.

In the sixth century Bodhidharma, an Indian monk who founded "Chen" Buddhism in China took the same route and also landed at Canton. "Chen", which became the school of Buddhism most highly esteemed by cultured Chinese, reached Japan in the twelfth century and took the name by which it is better known in the west, "Zen Buddhism".

The memory of this great spiritual master who came from the sea is symbolically perpetuated by Chinese painters who depict him crossing the waves on the stem of a reed. ■

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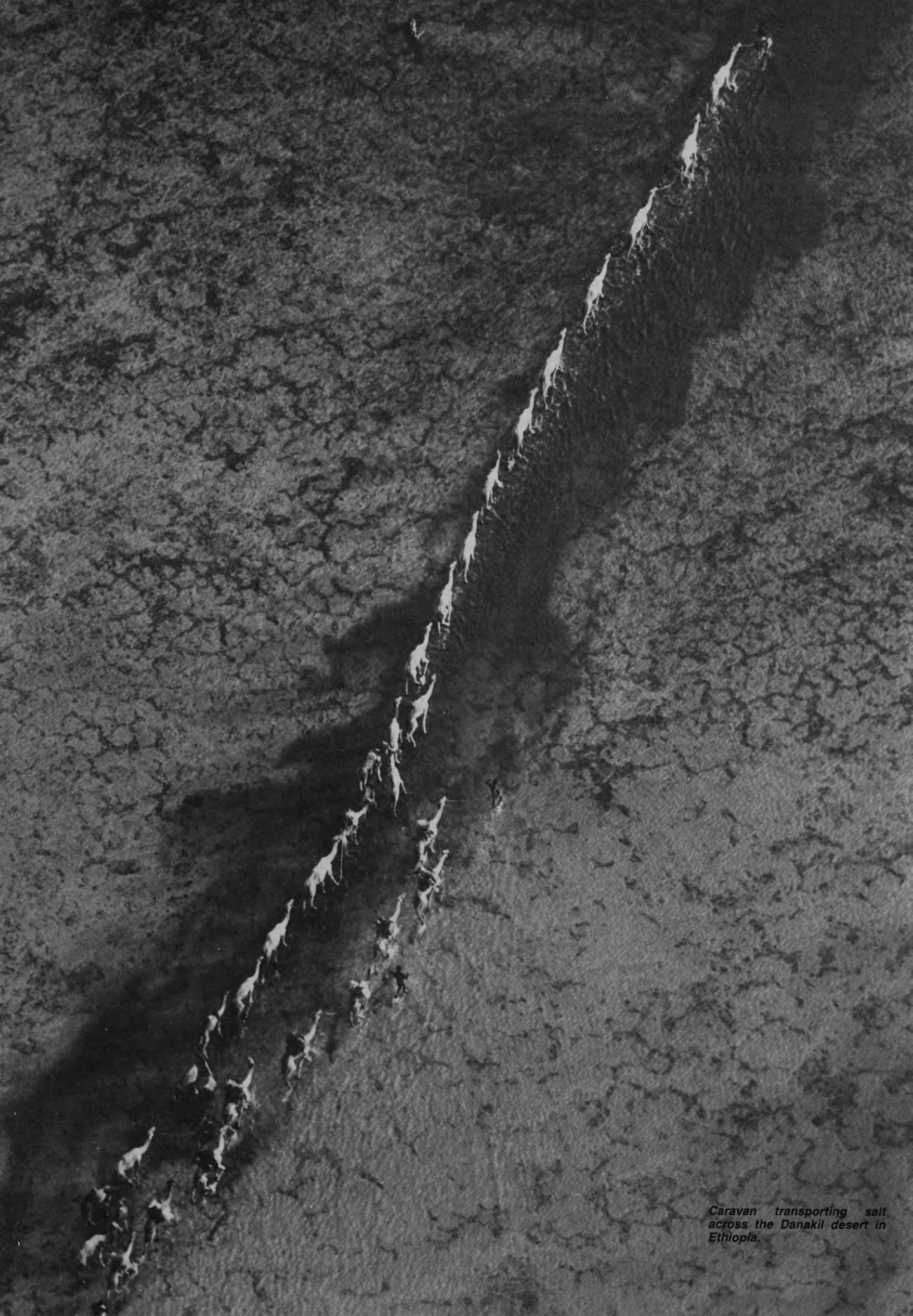
Photos © Pierre Colombel, Paris

When Bodhidharma, the 6th-century Indian monk who founded the Chen (Japanese Zen) branch of Buddhism, arrived in China, he went to the Shaolin monastery near Loyang. He is said to have spent nine years there in contemplation, seated motionless facing a bare cave wall. At the end of this period he enounced his new conception of Buddhism. All beings, he said, possess a Buddha-nature and true enlightenment lies in realization of this fact which is obscured by physical and mental distractions. The walls of the Shaolin monastery are covered with murals dating from the Qing dynasty (1644 to 1911). One of these, **500 Arhats Crossing the Sea,** ***covers an area of 300 square metres. Detail (above right) shows a group of Arhats (holy men) carrying fans and*** **Sutras** ***(sacred Buddhist texts) whose magical attributes enabled them to cross the sea in miraculous fashion. Curiously enough, the Shaolin Monastery was also the birthplace of a form of combat known as*** **Kung-fu,** ***of which Bodhidharma is considered to be the father. Mural (right) depicts a Chinese and an Indian monk practising the martial art in the courtyard of the monastery.***



Caravan transporting salt across the Danakil desert in Ethiopia.

Retracing the caravan routes of East Africa

by Joseph Frederick Mbwiliza

TWO factors have directly influenced the development of long-distance trade in east Africa. The first is the existence of a long coastline stretching from Cape Guardafui in the north to Sofala in the south. Along this coastline were rich fishing grounds, mangrove swamps, salt, and a variety of other products. These served as major incentives in the development of commercial relations between the peoples of east Africa on the one hand and those of Asia and the Mediterranean world on the other. The second relates to the interior, where salt-lakes and springs, and deposits of minerals such as iron, gold and copper served similar purposes and helped to bring people from different parts of Africa's heartland into regular commercial contact.

A dearth of information on the east African interior has given substance to the view that there was no contact between the interior and the ports which dotted the coast during the centuries preceding the arrival of the Portuguese in the Indian Ocean at the close of the fifteenth century. However, new evidence shows that long-distance trade could not have been suddenly imposed on the societies of the interior but rather grafted itself onto older local patterns and regional networks of trade in foodstuffs, livestock, and especially iron tools and salt. It was most probably from these humble beginnings that the peoples of the interior eventually came into contact with the coast and thus with international trade.

However, it does seem plausible that a revival of commercial contact between the interior and the coast came in late in the eighteenth century, and that caravan routes to the great lakes did not become firmly established until the nineteenth century. This was in response to increased world demand for ivory and slave labour for the plantation economies in Zanzibar, the Mascarene Islands and the Caribbean. By the middle of the nineteenth century three main caravan routes with feeder networks in the interior had been established.

The *Kilwa-Lake Nyasa caravan route* is perhaps the oldest of the three caravan routes. Its origin can be dated back to the first decade of the seventeenth century. Until then Kilwa, like all the other coastal towns at that time, was oriented outwards to the sea rather than inwards towards the continent. Established by Muslim sailors from the Middle East, Kilwa was an Islamic commercial outpost for centuries. Through intermarriage and concubinage the population had been gradually Africanized, giving rise to the development of a Swahili culture oriented outwards towards the ocean. The only significant point of interaction with the people in the interior was through Sofala, the port to the south which was linked by an overland trade route to the Zimbabwean goldfields. Kilwa's glory dates from its successful commercial domination of the gold trade from the Zimbabwean plateau, made possible by its control of the sea route to Sofala rather than any trade with its vast hinterland.

The earliest reference to commercial relations between Kilwa and its hinterland is by a Portuguese Jesuit, Father Monclaro, who mentions that trade in ivory existed in 1569. Several other Portuguese sources tend to support the view that by the last quarter of the sixteenth century Kilwa had already changed its commercial priorities from its once exclusive seaward orientation to relations with its hinterland. This was the only alternative to economic ruin since the Portuguese had effectively cut off her links with the Zimbabwe gold trade. Kilwa now turned to the ivory trade.

Although the impetus came from the coast, changes within the political economy of the societies in Kilwa's vast hinterland ▶

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View of a 16th-century Portuguese fort at Kilwa, United Republic of Tanzania. An important commercial centre as early as the 10th century, Kilwa was the maritime terminus of one of the oldest interior trade routes of East Africa.

Photo Jesper Kirkens © National Museum of Tanzania

Photo Georg Gerster © Rapho, Paris

View of Mombasa (Kenya) a leading centre of trade on the east African coast. As early as the 16th century Mombasa established trading links with the hinterland which provided such commodities as honey, wax and ivory.

▶ were equally significant. The emergence of the Yao as leading traders along the Kilwa route was the result of a number of economic factors. In the vanguard of their expeditions to the coast were the Chisi, ironsmiths who held a key position within Yao society and played an important role in local and regional trade. It has been suggested that these expeditions probably began between 1590 and 1616. What is known for certain is that the transition to international trade between Yaoland and Kilwa was a gradual process growing from a limited regional trade in hides, ironware and agricultural products of secondary interest to the coastal merchants to a thriving, well-organized trade by the end of the seventeenth century.

The second major caravan route was the *Pangani valley route*, further north, where commercial relations between the trading cities along the coast and the peoples of the interior appear to have developed earlier than along the Kilwa coast. The density of the population in the intermediate zone together with the troubled relations with the Portuguese seem to have been instrumental in forcing Mombasa to cultivate trade relations with the peoples of the interior as early as the sixteenth century, and it seems probable that the rise of Mombasa as one of the leading commercial centres of the east African coast owed much to its successful cultivation of trade with its hinterland. In the second decade of the sixteenth century Mombasa traders were said to be sometimes at war with those on the mainland, sometimes at peace and conducting trade in honey, wax and ivory. It was this relative independence from the Portuguese-dominated trade in the south that enabled Mombasa to weather successive Portuguese attacks between 1505 and 1589.

This trade, however, does not appear to have survived the upheavals which accompanied the changing political and economic fortunes of Mombasa during the seventeenth century. Commercial relations between the people of the interior and merchants in the towns which dotted the Mrima coast from Malindi to Pangani picked up during the first half of the eighteenth century. Like that between Kilwa and the Yao, it appears to have developed as an extension of old regional trade networks, although once again the impetus would seem to have come from the coast. The earliest European accounts of caravan trade in the Pangani valley all show that this was firmly in the control of people from the coast by the middle of the nineteenth century.

Despite this situation there were important regional trade networks which extended from Usambara to Masailand, including trade in *mpaa* skins, an essential item in Shambaa rituals for the newly born. The only reliable source for these skins was in southern Pare where herds of Impala abounded. This trade eventually expanded to include not only *mpaa* skins but also goat skins, goats and cattle. Similarly, and perhaps at about the same time, individual Shambaa traders began to trade in ghee, livestock and tobacco to the coast in exchange for shells which were also used in certain rituals.

In northern Pare an important regional trade developed between the Gweno and the Mamba chiefdoms towards the end of the eighteenth century. Mamba ironsmiths travelled to Ugweno to trade cattle for the iron which they fashioned into weapons for Chagga and Arusha markets. The Kibosho further east extended this regional trade network to Taveta and Taita in Kenya and westwards to the plains people of Kahe and Arusha Chini. Besides iron, other commodities such as agricultural produce, salt, tobacco, livestock and women entered into this network of exchange. This trade, however remained regional or local until the second half of the nineteenth century. This enabled the Swahili from the coast to move up-country, establishing trading stations in the plains well before the demand for ivory at the coast evoked a positive response from the interior.

Though not the oldest, *the caravan route which linked the Tanzanian coast to the shores of Lake Tanganyika and beyond* is probably the best known of the three major caravan routes. Beginning as a regional network in western and central Tanzania, it had extended to the coast by about 1800. As in Yaoland, iron hoes were the principal commodity traded throughout the period, a fact that underscores the degree of integration between agriculture and craft industry which had been attained during the eighteenth century. There were only a few scattered iron ore deposits in the region, and the technology was strictly controlled through ritual and taboos so that it remained a monopoly of a few families on the Ufipa plateau and in northwestern Tanzania.

Similarly salt, an equally important item for an agricultural people, was not readily available everywhere in the region. By the nineteenth century Uvinza salt was traded from the southern shores of Lake Victoria to northern Zambia and from eastern Zaire into the Ruaha valley.

A third widely sought item of regional trade was copper. This was mined and cast into bars in Katanga and carried by Sumbwa and Galagansa itinerant traders northwards into western Tanzania. Here it was drawn into wire by local smiths and then used in the manufacture of ornamental ware such as bangles and royal insignia for chiefly families. During the same period, in the southern interlacustrine States of Buha and Burundi, copper was used for the manufacture of royal spears and bracelets.

As in the other two cases, the development of this great regional trade preceded the penetration of Swahili and Arab caravans from the coast into the interior. The latter were mainly interested in trading for ivory and slaves and not in iron, salt or copper, and only reached central Tanzania during the second decade of the nineteenth century.

The addition of ivory to the indigenous trade goods of central and western Tan-

Photo © Hoa-Qui, Paris

Copper mine in the Shaba (formerly Katanga) region of Zaire, the world's sixth most important producer. Copper was one of the main commodities traded on the great caravan route linking the coast of Tanzania with Lake Tanganyika. It was used in the manufacture of gems and weapons.

Photo © Hoa-Qui, Paris

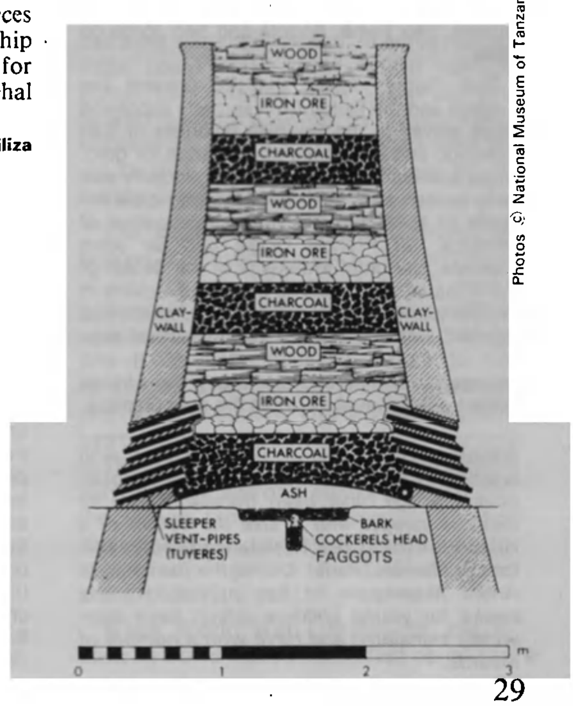
zania led to the formation of a vast long-distance trading network which linked the coast to the remote interior as the pattern of regional trade came to support the operations of international commerce. Trade in iron, salt, copper and ivory again converged around Unyamwezi.

Once this happened, it becomes untenable to maintain that there was a dichotomy between long-distance trade and regional or local trade. By its very nature, long-distance trade was from the start dependent on production in the interior and was therefore entwined with local trade. Food was grown in most cases by women, if not by slaves, and exchanged locally. Iron and salt were brought from neighbouring districts, and carried by caravans mainly engaged in the ivory and the slave trade. Some ivory and slaves were obtained locally from bands of hunters or warlords, but many more reached Tabora from distant lands. Ivory with little local utility value was destined for the coast, but many of the slaves brought to Tabora or Ujiji were employed locally in domestic and agricultural work, in ivory hunting and porterage. Thus a caravan leaving Tabora in the nineteenth century for the coast to sell ivory and slaves and perhaps some copper wire would also carry goods for exchange or to pay tolls along the way. Salt-stacks and iron hoes for use in Ugogo and Usagara were important on the outward journey, while caravans on their way back home were laden with imported cloth, wire, and beads.

These commercial links between the coast and the interior strongly affected the older economic infrastructure on which they were grafted or from which in some cases they evolved. Not only did they stimulate an intensified exploitation of east Africa's natural and human resources, they also sparked off a social and political transformation. Seen from a global perspective, caravan trade facilitated the integration of east African economies into the world economy at uneven terms of trade in the sense that it consisted basically of the export of African raw materials in exchange for finished consumer goods; this led to an asymmetry between production and consumption and dislocation of existing patterns of production and exchange. Within this world economy the ivory hunter, the slave raider, the porter and, indirectly, the food producer, had become by the middle of the nineteenth century the forerunners of the migrant workers and peasants of the colonial labour force.

Traditional African institutions were not spared the impact of the long distance caravan trade. Ideas as well as goods and new crops travelled along the caravan routes and left their mark on African societies. The most important of these for contemporary east Africa was the spread of Swahili from the coast to the interior which has made the region a single cultural zone extending into Zambia, Malawi, eastern Zaire, and northern Mozambique. It was due to the expansion of international trade into the interior of east Africa that Islam made headway there. Among the matrilineal peoples of south-east Africa, internal trade facilitated the liberation of men by presenting them with alternative sources of wealth outside the matrilineal kinship structure and in this way paved the way for the emergence of the patriarchal polygamous family.

■ **Joseph Frederick Mbwiliza**



Photos © National Museum of Tanzania

In the 18th century iron hoes were one of the main commodities traded in the commercial network which linked the peoples of western and central Tanzania. Certain families, largely concentrated on the Ufipa plateau in western Tanzania, held the monopoly of forging and smelting technology. Right, view and cross-section of a traditional iron-smelting kiln from this region. A strict ritual governed the construction of such kilns, which stand about 3 metres high.

A Portuguese slave-hunter. Benin bronze (1600).

The tom-tom warns of the slaver's approach. Benin bronze (1600).

Photos © British Museum, London

The luckless victims.

Photo © Almasy, Paris

The slave trade

by André Kedros

THE Portuguese voyages of discovery, and the encouragement given to negro slave expeditions by Prince Henry the Navigator (1394-1460), led to the introduction of large numbers of black slaves from the west coast of Africa into Spain and Portugal from the early fifteenth century onwards. But it was the discovery of the New World which really launched the slave trade on a large scale. The Spanish conquest, which started with San Domingo (Hispaniola), soon extended to Porto Rico, Jamaica and Cuba. The first slaves landed in the islands of the Caribbean were brought from Spain and Portugal, but slaves were soon being sent directly from the Guinea coast. They were imported to work on the plantations and in the copper mines.

On 12 February 1528 the first licence (*asiento*) for regular trade in slaves was granted by the King of Spain to Henry Ehinger and Jerome Sayler, German citizens and agents of the Welser banking family who, with the Fuggers, played a dominant role in the financial affairs of Spain. Further *asientos* subsequently authorized Portuguese and Spanish traders to transport slaves to the Caribbean from Seville, Lisbon, the Canary Islands, the Cape Verde Islands, São Tomé, Angola and São Jorge de Mina.

This "legal" traffic did not prevent the English and the Dutch from secretly supplying black slaves to the Spanish colonists in San Domingo and elsewhere in exchange for gold, sugar and leather. The Spanish monopoly was fairly broken after the rout of the Invincible Armada in 1588 and the British occupation of Jamaica. Sir Francis Drake and Sir John Hawkins, the chief architects of the defeat of the Armada, also became the prime movers in the Company of Royal Adventurers, which was founded with the approval and financial support of Queen Elizabeth (1533-1603) and engaged in the slave trade along the African coast from Senegal as far as the river Gambia. The favourite refuge of these adventurers, who were privateers and pirates rather than traders, was the Caribbean island of Tortuga.

The Dutch in turn, having recovered their independence at the end of the sixteenth century and seized some of the Portuguese bases on the African coast, entered the slave trade on a large scale. Finally the French under Richelieu and especially under Colbert, having occupied the islands of Tortuga and San Domingo, seized their share of this very special kind of international trade. The shipowners of Le Havre, Dieppe, Rouen, Saint-Malo and later Bordeaux bought slaves in Senegal, Cape Verde and elsewhere and, like their English, Dutch and Portuguese competitors, sold them in the ports of the West Indies, Guiana, North America, Venezuela, and Brazil. Since the native Indians had been practically exterminated and also because of the high death rate amongst the imported black slaves, the island colonies and those of the American continent were chronically short of manpower. It is estimated that between 1666 and 1800 over ten million black slaves were despatched to the colonies in the New World.

The slave-traders followed a triangular route. They set out from European ports with shiploads of cheap wares which they generally bartered for the black slaves they acquired at the slave markets on the African coast and loaded for re-sale at a substantial profit in the New World. Afterwards they sailed back to their home ports with cargoes of valuable colonial products such as gold, sugar, tobacco, cotton, and leather. Many writers maintain that not only the growth of international trade but also the industrialization of west European countries (where, for instance, iron bars and pieces of cotton were manufactured to be bartered for slaves) was largely due to the slave trade.

Since ancient times it had become the practice in Europe and Asia to enslave rather than to exterminate prisoners of war. This was also true on a smaller scale of Africa, where prisoners taken during tribal wars and forced into slavery were more or less integrated into the communities which received them. But with the growth of the Atlantic slave trade the problem acquired a new dimension. Incited by the lure of profit, many African tribal or village chiefs who shared the spoils of the great Songhai empire (early fifteenth-late sixteenth century) fought each other incessantly with the sole aim of taking prisoners whom they subsequently sold on the big slave markets at Segu, Bambarena, Khasso and Bambuk.

Local traders (mostly from the Sarakole, the Mandingo and the Hausa tribes) conveyed them from the markets to the European trading posts on the coast. The privations and ill-treatment to which they were subjected on the journey were intended to stifle any ideas of revolt. For fear of wild beasts the caravans travelling to the French trading posts only took the Galam route at the beginning of the rainy season, and those who supplied the British did not set out for the Gambia until the rivers were fordable and the vegetation had been destroyed by fire. The island of Gorée was for long one of the principal "clearing camps" for slaves despatched in these caravans.

The Arabs, and Muslims in general, engaged intensively in the slave trade until the collapse of the Songhai empire in 1592. This traffic declined at the beginning of the seventeenth century but made a vigorous recovery afterwards. Caravans took charge of the slaves in the region extending from the land of the Hausa to Lake Chad, then proceeded northwards via Zinder and Agades. The Tuareg then took them from Fezzan towards Tripolitania and Ghudamis. At Ghudamis, the caravans split up, some bound for Morocco, others for Tunisia. These black slaves had to cross 3,000 kilometres of desert on foot. From Tunis, or from Tripoli, they were despatched to the Levant and sold for the fourth or fifth time. The principal centres of the slave trade in East Africa were Mombasa, Zanzibar, Kilwa and Bagamoyo. From these centres the Arab traders penetrated the African continent as far as the Congo and even Angola. During the nineteenth century, as a result of slave revolts (as in San Domingo) and anti-slavery legislation, European involvement in the slave trade tended to diminish or to become clandestine, whereas during the same period the trade increased in East Africa.

Slavery in the strict sense of the term is today considered to have been universally abolished. At any rate it is universally condemned. Most African peoples have achieved independence. But the healing of the scars inflicted on them by an ordeal which lasted for centuries is bound to be a long and difficult process.

■ **André Kedros**

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A world athirst for oil

by Vincent Labouret

MOST of the oil discovered since the early years of this century has been found in countries where it has been used only in small quantities, whereas several major oil-consuming countries have little or no oil on their own territory. Hence trade in oil has grown constantly until oil has become the most important internationally traded commodity in terms of both volume and value. In 1982, for example, energy products accounted for one-quarter and oil for one-fifth, of a total volume of trade in commodities amounting in value to 1,850,000 million dollars.

The situation of oil is even more striking when its transportation by sea is considered. In 1980, oil or oil-based products accounted for half of the 3,732 million tonnes of cargo carried by the world's ships. In fact the volume of petroleum products carried by sea grew at the extremely rapid rate of almost 10 per cent a year between 1950 and 1973 when, at its peak, it represented 57 per cent of all sea-borne commodities.

The importance of this trade is further compounded by the very long distance that oil tankers cover. The United States is 13,500 kilometres from the Gulf, southern Europe 7,800 kilometres distant (via the Suez Canal), and Rotterdam almost 20,000 kilometres away (via the Cape of Good Hope). Tankers sailing from Venezuela and unloading in Rotterdam have a voyage of some 7,500 kilometres. Japan is 12,500 kilometres from Saudi Arabia.

VINCENT LABOURET, *of France, is Secretary-General of the French oil company Total. He holds the rank of Minister Plenipotentiary.*

The history of the "oil routes" is thus linked to the technical means used from the early days to ensure the increasingly economic transportation of the precious cargoes of crude oil over these long distances—in other words, to the growth of the tanker fleet.

As early as 1870, only some ten years after oil had been discovered at Titusville in Pennsylvania, 64 per cent of America's production was already being exported. The United States and Russia, which together supplied more than nine-tenths of all the oil extracted in the last quarter of the nineteenth century, exported more than half their output. The two countries engaged in fierce competition on the European market from 1883 onwards, after the inauguration of the railway linking the Russian oilfields to the Black Sea port of Batumi.

The first bulk exports of oil from the United States to Europe were carried by sailing ships on which tanks had been installed. The first such vessel seems to have been the *Charles*, which was built in 1869 and was fitted out with fifty-nine tanks representing a capacity of 714 tonnes. Owing to technical ballasting problems, however, the bulk transportation of oil was limited until 1875.

It was the need to keep the French refining industry supplied that first occasioned the bulk export of crude oil in 1874, when such exports amounted to 300,000 barrels; they had risen to 450,000 barrels by 1879. By then the French refining companies had already built a series of unloading and storage facilities between Le Havre and Rouen which were very large for that time. In 1879, Norwegian ship-owners put four vessels into service on the Philadelphia-Le Havre run. Three of them were sailing ships but the fourth, the *Stat*, was steam-powered. The *Stat* shared with the 2,748-tonne Belgian ship, the *Vaderland*, built in 1872, the distinction of being the first steamship to carry oil in bulk.

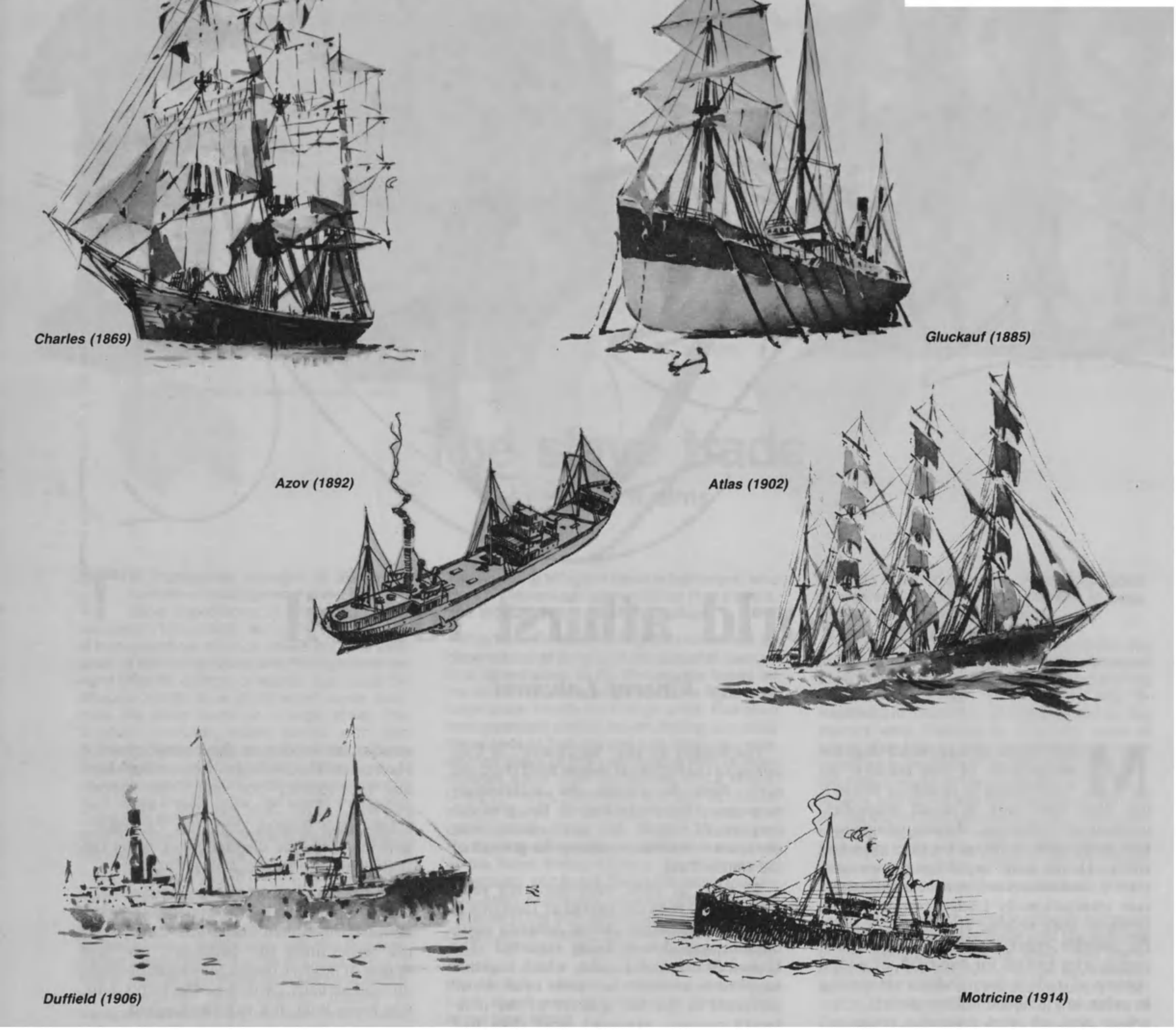
By 1885, more than one thousand vessels, almost all of them sailing ships, were plying between the United States and Europe. At the same time, the *Gluckauf*, the first tanker of modern design, in which the crude oil was actually carried in the ship's hull, was being built in a British shipyard.

The use of steamships for this purpose had a big economic impact. Whereas sailing ships could make three return voyages across the Atlantic in a year, the new tankers made up to seven. By the mid-1890s virtually all America's oil exports were being carried by steamship. The age of the sailing ship had gone for ever.

The world's fleet of engine-driven oil tankers continued to grow in the early years of this century, keeping pace with worldwide crude oil production and the growth in consumer demand. Motor vehicles had appeared on the scene by 1910, and superseded the oil lamp as the main market for petroleum products. Growth was rapid: it had taken the oil industry thirty-six years up to 1895 to produce its first thousand million barrels, but it was only eight years later that the second thousand million barrels had been produced, and by 1920 the industry was producing five hundred thousand million barrels a year.

When World War I broke out, the industrial world was so dependent on oil that ▶

From square-rigger



Charles (1869)

Gluckauf (1885)

Azov (1892)

Atlas (1902)

Duffield (1906)

Motricine (1914)

▶ a prime objective of the military strategy of the belligerents was to secure access to sources of supply. The war created so great a demand for oil in Europe that soon there were not enough tankers to cater for it. The precious fuel was accordingly transported in conventional cargo boats, in many cases in their ballast tanks or in the space between the hold and the hull.

The world's tanker fleet was thus able to grow in pace with demand, which quadrupled between 1918 and 1939. This period saw the decline of the United States as an oil exporter and the rise of production in many parts of the Middle East, Latin America, and Asia. The oil industry became truly international, even though the United States continued up to 1947 to produce more than 60 per cent of the world's crude oil, and to control 60 per cent of the world's tanker fleet.

From the 1950s, the tanker fleet grew at a hectic pace, doubling in size between 1947 and 1957, again by 1966, and yet again by 1973. What is more, in the twenty years after 1950, the world recorded an unprecedented rate of economic development, with growth rates in the western nations reaching as high as 5 per cent a year. During the same period, world oil consumption grew by 7.6 per cent a year, in other words even faster than overall energy consumption, which tended to parallel growth in GDP.

As oil consumption increased, the United States' share of world production declined, falling from 61 per cent in 1942 to 16 per cent in 1973. Indeed, from 1947 onwards, the United States became a net importer, in a bid to meet ever-increasing demand.

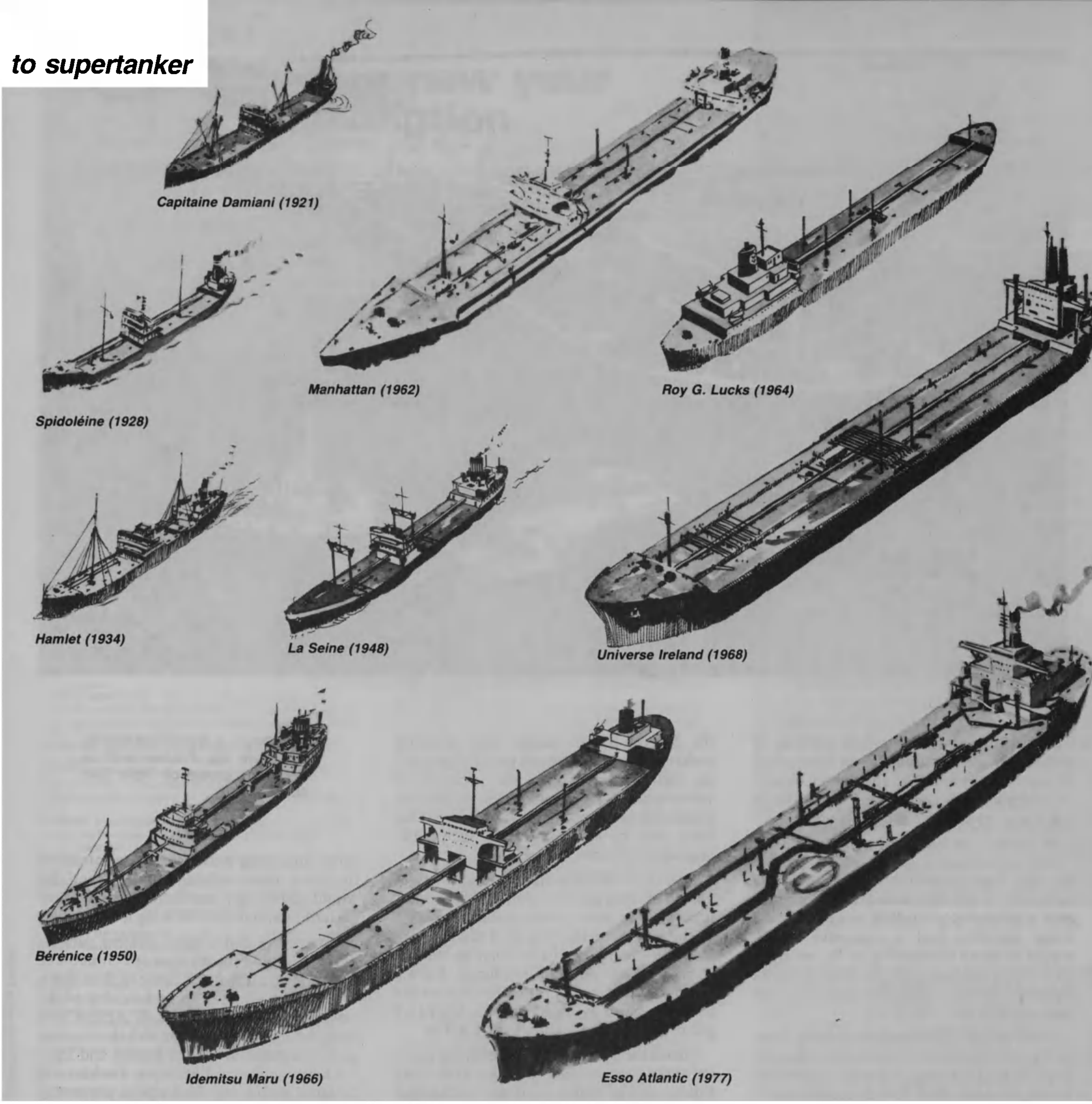
It was from this time that the structure of the modern oil industry took shape: production centres were located far from the consumer centres, refineries were situated near to the markets for the processed end-products, and a fleet of oil tankers provided the link between the two.

The "supertanker" generation was soon to emerge. The first vessels of this type, gauging some 32,000 d.w.t.*, were limited in size to the capacity imposed by the Suez Canal, but when the Canal was closed for five months in 1957 ship-owners raced to build jumbo-size tankers to derive maximum benefit from economies of scale on the route from the Middle East to Europe via the Cape of Good Hope. By 1960, the 70,000 d.w.t. "Suezmax" class of tankers was emerging from the shipyards, soon to be followed by the 100,000 d.w.t. class. However, the lack of suitable port facilities and limited storage capacity at the unloading points acted as a brake on this trend.

The 1960s brought a drop in the real price of oil and cut-throat competition between

* Dead weight tonnage (d.w.t.) is equivalent to the full load a ship is capable of carrying, plus the tonnage required for its own needs by way of fuel tanks, crew facilities, and so on. Hence the actual tonnage that can be transported is slightly less (93 to 97 per cent) than the d.w.t.

to supertanker



Drawings Maurice Mélissent, courtesy of *Pétrole Progrès*, Esso France, Paris

the international oil companies. The transport component in the cost of oil delivered to importing countries was high, and operators soon realized the advantage of optimizing this link in the oil chain in their efforts to secure the edge over their competitors. When the Suez Canal, the strategic lifeline between the Gulf and Europe, was again closed on 7 June 1967, the ship-owners, who were largely the oil companies themselves, quickly set about building tankers in the "Very Large Crude Carrier" (VLCC) class, displacing more than 160,000 d.w.t. Initially, the constructors kept within an upper limit of 250,000 d.w.t. in view of the expansion plans of the Suez Canal Authority, but when it became clear that the Canal would remain closed for longer than expected, they began to build "Ultra Large Crude Carriers" (ULCC) with a capacity of up to 550,000 d.w.t. Thus just before the first oil price shock in 1973, the world tanker fleet consisted of 3,458 vessels gauging more than 10,000 d.w.t., with an average capacity per vessel of 62,000 d.w.t., five times the 1947 figure.

The steep rise in the price of oil in 1973 caused world consumption to drop for the first time since 1949, so much so that the amount of oil consumed in 1979 was no higher than the estimates the operators had made for 1976! In spite of this decline, the tanker fleet continued to grow, as the shipyards went on delivering the vessels that had been on order before the crisis. In 1979, one-third of the world tanker fleet could be regarded as surplus to requirements. Yet, at the same time, tanker sizes were still on the increase—to about 99,000 d.w.t.—although the economic motivation for such large vessels was by no means so clearcut.

The second oil shock in 1979-1980 dealt another severe blow to the maritime oil industry. Over the four years 1979-1983 oil consumption fell by 12 per cent. In addition, the flow patterns of the oil trade changed. Long-haul European and American imports of crude from the Middle East gave way to short-haul crude imports from North Africa and the North Sea, and this significantly reduced transport needs.

As of 30 June 1983, the commercial oil tanker fleet consisted of 3,048 vessels, representing a total capacity of 278.5 million d.w.t., added to which there were seventy-nine vessels gauging 1.8 million d.w.t. which belonged to governments, and fifty-eight others which had been converted into floating storage facilities or used for other purposes. In one year, 110 tankers had been phased out, most of them ending in the breakers' yards. Today, two tankers out of every five belong to the oil companies, and the rest to independent ship-owners, illustrating the important role played by integrated international companies.

More than one-quarter of the tanker fleet sails under the Liberian flag, with Japanese registrations far behind in second place. ▶


Photo © Photothèque Total, C.P.F., Paris

The **Onyx**, *a French oil-tanker* **en route** *for France with a cargo of crude oil from the Middle East.*

▶ The fact that by far the largest number of tankers fly the Liberian flag or other flags of convenience is due to the lighter burden of operating costs of vessels registered in the countries concerned.

Without undue exaggeration, the "1984-style" tanker could be described as too big, young (most of them have been delivered in the last decade), under-used, and inefficiently propelled, since at a time when maritime fuel is expensive and it would be more economical to fit out ships with diesel engines, half the fleet is driven by steam turbines. Its initial capital has not been amortized.

Even though at the present time the maxim "small is beautiful" does not necessarily apply to sea transport, it would certainly be wrong to claim that "big is economical". The average size of the vessels currently on order has been scaled down and now lies in the 50,000 d.w.t. range. The new-style tankers are often designed to carry processed end-products, since the creation of substantial refining capacities in the oil-producing countries themselves means that there will be more trade in such commodities in future.

In spite of all the economic unknowns involved in so strategic a commodity as oil, is it possible to make a reasonable prediction of the sea-routes that the oil trade will take in future? The statistics relating to the world's proven oil reserves suggest that the Middle East accounts for 55 per cent of the total, followed by Latin America with 11.7 per cent, the Soviet Union, and Africa.

Hence the ports at which the tankers take on their cargoes and the itineraries they follow will probably continue unchanged for several decades to come. On the other hand, the United States, Europe, Japan and other importing nations may be joined by the newly industrializing countries, and this would add further ramifications to the flow pattern, without transforming it altogether.

Competing conveyance systems such as pipelines cannot be disregarded either. The transport of oil by sea is liable to slow down even further with the commissioning of the new pipeline crossing Saudi Arabia and terminating at Yanbu, and with the increase in the throughflow on the Sumed and Iraq-Turkey pipelines, for example. Tankers will be faced with a big challenge in preserving the slot they have cut out for themselves.

■ **Vincent Labouret**

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The pipelines on this ten-kilometre-long pier, at Ju' Aymah, Saudi Arabia, carry liquefied petroleum gas (LPG) for loading on giant tankers. In recent years the production of LPG has become an increasingly important branch of the oil industry (see article page 31).

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