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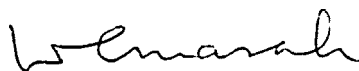
DEVELOPMENT OF NAUTICAL EDUCATION AND TRAINING
IN NIGERIA

BY

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Nigeria

A paper submitted to the Faculty of the WORLD MARITIME UNIVERSITY in partial satisfaction of the requirements of the MARITIME EDUCATION (NAUTICAL) COURSE.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the UNIVERSITY.



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TO EVERY ONE OF US.

SAFER AND CLEANER SEAS

MEAN

BETTER AND LONGER LIFE

THE CHINESE PROVERB SAYS:-

TELL ME AND I SHALL FORGET;

SHOW ME AND I SHALL REMEMBER

LET ME DO IT AND I SHALL

UNDERSTAND.

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PREFACE

In very literal sense, everything we do has an origin - a starting point. When you leave your house in the morning to go to your office, and half-way to your office a friend pops up the question - where are you from or where are you going ? Naturally, you will tell him you are from your house and going to your office. The origin of that journey to your office is your house even if you might have branched to one or several places before reaching your office.

In the same token, I would have succeeded in my objective if it could be understood from the account of Nigeria's brief historical developments, the origin of her Shipping Industry and the ultimate quest to found a Maritime College for the education and training of marine personnel.

Trade and Industry form a very important part in the development and growth of any country. Nigeria has a large potential of natural resources; a coastline of over 600 nautical miles long; a very large hinterland with immense agricultural capabilities and a population of over 80 million people who are scarcely developed to a degree sufficient to alleviate their poverty.

With the discovery of crude oil in 1958 and the attainment of Independence in 1960, the country's international image changed. Economic growth accelerated; the balance of trade changed from an export to an import surplus; percentage of literacy increased as free primary education was practised in some parts of the country and from only one university college and one college of technology at pre-independence to well over twenty-three universities and over seventeen polytechnics and colleges of technology.

The tremendous changes in the economic and social life of the country brought about by the discovery of oil and attainment of independence could not quite be complete without an adequate and complimentary role of good transportation system. All economic

activities of a Nation rely on the transport system for the movements of both persons and goods. The importance the various Governments attached to roads, railways, air traffic, inland waterways and the shipping industry, is reflected in the relatively higher investment funds expended within the last two decades in the transport sector.

(see table 1)

The Government realising that full participation in shipping is the only effective instrument for the movement of the Nation's increasing exports and imports, started in 1959 a National Shipping Company with foreign technical partners and with six old ships. Two years later, 1961, the Government bought the shares of the technical partners and the company was then fully Nigerian owned. It was not long before it was also realised that over 70 percent of the total sea-borne trade generated along West and Central African sub-region originate from Nigeria. With the determination to carry a fair share of that trade, the Government rapidly increased her fleet both in number and tonnage.

But a situation where the company was virtually run both afloat and ashore by foreign personnel was not a happy one for the Government. Even other shipping off-shoots like clearing and forwarding agencies, cargo surveying, ships agents etceteras were also dominated by expatriates. Government therefore decided to establish a Nautical College to train all levels of manpower required in the shipping industry. In pursuance of this policy objective, the Government commissioned three independent bodies between 1968 and 1976 to look into the suitability of establishing the nautical college.

The Nautical College was finally established in 1979 at Oron in the Cross River State. The intake of students started in 1980. Considering the highly technical and international nature of nautical colleges, it can only be modestly said that it will take a considerable time before the college attains a deserving standard of its own.

Recognizing the political, social and educational environments of the country and taking a futuristic view of the role of the college, some model systems of education and training of seafarers have been suggested.

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CHAPTER 1

THE SHIPPING INDUSTRY

1.1 Introduction

The Nautical College of Nigeria was established at Oron in the Cross River State of Nigeria in 1979. The intake of students commenced in 1980. The import of the institution's socio-economic effects on the Nation and the important role it will play in the advancement of maritime technology in Nigeria now and in the succeeding years to come cannot be over exaggerated.

Perhaps, to be able to appreciate the reasons for the need to establish such an institution of its first kind in Nigeria, it is necessary to briefly touch on the prevailing state of the Nation's economy when the concept, the feasibility studies and the final birth of the college took place. From the chronological short history of Nigeria pre and post independence, a general knowledge of the devolution and evolution of maritime transport; the prevailing economic backgrounds and the development of literate education is important.

It is generally recognised that the evolution of maritime administration of any country usually originates from the economic development of that country in terms of volume of trade, commerce and established industries which are the mainstay of a country. The sequence of industrial and economic developments depends largely on the ability of a country to produce in sufficient quantities either agricultural products, raw materials and/or industrial finished goods. Since no nation, no matter her military, political, economic and technological developments, is self sufficient, the

country then looks over her borders to find out how she can dispense with surplus products and acquire those products she cannot produce. Through this exchange of products between two or more countries, a significant factor of external trade - import and export - emerges. Thus, depending on the volume of imports and exports, a formation of a simple or complex shipping industry becomes a good proposition.

The international nature of shipping arises from the various components that make up the entire industry. In all its ramifications, trained and efficient personnel is one part of these components. It is perhaps the central nucleus around which other equally important components revolve. This dissertation is divided into eight chapters arranged in a plenary and sequential manner to lead the reader to the inevitable conclusion of the need to establish a maritime training institution in Nigeria.

Chapter one has as its heading "The Shipping Industry". The chapter narrates in short and concise manner Nigeria's economic and historical backgrounds up to her present anchorage position. It traces the path of devolution and evolution to the industry in Nigeria and from the lessons learned from the past, the Government's pragmatic solutions.

Chapter Two deals exclusively with the availability of manpower in the field of shipping. It is hardly an exaggeration to say that the inadequacies of technical education in Nigeria have had a devastating effect in certain areas of economic developments. It is for history and historians to judge whether the neglect of technical education in the colonial era was a matter of deliberate policy or purely the result of circumstances of that time.

Chapter three explains the existing education system in the country and nautical education and training in general. It is the policy of the Government that every Nigerian should have the opportunity to receive comprehensive education to the highest level since education is the only process by which a considerable number of a nation's human resources can be transformed from mere numbers into productive numbers. Thus, education is seen as a means of enriching an individual's knowledge and developing his full personality at the same time preparing individuals for specific tasks and employment functions.

The Nigerian Shipping Policy is dealt with in Chapter Four. The objectives and total awareness of successive Governments of Nigeria had remained constant and unbending towards the development of all modes of efficient dynamic and flexible transport services which are vital to the economic growth; expanding productivity and the general progress, health, safety convenience of the population. The shipping policy is aimed at promoting indigenous shipping interests; conserve the country's foreign exchange; increase the level of visible and invisible earnings through shipping and reduce the Nation's dependence on foreign shipping lines. The policy had the fortitude of foresightedness.

An attempt has been made in Chapter Five to summarise the various I.M.O. requirements for the education and training of Seafarers as contained in the first international instrument designed to improve safety at sea globally under the same uniform standards.

Chapter Six affords the opportunity to look into the different system of maritime education and training in some other countries. The objective is to enable one to have a clear understanding of what ought to be a model system for the country by comparing and contrasting the various systems in other countries.

Chapters Seven and Eight deal with proposals and recommendations respectively. Realising that no system is entirely perfect nor are there any two systems that are similar but rather each system at best fulfils certain objectives, I tried to create a base upon which changes, improvements and new ideas can be added to and any shortcomings eliminated. My proposals and recommendations are meant to provoke intellectual discussions into certain areas such as the role of maritime education and training in the economic developments of the country; the syllabus; professional certificates cum land based certificates; conflicts between labour intensive operations and automation and research works.

1.2 HISTORICAL BACKGROUND

Nigeria has been described in different ways by different persons at different times as a rich country endowed with vast land areas, rivers, the underground mineral resources, the resources of its ocean front and above all, its virile population. But regrettably, it would appear that these endowments have not yet developed to a degree religiously adequate to alleviate the poverty of the bulk of the common people.

For decades before independence, agriculture stood the test of time as the mainstay of the Nigerian economy. The limited economic growth that took place during that period had agricultural production for exports as its main driving force. Not only did the exportation of agricultural products generate incomes within the domestic economy, but it also provided about 70 percent of the country's total foreign exchange. This favourable export trade was to a greater extent boosted by the world's economic situation in the fifties. The World was developing rapidly and there was a great demand for raw materials, food, and the luxuries which it has been forced to forego during the years of world wars and conflicts. All primary producing countries and particularly those which had not been in the main theatres of wars and which had maintained stability and peace benefited from this demand through rapidly expanding markets and high prices. It was a decade in which the war ravaged countries - especially those on the losing side - grasped the opportunities presented to start again from scratch (1).

But the economic history of Nigeria was to be rewritten with the discovery of oil in 1958 and the independence in 1960. Nigeria started to export oil in 1958 with an annual turnover from sales in the million Naira (2) mark until 1973 when the earnings hit for the first time the billion Naira mark. The Nigerian National Petroleum Corporation put the total sales of oil between 1958 and 1983 at about 78.9 billion Naira (3). This was an enormous amount of money to make greater strides in the development of the country.

(1) Nigerian National Development Plans 1962/68 - 1981/85

(2) Naira is the official monetary currency of Nigeria.

(3) Concord Newspaper - "Sunday Concord" of February 5 1984 - Page 1

Industry which was still in its infancy before independence gradually moved from the periphery of the country's growth mechanism to a potentially dominant position as an important engine of economic transformation. Greater emphasis was placed on manufacturing industries. There was massive movement of people from rural areas to urban cities with the result that agriculture which was hitherto the number one export earner was now playing the second fiddle. The economy was rapidly heating up and this was reflected in a faster increase in imports than exports. The balance of trade changed from an export to an import surplus. Raw materials, machineries and food items which could not meet the demands of the vast population from the neglected agricultural sector, were the main imports.

During the period 1955/56 and 1980/81 fiscal years, Nigeria's international seaborne trade (excluding crude oil) increased from about 2.74 million tonnes to 21.38 million tonnes representing an annual rate of increase of about 8.5 percent. The greatest rate of increase in the volume of the country's international seaborne trade was recorded with the advent of the oil boom of the early seventies. The volume of the international seaborne trade increased from 7.3 million tonnes in the 1970/71 fiscal year to 21.38 million tonnes in the 1980/81 fiscal year representing an annual rate of increase of about 11.3 percent.

Thus, there was unprecedented amount of imports which broke all time records and was as a result of rapid economic activities due to the post war reconstruction efforts (1967-1970 civil war) and the general economic developments made possible by what has always been popularly referred to as the oil boom. The climax of this economic era was the armada of over 400 merchant ships carrying various import materials into Lagos port alone. Waiting time at anchorage plus discharging time in port amounted in some cases, up to twelve months. This situation among other things, created a fertile ground for international maritime frauds. Documentary frauds, charter frauds and organised cargo thefts became the order of the day. Few scuttling cases were also reported. It is reckoned that Nigeria has so far paid out millions of Naira for various

nefarious claims, demurrage payments and port congestion surcharges. Even with this huge amount already paid out, she has not been able to close the chapter finally as some international litigations are still being fought in various courts. The attendant effects of the serious port congestions reflected adversely on production schedules in factories not being met; delayed investment plans; higher production costs and general scarcity of goods leading to high inflationary prices.

In hindsight, it might be said that those severe port congestions of the early seventies were, indeed, a good blessing in disguise for the country. For the first time, there was a national awareness, particularly at the governmental level, of the contribution and significance of shipping industry; the effect of shortage of manpower; inadequate provision of seaports and other related fields to the economic and social development of the country. The Government in a very responsive manner gave a desired priority in the development of maritime infrastructures. In the third National development plan - 1975/80 - an unprecedented sum of 0.54 billion Naira was allocated for the development of seaports; the national shipping company got 176 million Naira for the purchase of nineteen new ships of between 12,000 tons dwt and 16,000 tons dwt respectively. Also, realising that there could be no meaningful progress in the maritime industry no matter the amount of investment involved without adequate trained manpower resources and technical expertise, the Government commissioned a second feasibility study on the possibility of establishing a nautical college to produce sufficient trained manpower on a continuous basis in line with the demand and supply market.

An attempt has only been made to paint somehow a general picture of the growth of economic and industrial developments pre-independence to the present era. It is not the intention of the writer to pretend for a moment to play the role of an economist. Persons interested in the detailed study of the economic and industrial developments in Nigeria should try and read recent authoritative publications on the subject.

1.3 DEVOLUTION AND EVOLUTION OF MARITIME INDUSTRY IN NIGERIA

In discussing the development of shipping industry and maritime education and training in Nigeria, it is both important and interesting to look back on the devolution and evolution of maritime transportation and ship types in the world and Nigeria in particular some centuries ago and up to the present anchorage position.

It is known that up to AD 1000, the Pheonicians, the North Arabs and the Coastal Indians used canoes and paddles and later oars extensively in intra ocean trading. But, by the end of the year 1500, much of the expertise of building and sailing of canoes had been transferred to north european countries. Square sails and later different rigs were introduced. Also, knowledge of the compass, astronomy, prevailing winds and current directions was, at this time, already greatly improved. Between 1500-1850, sails and hulls of crafts underwent tremendous evolution and were much more improved. Records abound of very fast sailing vessels of 750 tons with daily average speeds of 17-18 knots. Greater and better knowledge of wind and current had been attained by the end of that century.

The period 1850-1945 was the beginning of a series of processes which gradually led to that face of development in which humanity now finds itself. Iron hulls and propellers powered by steam engines were developed. In 1884, history was first made in the United Kingdom when two Cunard Sister ships - "Umbria" and "Etruria" became the fastest steamships in the world with a speed of 19.5 knots completing a voyage from Britain to New York in 6 days, 6 hours and 36 minutes. From 1945 - 1965, large vessels, container boxes for carrying cargoes and special port terminals started to develop. The closure of the Suez Canal in 1956 resulted, to an extent, in the development and increase in ships' size. From 1965, gathering such momentum in 1967 when the Suez Canal was again closed because of the Arab-Israeli war, there was world wide explosion of very large vessels in tankers (ULCC & VLCC tankers), solid bulk carriers and gas carriers - all referred to as third generation vessels. Containerization and roll-on/roll-off vessels became more

fashionable. Single Buoy mooring (SBM) was established for mooring and loading of monster tankers. In the field of oil exploration and exploitation the technological advancement was even more rapid. Semi submersible rigs were built. Deep sea ports were developed to accept the changes in ship designs and types. Satellite navigation/communication added to safety of ships.

Now, it would be of great interest to know how Nigeria fitted into these main stream of developmental events. The answers lie in the persistent legends which lasted for centuries up to 1400 AD of how the coastal tribes in Nigeria initially used different species of animals for water transportation. It was said that reptiles, such as crocodiles and sharks, were used along the riverine areas of Nigeria as means of water transportation vehicles. These animals were fed from time to time to ensure their acquaintance until they became so familiar with the people that men could go on them and be transported from place to place. But of more importance to the people were the religious aspect of those reptiles. They were objects of worship. Up till this present day, these reptiles are neither killed nor consumed in some parts of the riverine area. It is asserted by the elders that the practice eventually vanished with spiritual degeneration but not before some lives were lost.

With the legendary crocodiles gone, rafters, floating wood, bamboo, calabash and other forms of floaters tied together were used for transportation. They depended only on the ebbing and flooding tides. Later, came the idea of small canoes (small boats) made out of single woods powered by means of paddles. At this time, there was great improvement in the development of the canoe industry as bigger canoes were made and cars were developed for propulsion. By the time european traders arrived by the end of the 15th century, the boats (canoes) were already greatly improved and used for conveying large numbers of people and goods; fishing and fish trade and inter-tribal wars. This was the short historical picture before the advent of the european traders and adventures.

1.4 THE ADVENT OF EUROPEAN MERCHANTS IN NIGERIA

At the turn of the 15th and 16th centuries, maritime trade and commerce underwent a change of character due to the fact that the sea routes to the Far East, the Americas and around the world no longer remained secret but became transoceanic shipping routes controlled by Spain and Portugal. In 1520, after Magellan circum-navigated the globe, the reigning Pope then ratified the division of the world into two parts subject to Spain and Portugal. The line of partition ran right down the middle of the atlantic ocean in the north-south direction. The Portuguese were allotted the eastern hemisphere, that is, Africa to the Far East; while Spain received the Americas. This partition more-or-less still survives as a reality in the world outlook. So, distant seaborne trades were established between Africa, Aden, India, Malacca, East Indies and China and the Portugues on one hand while on the other side, trade flourished between Americas and Spain. But it did not take long in the 17th century when England and the Netherlands gained ever-increasing market shares of the sea trades that had previously been dominated by the Portuguese and Spaniards (4).

Thus, in the 15th century, the Portuguese merchants traded extensively in Nigeria with the encouragement and assistance of their Prince "Henry the Navigator". By 1472, Portuguese vessels had gone up to the Bight of Benin. In 1485, Benin City - the capital of the present Bendel State - was visited by John Alfonso. By the end of the 17th century, the British, French and the Portuguese were vigorously engaged in securing for themselves suitable and lucrative trading areas around the numerous rivers of the Niger Delta. Their ultimate aims were to push as far in land as possible having been motivated by three main factors:-

- the first group were traders interested in buying pepper, ivory etcetera.
- the second group were adventurers like Mungo Park and Lander Brothers who were keen on discovering the source of the river niger.
- then the third group, mainly the Missionaries, later followed and established the first schools along the coastal areas.

(4) Rinman Th. and Brodefors R. - "The Commercial History of Shipping" - Gothenburg, Sweden, 1983. Page 12.

The modus operandi of these early traders was for their vessels to arrive in the Ports of Benin, Bonny, Akassa, Calabar and Opobo where they were anchored. The traders then began the exchange of their produce for pepper, palm oil and ivory. But this system of trade by barter was not to last for too long since their ships had to wait for as long as ten months during which time the Toredos worms did a lot of damage to the hulls of the ships and rendered the ships unseaworthy. In the prevailing circumstances, the traders established hulks to live in and used some of the badly damaged vessels as floating warehouses whilst other vessels were being repaired. It was not until early in 19th century, on the formation of the oil rivers protectorate that European traders established themselves on the beach in any numbers. By the middle of the 19th century, ports in their order of importance were - Forcados which included Warri, Burutu and Sapele; Bonny, Degema, Calabar, Brass, Akassa and Buguma. Lagos was perhaps the least important of all until the great Yoruba wars produced thousands of slaves for shipment to the West Indies (5).

The picture has been painted of how the industrial revolution which started in 1850 and gave rise to steel hull ships and steam powered engines; how the activities and efforts of European traders as well as adventurers to penetrate deep into the hinterland with their vessels; how the development of ports and slave trade shipments ushered in shipping movements in Nigeria and how the effects of the two world wars accelerated the pace of shipping activities as bigger size and steam powered ships increased the regularity and scope of trading between the merchant traders and Nigeria. From an average of 657 vessels a year in 1910 to 4,000 ships in 1960 and 5800 ships in 1982, it is undoubtful that limited progress was achieved. See table 2. Some of the early big time European traders were granted Royal Charters by their respective Governments and so, trading companies were established in ports like Burutu and Warri. The companies set up small workshops to supply and maintain their vessels some of which were stationed in Nigeria permanently to move goods mainly for exports up and down the river Niger covering distances of up to 243 miles. Tables 4, 5 and 6 show the principal fleets in 1960, the traffic by major ports of

(5) Ogun J. A. - "The History of Maritime Services in Nigeria" - National Seminar on West African Transport Workers' Federation " Nigerian Chapter" - 23-27 May 1983.

origin and destination 1959-60 and major commodities carried 1959-60 respectively (6).

So far, the digression has been centred on the activities of early european traders and adventurers and their efforts to establish a flourishing seaborne trade between their respective home countries and Nigeria. The status quo remained unchanged for decades until the Independence in 1960 accompanied by the discovery of oil (the black gold). These two extremely great events brought along the awareness of the strength and position of the country in the world economy. There was this need to establish her own shipping company and then gradually gain the experience and technical know-how to run an integrated shipping industry appropriate to her economic potentials.

1.5 THE DEVELOPMENT OF THE NIGERIAN SHIPPING INDUSTRY

Shipping experts and historians have widely acknowledged that the centre of gravity of world shipping is moving slowly but steadfastly towards the West - from Europe to USA and to the Far East. It is most probable that the shift will continue towards South-East Asia and then to the rest of the developing world (7). The tendency of this trade pattern to shift towards Africa can be attributable to the combination of fast growing populations of the third world and the gradually but steadily rising standards of living which can generate an enormous expansion of world seaborne trade. Thus, a rapid expansion of world seaborne trade in future will, in no small measure, be a direct consequence of the growth of population and prosperity in third world.

Nigeria, is a developing country with enormous human and mineral resources for rapid economic and industrial developments. As she maintains essentially non-discriminatory foreign trade relations with all the six continents of the world with special bilateral trade agreements with some individual countries in addition to the already existing and expanding thriving inter-regional trade between her neighbouring countries, it became objectively clear that she must in all circumstances establish her own shipping line. A situation where all export and import trades

(6) Ibid.

(7) Rinman Th. and Linden R. - "Shipping - how it works" - Kungsbacka, Sweden, 1978. Page 17.

were exclusively carried by foreign owned ships could no longer be tolerated. Moreover, the developing countries want to redress what they see as adverse economic consequences from open registries. They want to develop their own shipping fleets to handle their own trade, particularly following Unctad's introduction of the cargo sharing liner code although that thinking and intention seemed to be against the interests of the major maritime states who see the moves as further threatening and encroaching on their once powerful and dominating influence on international seaborne trade.

Before expatiating further, it would be necessary to make a distinction between two words commonly and widely used in describing the status of countries involved with international seaborne trade which aptly describe the degree of involvement of individual countries in the world trade. "Maritime" and "Shipping" are concatenated words used randomly and interdependently but commercially they have different connotations. The word "Maritime" from an ordinary dictionary means - "Living or found near the sea; connected with the sea or sea-faring" and from the same source, the word "Shipping" means - "Ships of a country, ports, Agents etc". From these literal definitions, it becomes clear that any littoral country is a maritime nation and any country including land locked states owning a ship and/or establishing agencies is a shipping nation. But in the parlance of seaborne trade, the widely and commonly accepted and recognised meaning of a maritime nation is a nation which depends to a very large extent on the earnings from her maritime activities and has been involved in shipping as early as the creation of mankind. Notable examples are Norway and Great Britain. On the other hand, a shipping nation is one whose primary aim in acquiring tonnage is to buttress her international trade and save as much foreign exchange as possible. Japan is a typical example. Japan does not depend on the invisible earnings from her shipping industry but rather uses the enormous inherent powers of the industry to expand and consolidate her industrial power and international trade.

Nigeria is only a shipping nation although she is also a littoral

state. She entered into the shipping industry primarily to promote her international trade; speed up the pace of economic and industrial developments; create employment opportunities for her teeming population and to conserve her foreign exchange as much as possible. Between 1955 and 1981, her international seaborne trade had grown from a mere 2.74 million tonnes to a staggering 21.38 million tons exclusive of crude oil exports. Over 70 percent of the total seaborne trade in the sub-region is generated by Nigeria alone. But, until 1959, the entire export and import trades were carried by foreign own ships; shipping agencies, clearing and forwarding agents and other shipping related enterprises were monopolised by foreign personnel. With the increased earning power from the export of crude oil and the rapid pace of economic development, it became a foregone conclusion that sooner rather than later, she would have to enter into the shipping industry. That decision was finally made in 1959 when the National Shipping Line was established.

1.5.1 GENERAL TRANSPORT AND SHIPPING

The review of the past economic developments in Nigeria cannot totally be complete without mentioning the complimentary roles transportation systems have contributed.

If it is agreed that transport is a service agent, then, it can be said unequivocally that in any economy, transport is essentially a servant of industry and commerce, agriculture, administration and other socio-economic activities within the system. All economic activities of a Nation rely on the transportation system for the movements of both their physical inputs and outputs. The truth of this in the Nigerian context was given explicit recognition in the Stanford Research Institute's report of 1961 entitled the "Economic Co-ordination of Transportation Development in Nigeria" where it was stated that: "The economic history of Nigeria is largely the story of the opening of its vast area by various forms of transportation". Again in a sessional paper No 1 of 1965, reflecting Government's policy on transportation entitled "Statement of Policy on Transport", it was stated that:"co-ordinated development of various forms of transport will be promoted by concentrating on developing those

modes which are capable of carrying persons and goods at the lowest cost per unit of service". This useful conclusion was borne out from the realization that in every country both developed and developing, the efficiency and effectiveness of transportation system influence the cost of every commodity consumed or exported and thereby affect the business, economic and industrial opportunities of every citizen. The importance the Government attached to the development of roads, railways, air traffic, inland waterways and shipping industry is reflected in the relatively higher investment funds expended within the last two decades in the transport sector as shown in table I.

In the case of shipping industry in particular, the Government had long realised that full participation in shipping is the only effective instrument for the movement of the Nation's increasing exports and imports. The total freight component of the annual cost, insurance and freight value of the export/import market is of a large and increasing magnitude. Any country at whatever level of economic development is entitled to initiate measures to conserve such much needed foreign exchange through increased participation in the movement of its national export and import trades. Shipping, no doubt, is an area in which a country could lose considerable amount of foreign exchange annually. In fact, the United Nations, in appreciation of this, has advised through its appropriate organ that where national investment in shipping can be justified economically, it should be encouraged as one of the means of increasing the invisible earning capacity of developing nations with an export/import potential. Nigeria alone generates over 70 percent of the total seaborne trade taking place in the West and Central African sub-region. This, in itself is a strong justification for establishing her own national shipping line and encouraging the existence of other indigenous shipping lines.

The Nigerian National Shipping Line was established in 1959 and became fully Government owned in 1961 when the Government purchased the 49 percent interest held by foreign technical partners. With the present fleet of 20 vessels ranging from 10,000 tons dwt to 16,000 tons dwt, the

Government policy is to make the shipping line carry a reasonable proportion of the traffic entering and leaving Nigeria. With the UNCTAD Code of Conduct for liner conferences coming into force, the shipping line will require more ships while private Nigerians will be encouraged to go into the shipping industry in order to meet the UNCTAD allocated quota.

1.5.2 FORMATION OF NIGERIAN NATIONAL SHIPPING LINE

As briefly mentioned earlier, a national shipping line was established in the later part of 1959 - just prior to independence when it became increasingly clear that Nigeria could no longer depend totally on foreign shipowners to carry her growing export and import goods - especially in times of national emergency. It was a natural aspiration that a country having such large national resources potential, a coast line of more than 600 nautical miles, a large hinterland and population should have more say on one of the organs of her economic growth - export and import trade. The Government was no longer prepared to accept a situation where about 70 percent of total trade traffic of the West and Central African sub-region originate from Nigeria but was not participating in the international trade. Thus the Nigerian National Shipping Line was established in 1959 as a limited liability company with a nominal or authorized share capital of ₦4,000,000. The shares were fully subscribed by the Government and two foreign technical partners, with the Government having controlling share interest. Later in 1961, the financial interests of the technical partners were eventually bought out by the Government. The company started with six secondhand ships. The number of ships was later increased to 15 over the years. Some of the over-aged ships were sold and replaced by chartered vessels. The Government, unhappy with the equity share of the total volume of cargo throughput passing through the Nigerian ports carried by national ships, ordered nineteen new vessels totalling about 265,000 dwt in 1977. With the full deliveries of the new vessels, the company now owns 20 modern dry cargo/container ships averaging about six years old. It is conservatively estimated that the shipping line needs an additional of 20 new vessels

before the end of the decade to fairly meet the Unctad's 40-40-20 cargo sharing principle.

Another area that Government needs to look into seriously is the case of private participation in shipping. At moment private participation is very minimal if not entirely non-existent. We all know the bureaucratic difficulties in running Government owned shipping companies all over the world. Their common currency is "subsidy after subsidy" whilst their counterfiet is profit. It is only the participation and greater competition from independent private shipping companies that will curb the monopoly of Government owned company and induce reasonable efficiency in cost-effective and profit-oriented operations. At best, the independent companies would influence the operations of various conferences with the resultant offer to shippers and importers of the best possible shipping services at the lowest reasonable cost. Given time, the independent private companies could become also cross-traders earning valuable foreign exchange for the country.

The Government should not procrastinate over acquiring more ships now and encouraging private organization/individuals to enter the shipping field because of the present recession in the world economy and much talked about "overtonnage". Shipping is very cyclical and over-tonnage should be related to individual countries because when trade is buoyant and cargoes are plentiful, countries with overtonnage at moment will obtain uncovenanted profits for themselves and not for the rest of the world. This is the right time for a prudent investment in shipping whilst awaiting for the upturn of trade which is inevitable.

1.5.3 INDIGENISATION DECREE NO 4 AND PORT CONGESTION

Two great events in the 1970's accelerated the epoch of development of shipping industry in Nigeria. In 1972 the Government issued the indigenisation decree No. 4 which stipulated that certain business in the shipping industry including clearing and forwarding operations should be reserved exclusively for Nigerians. Around the same period, Government had ordered large quantities of cement and other construction materials for urgent projects, especially in the parts of the country ravaged by the

three years civil war which ended in 1970. Owing to the inadequacies of the ports to handle these large imports, congestion in the ports gradually built up to such proportions never seen in recent history. There was an armada of more than 400 ships at anchorage around the ill-equipped and under-developed ports. The notoriety of the port congestion was world wide. In almost all cases, ships waiting time at anchorage was more than eight months.

In the first case, the result of the decree No. 4 was that the seemingly attractive and lucrative outlook of shipping attracted all and sundry into the shipping business. The shipping tempo existing at that time created the conditions and provided fertile grounds for quick-money makers. Highly placed government officials - both civilian and military personnel - prematurely retired in order to go into the shipping business. Traders, farmers, university professors, women and even ordinary people joined the same bandwagon to make quick money. Unfortunately, they all had the same "qualifications" - ignorance, inefficiency, lack of knowledge in simple shipping economics and above all dishonesty and greed. The most unlucky ones had borrowed huge sums of money; mortgaged and/or sold their properties to finance their shipping businesses. But, it did not take much time before they realised that they were walking through the path where angels feared to tread: that the test of the budding is in the eating. As usual, shipping gave them little time to contemplate; offered them no sympathy what-so-ever for their failures and left them no grounds for self pity. Not only did most of the get-rich-quick practisioners lose their money by importing cheap and useless commodities but also their inexperience and shoddy deals cost the Nation in general a colossal amount of money.

What happened could only offer an opportunity for advice to importers, shippers, shipowners and the generality of individuals seriously engaged in international seaborne trade to give heed to the advice given by John Ruskin (1819-1900) which is as true to-day as it was in the 19th century (8):-

It is unwise to pay too much but it is worse to pay too

(8) Kapoor Peter. - Article on "Maritime Fraud" - Causes, Examples and Remedies. - Seaways Magazine, April 1984 - Pages 5, 6 and 8.

little. When you pay too much you lose a little more that is all. When you pay too little you sometimes lose everything, because the thing you bought was incapable of doing the things it was bought to do. The common law of business balance prohibits paying a little and getting a lot it cannot be done. If you deal with the lowest bidder it is well to add something for the risk you run. And if you do that, you will have enough to pay for something better.

In the latter case of port congestion, the unprecedented number of ships waiting at anchorage created a conducive atmosphere for international maritime frauds, the scale of which has never been seen in recent history of the shipping industry. There were documentary and charter frauds; cargo theft took a pattern of piracy and organised armed robbery. Scuttling cases were also reported. Some vessels changed their names four or five times whilst waiting at anchorage for periods of up to ten months. Thus a vessel at anchorage was entered four or five times as arrived vessel under different names and at different times. It is reckoned that Nigeria has so far paid out millions of Naira for various nefarious claims, demurrage payments and port congestion surcharges. Even with this huge amount already paid out, she has not been able to close the chapter finally as some international litigations continue.

The aftermath of that era was a great lesson for the Government. For the first time, there was a greater national awareness, particularly at the highest level of Government, of the significance and contributions of a well planned and co-ordinated shipping industry to the development of the nation. It became very obvious the important part shipping should and ought to play in the developmental stages of the economy. Also the effects of shortage of trained manpower; the inadequate provision of ports together with ill-equipped port facilities and the lack of complementary infrastructures in other related shipping fields were all well noted. It was now time for action and the Government meritoriously pursued with vigour among other things three important factors that control the shipping industry - ships, deep port facilities and professional manpower resources.

1.5.4 ACQUISITION OF SHIPS

Having overcome the dark era of damaging port congestion, the Government took a bold step forward and ordered nineteen new general cargo cum container ships of 12,000/16,000 dwt each in 1977. Some of the over-aged and non-profitable ships were sold. At present, the National shipping line owns 20 ships with a total tonnage of about 277,000 dwt. In pursuance of the desired objective of carrying greater equity share of the total volume of cargo throughput passing through our ports, there are arrangements in the pipe line to place order for 15 new vessels. In fact, it is the belief that the Government should try and increase the number of ships and tonnage by about 100 percent before the end of the decade in order to take full advantage of the UNCTAD liner code of conduct which has as one of its main purposes to provide solutions to the problems faced by the new shipping lines of the third World in getting sufficient cargo in competition with the established shipping lines of the developed countries operating as members of the conferences and also to solve the problem faced by shippers all over the world due to high and unbearable freight rates fixed arbitrarily by the shipping conferences.

1.5.5 DEVELOPMENT OF DEEP SEA PORTS

The shipping industry involves not only the ships and their cargoes, but also the many shore activities that serve the ships. Efficient and well organised port facilities make substantial contribution towards maximising revenue as such facilities and equipments will no doubt decrease considerably time in port. The congestion of the 70s clearly manifested the interaction between ships and ports; ports and the living standards of the common citizens. Any prolonged delays of ships in port will invariably cause scarcity of essential commodities and the amount of surcharges imposed will be passed on to the consumer. The two effects will ignite a spiral inflation of prices. As I mentioned earlier, Government took cognisance of the situation and quickly took a remedial action. New deep sea ports were developed and the existing ones re-constructed and expanded.

Between 1977 and 1980, a total sum of more than half a billion Naira had been expended in port developments at Lagos, Port Harcourt, Warri, Sapele and Calabar. A Federal ocean terminal - Rivers Port - is already in progress at the cost of 130 million Naira. Also, in the pipe-line is a proposed project of a multi-purpose new ocean terminal at a cost of 300 million Naira. In many of these ports, there are modern facilities and equipments for container traffic; ro-ro vessels; bulk grain; cement discharge and general cargo disposition. Directly associated with the developments of the new ports were such complementary segments as capital dredging; maintenance dredging; laying of new navigational buoys; hydrographic surveys and printing of new port and coastal charts. These efforts and achievements made port congestion in Nigeria for ever only a history for the archives. A short description of the major ports are as follows:-

1.5.5.1 TIN CAN ISLAND PORT

(9) This ultra-modern port was initiated by the Government in 1976 at the peak of the embarrassing port congestion at a cost of 193 million Naira. The port was commissioned 18 months later in 1977. The port with a quay length of 2,500 metres consists of seven break-bulk general cargo berths; two 120/120 berths and one berth for dry bulk cargo. The port is capable of accommodating up to 16 vessels of maximum lengths ranging between 160 and 180 metres at a time. With a port area of 73 hectares, it is designed to handle about three million tons of cargo yearly. The port is equipped with the latest cargo handling plants and equipments.

1.5.5.2 THIRD APAPA WHARF EXTENSION

This is an extension of the old Apapa wharf. The contract for the extension was awarded in 1975 at a cost of 80 million Naira. Four years later in 1979, it was commissioned. The port extension has a total quay length of 1,600 metres with a maximum draft of 10.5 metres consisting of 1,005 metres of container berths; 525 metres long of multi-purpose berths; four finger jetties for service crafts and tugs and total covered storage

(9) Nigerian Ports Authority Bi Lingual Magazine 1982 -
Information on Development of Ports.

accommodation of 6,400 square metres. The port is equipped with four straddle carriers for discharging containers amongst other equipments and facilities.

1.5.5.3 FEDERAL OCEAN TERMINAL - RIVERS PORT

This federal ocean terminal presently under construction at Port Harcourt is seen as a turning point in the efforts to improve the country's shipping industry. The terminal will be capable on completion to accommodate vessels of 35,000 tons dwt initially and after further extension may accommodate vessels up to 60,000 tons dwt. The port is divided into six berths of 250 metres of length. The first three berths will handle general cargo. Berth No. 4 is designed for container traffic whilst berth 5 would handle roll on/roll off cargoes. The last berth is scheduled to handle bulk cargo. The construction of the 130 million Naira project started in July 1980.

1.5.5.4 PROPOSED MULTI-PURPOSE NEW OCEAN TERMINAL

This multi-purpose ocean terminal is envisaged to be an industrial/commercial port. The venture is expected to cost 305 million Naira. The soil tests and other relevant investigations had been carried out in Lagos areas. Similar tests are now being repeated in another location situated in the Cross River State after which a final decision would be taken on the best location for the project.

1.5.5.5 PROVISION OF ADEQUATE REPAIR FACILITIES

Another important area in the complete cycle of shipping industry agitating the Government thinking is the absence of adequate repair facilities. At moment, the only ship repair facility in Nigeria worth mentioning is the ageing 4,000 tonnes floating dry dock owned and operated by Nigerian Ports Authority primarily for maintaining their own vessels but occasionally offering the facility to other commercial interests.

Augmenting the Nigerian Ports Authority facility are a number of Slipways

dotted here and there owned and operated privately for crafts ranging from 50 tons to 600 tons. Oversized tugboats and bigger vessels have to be drydocked in near and faraway neighbouring countries. The national shipping line employs the services of overseas shipyards for drydocking their vessels. Obviously by not providing these essential facilities in the country, considerable amount of foreign exchange is lost annually. Recognising the desirability of this important organ in shipping, the Government has allocated a reasonable amount in the current fourth national development plan (1981-85) for the construction of three drydocks at Portharcourt, Burutu and Lagos respectively. The drydocks at Lagos and Portharcourt will handle medium sized vessels whilst the Burutu drydock takes care of larger vessels. It is envisaged that a separate autonomous Dockyard Authority will be created to handle and supervise the operations of the three drydocks.

CHAPTER 2

MANPOWER IN THE FIELD OF SHIPPING

2.1 AVAILABILITY OF MANPOWER IN THE FIELD OF SHIPPING

Throughout all the stages of the gradual development in the shipping industry, the availability of efficient and sufficient trained manpower had been the hardest nut to crack and posed the greatest challenge to the Government. Successful execution of all shipping operations requires sound education, on-the-job training, experience, efficiency, determination and honesty of purpose. These qualities cannot be acquired by award of contracts as in the case of shipbuildings and port developments, nor are they commodities to be imported into the country as semi and/or finished goods to be immediately used in the production of services. It is hardly an exaggeration to say that the acquisition of those qualities in shipping takes an awfully long time. As I mentioned before, the indigenisation decree No. 4 of 1972 which had reserved certain businesses in the shipping field exclusively for Nigerians, created a big gap between demand and supply of manpower. Thus, the shipping tempo existing at that time attracted both skilled and unskilled Nigerians with hardly any experience at all who left Government and private establishments where they were gainfully employed and jumped into the bandwagon of shipping. It was even said that the prospects of making quick money also attracted lucrative farmers and big and small time traders. But, it was a matter of time and regrettably, they discovered that shipping is unpredictable and does not offer any sympathy for failures.

From what was gained from the past experiences, Government became aware of the acute shortage of trained manpower in the shipping industry. It was, indeed, time to take a roll call of the requirements of all classes and categories of certificated officers for the national shipping line; for ships of the indigenous shipping companies; for manning vast number of

off-shore service boats engaged in the country's oil exploration and exploitation activities; personnel for the repair facilities and inland water transportation system and sufficient trained shipping oriented middle cadre management personnel for private sectors engaged in all other allied enterprises connected with the shipping industry. As mentioned earlier, the pre-occupation with the shortage of these specialised type of manpower in the country led the Government in 1968 to commission an I.M.O. (10) expert to look into the manpower requirements in the industry for the country's present needs and future expansion and advise on how best to meet the demands. Two subsequent feasibility studies later followed.

The harsh reality of the acute shortage of well trained personnel in the shipping field and the need to establish a functional maritime institution can only be understood and appreciated when the present manpower availability is statisticalized and a moderate projection of manpower requirements in the next 15 years is made. The maritime organisations covered in this analysis are the Nigerian National Shipping Line; Nigerian Ports Authority; the Maritime Division of the Federal Ministry of Transport; the Inland Waterways Department; the Indigenous Shipping Companies and the Nigerian National Petroleum Corporation.

2.2 THE NIGERIAN NATIONAL SHIPPING LINE

The national line owns presently 20 modern ships built in 1979/80 and envisages a reasonable addition to bring the fleet strength to about 50 by the end of the decade taking into account the replacement of aged vessels. Thus, by this projection, it is assumed that by the year 2000 the national shipping line would have maintained 50 modern ships comprising of container ships; bulk carriers; conventional cargo ships and tankers. Taking the present manning requirements per ship at four deck officers; five engineer officers and one radio officer with 50 percent leave reserve; two percent death cum retirement and 28 percent wastages (the actual % wastages of the national shipping line on the 1978 intake of 20 deck and 25 engineer cadet officers up to 1983 was 35-40%), the additional requirements for officers can be taken as 80 percent. This means that the total number of officers who should be available at any

(10) I.M.O. means International Maritime Organization.

time to adequately man the ships would amount to:-

$$500(50 \times 10) + 400(80\% \text{ of } 500) = 900 \text{ officers}$$

The Company at present has about 400 officers plus 45 deck, engine and radio officer cadets in training. This shows that the company needs between now and the year 2000 an addition of 455 officers.

2.3 NIGERIAN PORTS AUTHORITY

In the case of the Nigerian Ports Authority, the position is slightly different. Although, the Authority does not own as many sea going vessels as the national shipping line, but their marine division requires marine personnel with the highest deep sea going certificates of competency and holding the position of a chief officer/second engineer and/or master/chief engineer on board a sea going vessel before taking up shore job. Also, the various duties the division covers require initially officers with similar knowledge and experience as seagoing officers. Depending on the affinity of individual officers, short courses are organized and/or special duties assigned to individual officer for gaining more experience and specialization. The Authority has at the moment a requirement of about 80 deck and 40 engineer officers. About 20 percent of these vacancies are unfilled for lack of qualified marine personnel and approximately eight percent are held by expatriate officers. With the developments of deep sea ports, the proposed project of a multi-purpose new ocean terminal and the dry dock facilities, about 25 percent increase on the Authority's requirements of marine officers is anticipated by the end of the decade. For reasons of low salary, there is a very high percentage - about 35 percent - of wastages amongst the trainee officers. With 64 deck and engineer officers currently studying for various certificates of competency, the Authority may be able to meet the demands of the 1990's.

2.4 THE MARINE DIVISION OF THE MINISTRY OF TRANSPORT

The marine division of the Ministry of Transport undertakes survey works, casualty investigations for Flag and Port States respectively and conducts examinations for various certificates of competency.

For these committal and strenuous jobs, the division requires highly qualified marine personnel with outstanding qualities and integrity. The present strength of surveyors comprises of six Nigerians and one expatriate surveyor. A very conservative estimate of 12 deck and 12 engineer surveyors would be required by the end of the projected year. About 17 deck cadets and 12 engineer cadets are presently being trained by the national shipping line for the Ministry of Transport. Assuming there are no wastages amongst the new trainees, the remaining requirements of the division can be met adequately.

2.5 THE INLAND WATERWAYS DEPARTMENT

The inland waterways department of the Ministry of Transport is responsible for all the inland waters of Nigeria. There is a large number of vessels which are plying in the lagoons and rivers for which certificated personnel are needed. As the inland water transportation is an inexpensive and efficient method of transporting goods and people, it is hoped that the system would develop and expand simultaneously with other economies. Of the 51 jobs available as of now, only one job (the post of Assistant Director) is held by a Nigerian. The projection is that by the end of the year 2000, the requirement of the department might slightly increase.

2.6 THE NIGERIAN NATIONAL PETROLEUM CORPORATION

The corporation is likely in the very near future to gradually increase its share of carriage of oil and most probably would require some foreign going tankers as well as coastal tankers all of which will require certificated officers to operate. It is even hoped that coastal trading will develop and expand between the members of the Economic Community of West Africa. By international conventions, such near coastal trading will require certificated officers.

2.7 THE INDIGENOUS COMPANIES AND OTHERS

The development of big and financially viable private shipping

companies is yet to be seen. Even the growth of potential Nigerian investors in the shipping industry in the next decade is highly hypothetical and unpredictable. However, the reasoning remains valid that the private sector will employ any qualified Nigerian marine officer no matter how he is trained, and by whom. Also, the number of jobs that would be opened up to qualified Nigerians in various shipping agencies; stevedoring firms; cargo surveying firms; ship repairing establishments; insurance companies and many other organisations would, indeed, be very difficult to estimate. But, again, it stands to reason that such job demands would lean almost entirely on Nigerian marine personnel and local training facilities. Thus, the projection for the demand of officers by these ancillary industries by the end of this decade is moderately put at 200 trained officers.

The last area of job opportunity opened to Nigerian marine personnel is in the oil exploration and exploitation industries. In this almost exclusive industry, the companies engaged in the industry employ their own personnel from abroad but only engage some Nigerians when the Law demands from them to do so. The situation is definitely bound to change but what is not certain is when that situation will change.

2.8 CONCLUSION

Now, assuming an average of 25 years span of service, then, $1/25$ of the projected number of 1295 - (52) - marine personnel would retire every year and this might be considered as the replacement number or the number of cadets to be absorbed each year for training - that is - 22 deck cadet officers and 22 engine cadet officers. Bearing in mind that it requires an average of eight years to produce an officer and in order to make up the short staffing existing at present, it would be necessary to increase initially the yearly intake of deck officer cadets and engineer officer cadets by 13 respectively for a period of eight years.

It must, however, be explicitly stated that the forecast is only a guide. The actual acquisition rate of ships and various development projects and employment opportunities would very necessarily depend on global trade conditions and subjected to the natural law of demand and

supply. The position should be closely watched and the intake of cadets adjusted from time to time depending on the requirements of the industry.

About 70-75 percent of the total seaborne trade generated within the Economic Community of West Africa sub-region come from Nigeria alone. The population of Nigeria is greater than the sum total of all the population of the rest of the members of the Economic Community of West Africa. She has the largest fleet and shipping related industries in the sub-region. Obviously, Nigeria needs qualified personnel in maritime professions more than other countries in the sub-region needed.

CHAPTER 3

NAUTICAL EDUCATION AND TRAINING SYSTEM

3.1 EXISTING EDUCATION SYSTEM

Perhaps, it is now appropriate to look, for a moment, into the educational system in Nigeria and its effects on the economic and industrial developments since no Nation, no matter how richly endowed with natural resources, can make any meaningful headway in her development efforts without efficient and sufficiently trained human resources.

There were two schools of thought about what the objective of educational development should be. Some suggested that education should be provided for its own sake, as a means of enriching an individual's knowledge and developing his full personality. This concept appeared to have influenced educational policies in some advanced countries of the world. On the other hand, others held the view that education should seek to prepare people to undertake specific tasks and employment functions which are essential for the transformation of their environment. It seems that the majority opinion is that Nigeria should in her present stage of economic development regard education as both consumer and capital goods, with perhaps, more bias to the latter since the concept of education as a capital good is linked with the concept of "human capital" which attaches high premium to human skills as a factor of production in the development process. The human skill is just as important an input in the process of development as finance, natural wealth and physical plant. It is a product, in many developed and developing countries, of an integrated long term economic development planning (11).

Having stated the above, let us look into the primary functions of the three major stages of education in Nigeria - namely the Primary, Secondary and Tertiary level. Although there exists in big urban areas,

(11) National Development Plans - 1962-68; 1970-74; 1975-80; 1981-85.

pre-primary education for children between the ages of 3 to 5 years for periods of up to 2 years designed to help working parents who can afford the cost, but by and large, formal education starts from the primary school level for children aged 6 to 11 years. Since the rest of the education system is built upon the primary level, it is looked upon as the key to the success or failure of the whole education system in the country (12). Access to primary education is not only the inalienable right of every child, it is also the most effective tool the country possesses for ensuring the growth of a fully literate society and the future social, economic, political and cultural development of the nation. Following the new national policy on education based on a system of 6-3-3-4 (12A), the primary education lasts for 6 years on completion of which the children are issued with "First School Leaving Certificates". Their average ages at this stage is between 11 - 13 years.

After receiving the primary education, the children move to secondary education before reaching the tertiary stage. The broad aims of the secondary education are the preparations of the children for useful living within the society and to get them ready for higher education. In specific terms, the secondary schools provide an increasing number of primary school pupils with the opportunity for education of a higher quality irrespective of sex, social, religious and/or ethnic background. The curricula cater for the differences in talents, opportunities and roles possessed by or open to students after their secondary school education. The contents of the curricula are also designed to develop and assist in raising a generation of people who can think for themselves; respect the views and feelings of others; respect the dignity of labour; appreciate those values specified under the broad national aims and live as good citizens; foster Nigerian unity with an emphasis on the common ties that unite the diversities of people and lastly to inspire its students with a desire for achievement and self-improvement both at school and in later life.

(12) National Policy on Education (revised) 1981. ✓

(12A) National Policy on Education - The system of 6-3-3-4 means 6 years of primary education followed by 3 years of junior secondary schooling; 3 years of senior secondary schooling and lastly 4 years of university education.

The secondary school system is now divided into two phases - junior secondary school and senior secondary school. Both phases aim at two main objectives consisting of (a) preparing and selecting pupils for the next stage of the education system and (b) preparing those who will not proceed to the next stage of education for employment and useful living within the society. This new system involves a shift in emphasis towards pre-vocational and vocational training. Students who leave school at the junior secondary school stage after 3 years may then go on to an apprenticeship system or some other scheme for out-of-school vocational training. Whilst the senior secondary school will be for those able and willing to have a complete six-year secondary education. The system seems very comprehensive but will have core curriculum designed to broaden pupils knowledge and outlook. The core subjects are basic subjects which will enable a student to offer arts or science subjects in higher education and gain direct entry into the university.

Before the new system was introduced recently, the old system comprised of a 5-year continuous education after the primary education. Successful students at the end of 5 years are awarded the "West African School Certificate" which is equivalent to the British G.E.C. "O" level. On completion of the secondary education, students have two options of either doing two extra years of higher school courses leading to a "Higher School Certificate" equivalent to the British G.C.E. "A" level certificate, or gaining direct entry through examination into the university. Those students who cannot avail themselves of either of the two opportunities, enter the labour market and/or pursue further technical training.

The higher education which covers universities; polytechnics and colleges of technology and advanced teachers training colleges, is the last tertiary stage - the post senior secondary school education. The teaching and research functions of higher education have an important role to play in the national development particularly in the development of high level manpower.

It is generally acknowledged that education plays a very crucial role

in a nation's economic developments. Education is the only process by which a considerable number of a nation's human resources can be transformed from mere numbers into productive numbers. Thus, the new system of education represented a shift in emphasis and orientation towards a more functional approach to education which better fulfils the socio-economic and political needs of the country. It gave a greater recognition to the benefits of a well-oriented educational system in the life of the country. It enabled a fuller assessment of what needs to be done and prescribes a more rational and systematic approach in solving the problems of meeting the demands of a fast growing industrial development. The trueism of this awareness was the sum of about 3.2 billion Naira allocated to education during the third national development plan (1975-80) and the unprecedented phenomenal rise in enrolment at all levels of the educational system. As shown in tables vii, viii, ix, and x, enrolment in some cases more than trebled from 1975/76 figures.

At this stage, I wish to touch briefly and particularly on technical education in Nigeria being one of the needs that gave rise to the establishment of the nautical college of Nigeria at Oron, Cross River State. It was long felt that the senior and intermediate level of manpower in the technical categories were grossly inadequate vis-a-vis the enormous demand and requirements for fast growing economy. The truth of this was well borne out from the statistical estimates of the country's manpower resources taken before the second national development period (1970-74) showing that in a country of well over 60 million by then (13), only 50,000 were of senior manpower level, that is, those with university degree or equivalent professional and technical qualification; 150,000 in the intermediate manpower category, that is, those with school certificate or equivalent plus one or two years additional training and about 300,000 in the skilled category - that is, people with primary education plus a few years of technical training. The neglect of technical education for the past two decades was a great financial set back for the Nation.

The shipping company which was started in 1959 was virtually run both afloat and ashore by foreign personnel. Even other shipping off-shoots like clearing and forwarding agencies were no exception.

(13) The current estimate of the country's population is put between 80 - 100 million.

In the light of the above, Government decided to establish a nautical institution to train all levels of manpower required in the shipping trade including deep sea fishing and coastal traffic. In pursuance of this policy objective, the Government commissioned an I.M.O. expert in 1968 to look into the possibility of establishing a nautical institution in Nigeria. Again in 1972, an internal body was appointed as a follow-up to the first study. It was not until after the third and final report by another two I.M.O. sponsored experts in 1976 that the Government finally decided to establish the institution in 1979.

In conclusion, it is gratifying to say that Nigeria continues to recognise education as a very powerful instrument for social change in a process of dynamical nation building. In a separate document entitled "National Policy on Education", Government has set out in great details the policy measures that will guide the long-term development of education in the country. The Government appears to be strongly committed to ensuring that every citizen is given full opportunity to develop his intellectual and working capabilities for his/her own benefit and that of his/her community. The corner-stone and success of the whole endeavour rest on a strong Federal Government leadership and a responsive State Governments co-operation in matters relating to planning, administration and financing of the educational programmes (14).

I have already touched on the inadequacies of technical education and have tried to give a sequential account of the development of the shipping industry in Nigeria. It is for history and historians to judge whether the neglect of technical education in the colonial era was a matter of deliberate policy or purely the result of circumstances of that time. Again, it would be seen that the early European traders and adventures established businesses for their own self interest. Thus, for centuries, there was neither any maritime technical education nor any establishment oriented towards technical training on the job. The only known training school of yesteryears in Lagos is the one run by the Nigerian Ports Authority for training able-bodied seamen for the operation of their crafts. Even when technical colleges were established in numbers, there was still no provision for maritime studies. Hitherto, all ships officers

(14) National Development Plan (1975-80) Chapter 16. Page 245.

including catering officers are trained overseas. Candidates for Hometrade certificates who could not go overseas were left to study on their own without even the help of a correspondence tuition. Those who could afford the cost, went to Ghana nautical college (now Regional Academy) to obtain the Hometrade certificates.

This was the condition that existed and remained so for a long time until the high cost of training foreign students in overseas institutions agitated the minds of those responsible and caused an inward thinking and searching of alternative solutions. This led to the Government instituting between 1968 and 1976, three feasibility studies which examined the Nigerian shipping industry requirements in its entire perspectives; identified the manpower required to develop and modernize the industry and advised on how best to meet those needs. The culmination of the feasibility studies was the establishment of a nautical college at Oron. Prior to this, the Federal fisheries school was established in 1969 which in addition to offering fishery courses, also runs courses leading to the award of motorman Grade II Certificate; coxwain (Fishing) Certificate of Competency and Mate (Fishing) Certificate of Competency.

3.2 THE NAUTICAL COLLEGE, ORON

After three independent feasibility studies, Government finally decided to establish a nautical college at Oron in the Cross River State. The Administration of the College took off in October 1979 but did not admit Students until 1980.

One of the many objectives of the college is to train cadets for careers at sea as seagoing navigating officers, engineer officers and to provide the maritime industries with such professionals capable of performing academically, technically, physically and mentally other related shipping duties. It is hoped that gradually, the college will develop standards for embarking on degree courses.

The college is at present administered by Egyptian Lecturers through an accord reached with the Alexandria Maritime Transport Academy. In a later chapter of this paper, a detailed account will be given on the structure, recruitment and general education system of the college.

Presently, the college is trying to overcome the initial teething problems. To speed up the process, it would be advisable for the Government to appoint immediately for the college, Board of Governors or any other Body for that matter, to direct the affairs of the institution through the rector.

3.3 NAUTICAL EDUCATION AND TRAINING IN GENERAL

Everybody who is anybody in shipping has spoken at various occasions and at different times both in the past and recently on nautical education and training with varying degrees of optimism or pessimism depending on the individual's philosophical and psychological thinking and approach to the industry. Sensational and dogmatic headlines such as "Training Seafarers for the Nineties"; "Changing Patterns in Cadet Training"; "Training for Safety at Sea"; "Job Flexibility for Merchant Fleet Future"; "Focus on Education and Training"; "Innovation in Marine Education and Training - Strategy and Management"; Incorporation of Ideological Work into Professional Training"; "Man is the Limiting Factor - The Mariner Enters the 20th Century"; "The Ship as a Temporary Human Community" and "Future Educational Implications and Personality of Merchant Navy Crew and Design of Curriculum for National Education" - the headlines continue perhaps ad infinitum - have at best highlighted the unquestionable and immediate problems imposed on maritime education and training all over the world by the fast and rapid technological changes in ships design; type and size; instrumentation and the new found ideology for reducing costs by shipowners - reduced manning scale. Unfortunately no solutions to these problems are yet in sight.

But what everybody seems to agree is that there will always be seafarers without ships but definitely - at least for a very long time to come - there cannot be ships without seafarers. If this axiom is accepted, then we should also accept the fact that at sea, man is the greatest limiting factor and when the international nature of ships and shipping are examined, the seafarers should be part of that international component.

(15) Helmut Sohmen defined shipping as :-

international, competitive, individualistic, unpredictable, risky, multi-faceted and fast. The industry leaves its members little time for contemplation, and little margin for error, has no sympathy for failure, no room for self-pity and little tolerance for the undecided and/or the meek.

If you substitute the word "Shipping" with "Seafarer", then the Seafarer must be seen as an international, competitive, individualistic, unpredictable, risky and multi-faceted person. The seafarer has little time to contemplate at sea; for him the margin of error is great and he is not responsible for his failures nor does he bear self-pity for the enormous burden the distant shipowner has placed on him. Therefore, he entertains only little tolerance towards the shipowner who uses him to make huge profits of which he has no share.

Again, let us view the international character of shipping from an actual example as illustrated by a veteran shipping journalist for over a quarter of a century (16).

A bulk carrier was ordered from a South Korean yard by a joint ownership company with British, Scandinavian and American partners. Finance was arranged in London and the ship registered in Singapore but directed from Glasgow. She now forms part of a bulk shipping pool which is administered from Hamburg in Germany and which includes ten other similar vessels under six different flags (of Norway, Sweden, Britain, Australia, Hong Kong and Singapore). After delivery, the ship was chartered by a Swiss subsidiary of a large American combine.

The question now is how do these arrangements affect the seafarer; where does he belong; who looks after him and to whom can he complain; does he have any say in the running of the ship and where and to whom does his

(15) Fairplay Magazine 20th October 1983. Page 4

(16) Rinman Th. and Linden R. - "Shipping - How it works". 1983 Page 141.

allegiance lie. As can be seen, the inanimate ship receives more attention and patronage than the seafarer.

The attempt here is only to underline the importance of looking at the whole industry totally in all its ramifications rather than always treating separately the components of the whole. There is no doubt that a great communication gap exists between the shipping industry, the seafarers and the nautical institutions. The institutions and the seafarers are the last to know about new designs of ships; the newest technologies in ships instrumentation and the ever changing nature of ships operations. What at moment prevails is for a manufacturer to put on the market certain equipment whose cost effectiveness attracts a particular shipowner who decides immediately and readily to buy and install the equipment. This particular equipment has taken years of research and final production. Thus, to all intents and purposes, it would be an expensive and complicated equipment. The seafarer, in an attempt to use the equipment he has never seen before much less being taught on how to use it (except following the instructions on how to operate it), damages the instrument. The damage might result in some minor/serious accident/incident on the ship. Depending on the seriousness arising from the result of the inability of the seafarer to use the new equipment correctly and following the aged long experience of lessons in safety at sea always being learned the hard way, the maritime administration will hastily pass an Act making the study of how to use such equipment compulsory in nautical institutions. The buck having been passed to the institutions and by the time the institutions could organize themselves, perhaps, that particular equipment is already on its way to become obsolete. This goes on and on and the gap keeps widening.

But would it not have been better, safer and more cost effective if, at the initial developmental stages of various marine equipments, the nautical institutions are involved or at least are informed of the development of such instruments and also to take part in the trials. The institutions would then be in a better position to help the seafarers should the Administration legislate on such instrument(s) because of its importance and well validated aspects of safety. Radar and Navstar

navigational instruments are two contrasting examples. With the advent of radar, there were initially many accidents of collision and grounding that every other accident was termed "Radar assisted". The problem was that both the institutions and the seafarers did not have enough time to grasp the basic principles, operation and the right use of radar before being installed on ships. The result was catastrophic and led to the mandatory requirement of Radar Certificate before issuance of various certificates of competency. In the case of Navstar which will involve 18 artificial stellites arranged in groups of six in three different orbits, the principles and how to operate the system are already being taught and most people know when the system will come into operation. Accepting that nobody is infallible, it is very likely that the initial mistakes in using the system when the system comes on stream will be minimal. For decades now, technological developments, creative research projects and experiments within the shipping industry are so fast that maritime institutions are somehow destined to follow and not to lead. You cannot possibly teach about something that does not exist; to do that will only be an exercise in natural philosophy and fiction.

Now, let us subjectively look critically into the roles of organisations, corporations, governments and people that directly or indirectly influence maritime education and training and subsequently the competence of the seafarer in a complex industry. Almost all the changes in the industry and the education system that support the industry involve these different interest groups within the shipping industry. For simplicity, it is necessary to categorize the welders of such influences into the following:-

- Shipbuilders and Manufacturers of nautical instruments
- Seafarers
- Institutions of nautical education and training
- Governments

3.3.1 SHIPBUILDERS AND MANUFACTURERS OF NAUTICAL INSTRUMENTS

Their attitudes have never been hidden or in any way doubted. All their efforts on research and innovations are in the main based on

commercial principles; safety aspect being a strong catalyst for keeping high their reputation and beating other international competitors. In fact, their major concern is to make profit in order to stay in business. They guard their research results and new products religiously and will only allow you to know what they want you to know in the form of operating instructions. This contention is borne out from the fact that almost all the books on technical subjects dealing with the shipping industry have been written by outsiders. The only time when manufacturers make concerted efforts to let people using their equipments master to some extent the working mechanism of such equipments is when their sales and competitiveness are seriously threatened by other manufacturers of equally if not better equipment. Then, they send out their Public relations officers to various institutions and users with tacit invitations for guided tours in the manufacturers premises and/or free tuition courses. If the shipbuilders and manufacturers of various nautical instruments should co-operate the way they ought to have in the first place, perhaps, there would have been, if any, a little gap between the industry and the mariner's education.

3.3.2 SHIPOWNERS

The international, intricate and economic nature of world shipping has made it difficult to define exactly who is a shipowner. Is the present system of ships registration sufficient enough to define ownership. Open registration has been defined as the process of registering a ship under a flag which is available to any shipowner regardless of nationality. Registration can take place at Consular Offices abroad and, if there is a requirement for an address in the country of registry, the address of a law firm, for example, is quite acceptable (17).

In 1977, the United Nations agency UNCTAD conducted a survey intended to illustrate the whole complex problem surrounding the growing proportion of the world's merchant fleet registered in countries with open registry. Their report which was entitled "Economic consequences of the existence or lack of a genuine link between vessel and flag of registry", stated that:-

(17) Rinman Th. and Linden R. - "Shipping - How it works" - 1983.
page 170.

ownership was quite easy to trace during the late 1950's and early 1960's when 85 percent of ships flying flags of convenience were owned by Greek or American companies. By the end of the 1960's this figure had fallen to 70 percent. To-day, only 45 percent of such ships can prove to be Greek or American owned. But this figure does not give the whole picture; in fact the ownership of another 40 percent of these ships is untraceable. In other words about 15 percent of the total world merchant fleet has no known owner (18).

At the moment there is a serious rift between "the group 77" (which includes almost all the developing countries) and the "Group B" (which includes most of what might be termed the developed and traditional shipping Nations) about open registry and ownership. The arguments involve a lot of political and legal issues best left to Governments and international laws. However, it is gratifying that people and countries have begun to talk and question the principles and values of ownership in general and open registration in particular.

Some of the difficulties confronting the industry do not affect all shipowners for reasons of geographical, cultural and economic differences existing in different countries of the world. For example, the high cost countries have to balance their high crew costs by specialising in the most technically advanced capital-intensive sectors of shipping in order to reduce the crew costs to the smallest possible proportion of the total cost (19) whereas most of the developing countries adopt the labour-intensive philosophy for social reasons. Thus, while the Norwegian shipowners might wish to operate their ships with an average crew of 13 - 14 men and the Japanese trying to operate unmanned automated ship, it would be unthinkable to adopt the same principles in India. In fact, a close look at the present continued evolution in the pattern of world trade shows that the only advantage tipped over to the developing countries is in crew costs notwithstanding efficiency of operation and technical know-how.

(18) Ibid

(19) Rinma Th. and Linden R. - "Shipping - How it Works" - 1983. Page 169.

The problems of shipowners are in the main the problems of nautical institutions and indirectly affect the education and training of seafarers. The effect of the constant demands and changes by the shipowners are first felt directly by the seafarers. The colleges are either left behind or totally disorganised in the process. As it takes an average of 8 - 10 years to train a responsible and capable officer, the shipowner in most cases becomes too impatient since the intention up till this present day is always to get a qualified seaman in the shortest possible time and with the least possible investment. Thus, the result is that the education and training the seafarers obtain are too inward looking and tailored narrowly only on the aspects of the profession which contribute to an isolation of maritime education from the rest of the national educational system. Infact, the outlook in a way inhibits the entry into the profession of well qualified and able-bodied young aspirants. This has lent credibility to the assertion that the increase of declining availability of seafarers might be attributed to those who are not often too willing to attend courses after courses which are crisis-produced and selfishly motivated and devoid of any sort of career expectations which will give them a start to working life ashore comparable with other occupations.

(19A) Shipowners must therefore ponder on the merits of investments in shipboard control systems as a substitute for manpower and how the optimum balance between man and machine is to be determined . A philosophy which sees instrumentation and automation as a means of replacing scarce manpower on the bridge is very doubtful as the maintenance workload may exceed any gains achieved in other directions and may require skills which do not exist at sea at present. Thus, it reasons out paradoxically that if poorly qualified staff is the problem, the provision of advanced aids is likely to be a poor investment at best, and could well prove to be a hazardous one, as their usefulness and cost-effectiveness are unlikely to be realised even in the hands of highly competent officers.

Another disturbing fact about crew reduction and replacement by automation is the important point of psychological effect on the master-slave relationship between human navigators and the automatic navigational equipments. The all powerful effect of automation might result in a

(19A) Maybourn 12 - Paper No 6 on Routing.

Traffic Control and Crew Training. Symposium on Marine Pollution 1973. The Royal Institution of Naval Architects.

The Nautical Institute Magazine. Page 74.

reversed master-slave relationship which means that the human navigators under all conditions will accept the equipment's decision as infalliable. If marine casualties of serious and different nature are to be avoided in the future, the dangerous relationship between navigators and navigational instruments must be prevented. Cases of grounding are increasing because navigators are accepting the doctrine of infalliability of the instruments (20).

Shipowners can only succeed in their philosophy of automation and reduced manning when they come to grips with reality that investments in automation would be wasted unless they co-operate in the training of skilled seafarers on a very broad based education system to be able to operate the instruments and that reduced manning would sooner than later result in a dramatic fall in standards. Thus, there is this logic of those within and outside the industry who argue that the provision of the finest in equipments and technology is of little use if Masters and crew are not thoroughly trained, properly experienced, well disciplined and adequately motivated.

3.3.3 THE SEAFARER

This is the man who can be rightly described as indispensable in the shipping industry no matter to what extent and degree the industry is technologically revolutionalised. New ship designs, innovations in automation and new concepts of onboard ship management are, to put it mildly, counter-productive without good disciplined, well educated and trained seafarer. The ship is the central unit of operation on which the rest of the shipping systems and industry rest on. Once the stability of this central unit of operation is disturbed, then the wave-lengths of disruptions, high costs and management crisis arising affect the entire industry adversely. And who could best be suited to control this central unit other than the seafarer. Thus it goes without saying that for the central unit to be effectively and efficiently run, the seafarer must be adequately and soundly trained and exponentially compensated. Technology can now provide the shipping industry with any equipments that the maritime community can ever conceive of. But one major problem that will stay with

(20) Mulders J. H - Unpublished "Lectures on Satellite Navigation" delivered at the World Maritime University - 1984.

the industry for a long time to come is the question of adaptability of the seafarer to these various technologies. It is the seafarer in the final analysis that determines the success or failure of any technical innovations.

Recently, a lot of efforts and researches have been focused on the need to know more about this characteristically odd seafarer in terms of his character, social life, education and cultural backgrounds, personality, leadership qualities, adaptability and behavioural patterns. So far, very little could only be deduced from the various works carried out. But the picture still being painted is that the social injustices meted out to seafarers still remained unchanged. It would appear that most eminent personalities in the shipping industry are not yet willing to accept that side of the coin. You can build the ships with gold, install the best man made equipments, design the best training system, reduce or increase the manning number, the future will still be as bleak if the new generation of seafarers do not see a good life at sea open to them; no opportunity to enjoy the social amenities available ashore freely enjoyed by others and of which they are taxed; no security for their future and no opportunities to secure ashore jobs with seemingly the same status of position after a useful career at sea. Using the famous words of the former American President - John F. Kennedy -, the seafarers are saying to the shipowners and the shipping industry - "Ask not what the seafarers can do for you but what can you do for the seafarers". Have we stopped to think of the difference it will make if the seafarers are offered shares in the various companies they serve. For once, they will see the ships as their own and not as the "Company Ship". (21) L. T. Kovats writing in Seatrade magazine of March 1984 has this to say:-

When trade is buoyant and cargoes are plentiful, shipowners obtain uncovenanted profits for themselves at the expense of cargo owners. When trade is slack and cargoes are hard to find, owners of cargoes are somewhat better off, but the seamen lose their jobs. Seamen as well as shorebased personnel are inadequately compensated for the success to which they contribute. When the shipowner can no longer afford it, standards of safety on boardships

(21) Seatrade Magazine. - March 1984. Page 188

are lowered with the consequence of accidents to seamen and frequently loss of life and ships. The final and major problem is the lack of opportunity for seamen to exercise real and meaningful control over their working environments.

Putting it in another way, (22) G. Eilers contributing on the International Workshop on human relationship on board organised by the International Maritime Lecturers' Association - Seminar - Bremen 1982, stated that:-

If we forget the simple fact that even on board the most up-to-date vessels, it is people who matter, and if we are unwilling to make the financial sacrifices this realization calls for, we could one day end up with the "ship of the future" but without suitable crews to man it. In days gone by the desire to see the world and the quest for adventure were reasons enough for crews to muster. Nowadays their place must be taken by the provision of living conditions similar to conditions on land, and of job training leading to qualifications that will enable seamen to switch to land trades in which they can earn a reasonable living later.

Granted the fact that most of the seafarers' related problems are endemic to seafaring profession in as much as the problems are associated with the conditions of isolation at sea, changing values between life ashore and afloat, changes in technology and commercial practice, bodily confinement and changing environments making life at sea less attractive than it otherwise ought to be, a concerted effort must be made by all and sundry engaged in the shipping industry to improve life at sea in the broadest possible sense and in terms of the working and living conditions onboard ships. To attract the seafarers of the future, we must formulate clear objectives of training, bridge the communication gaps between seafarers and shipowners, improve career developments and opportunities; promote better relationship between seafarers and their families and establish adequate remuneration and job security. Motivation for change must be something more than strictly commercial.

(22) Eilers G. - Proceeding of "International Workshop on Human Relationship on Board", Bremen, January 21 - 22 1982. Page 167- Organised by International Maritime Lecturers' Association.

Once we sincerely realise that the seafarer is not a super human being but an ordinary simple person who cannot in most cases control and/or change the unpredictable nature and inherent vices of seafaring and shipping no matter his long experience, training, determination, honesty of purpose and sturdy character, then we should be nearing the point of solving partly the problems of finding out and dealing with this supposedly enigmatic person called the Seafarer.

3.3.4 INSTITUTIONS OF NAUTICAL EDUCATION AND TRAINING

"History is bunk" said the former American President - Gerald Ford. But many people thought he was wrong for history is the invisible prophet; the roots of the present and the future are in the past. The system of maritime education and training we have now is the legacy of the early century system of seafarers' qualification. In trying to model a new system for the future due recognizance should be taken of the different facets of the past.

It is necessary at this juncture to briefly recapitulate the history of training and certification using the British evolution - when Britannia ruled the waves - as an example. (23) British Government intervention in shipping came about later in the 18th century and was due as much to economic reasons as to social pressures. With the explosion of world trade caused by the industrial revolution the race began in building faster and larger ships in which safety and efficiency were less important than cargo space and speed whilst the competence of the crew attracted little concern. In the years 1816, 1817, and 1818, 343, 362 and 409 British Ships were lost and an average of 763 seamen perished in each year. In January 1843, 240 ships and 500 lives were lost. In 1836 the government was driven to act and set up a select committee of the House of Commons to enquire into shipping losses. Legislation was slow to follow; the shipowners of the times being reluctant to accept Government interference. It was not until trade began to suffer from the competition of better ships and better crews from other countries, that the British Government was forced to act and the Mercantile Marine Act of 1850 was

(23) Highes G. R. and Moreby D. H - "Training for Safety at Sea" - Safety at Sea Magazine - London May 23-27, 1977. Page 179.

introduced. The Act introduced in 1851 a marine department of the Board of Trade and a compulsory system of examinations for masters and mates of foreign going ships. Later in 1862, first and second class engineering qualifications were introduced; in 1880 the requirements for able seamen were laid down and 1883 the Act was extended to cover the competence of fishermen. A great deal of minor legislations followed until the Merchant Shipping Act of 1894 which regulated all aspects of British shipping for more than 70 years.

For 100 years or so after the introduction of certificates of competency, the only essential qualification required of a person wishing to take an examination was experience at sea and additionally in the case of engineers, experience in heavy engineering. It was not necessary to have reached any educational standard or to have followed any course of instruction. Courses existed but their function was mainly for mass production of seafarers to fill up ships. Even the change from sail to steam ships towards the end of the 19th century did not dramatically change the level of knowledge required by the mariner. Government and shipowners and large shipping companies who sponsored the few educational institutions that existed then were mostly concerned with subjects like life-saving appliances, distress signals.

However, the end of last world war set in motion dramatic changes in technology. Ships became very much bigger demanding new forms of prime mover and control systems and higher standards of accuracy in navigation. New materials were produced requiring the utmost care in their handling and transportation. Developments in electronics produced communication systems which transformed shipping business practice. In the case of radar and the new electronic aids to navigation, the mariner was provided with information that he was not trained and often not educated to handle. The result in the case of radar was to produce a new phenomenon, the "radar-assisted" collision. This "radar-assisted" collision led to the introduction of compulsory radar observers course and examination and minor improvements in the teaching of mathematics and science applied subjects. Now, it became increasingly obvious to shipowners, the nautical educationalists, colleges and the Government that some standard of education

was needed by ships' officers and that the training of the seafarers for work at sea would have to have a more clearly defined base in the applied sciences.

From what has been said above, it is no doubt a fact that colleges of education and training have for too long followed the unimaginative and traditional way dating back for over 100 years. The institutions followed the interests of Shipowners and Syndicates who sponsored the educational institutions when considering the syllabuses for training (24). According to Guenther Zade of the World Maritime University -

training establishments operated in a close loop with shipowners, the latter being the sole dictating force whilst the members of staff basked in self esteem and were convinced that their work was highly appreciated resting that belief on an assumption that they were serving an all important industry.

The situation the nautical institutions found themselves in was that of continuous erosion of their prestige and thin educational contents. Land-based education and training systems became more attractive.

(25) According to David Mitchell, Parliamentary Under Secretary of State for shipping - U.K., the questions were whether the marine community had been inward looking and concentrated on narrower aspects of the profession at too early a stage in a young man's career and if the Department's Examination policy was unintentionally contributing to an isolation of maritime education from the rest of the educational system. These questions were well answered in the words of Guenther Zade (26), when he stated:-

It was this situation that called for a solution updating the qualification of staff, enlarging their narrow field of view to a broader scope and developing their readiness to meet future challenges. There was some substantial fear that by continuing the old-fashioned way of self-confirmation, the nautical education and training establishments in line with those who know the

(24) Proceedings of Seminar on "The Practice of Marine Education and Training in Europe and The New IMCO Requirements" - Amsterdam 5-6 June 1980. Page 69.

(25) Parliamentary Under Secretary of State for Shipping U.K - "Education and Training" - London, 9th Feb. 1984 - Seaways March 1984. Page 1.

(26) Proceedings of Seminar on "The Practice of Marine Education and Training in Europe and The New IMCO Requirements" - Amsterdam 5-6 June 1980.

least obey the best could drift into a puppet-on-a-string position which eventually would have made the nautical profession founder.

The Summers report on training requirements for sea-going personnel in Australia pointed out that there was not any training that is of such value that people who selected sea transport as their career could make great contributions to the whole industry and that the system of education and examination was to make sure that the examinee has a good basis in matters that would help him to operate ships safely. It was not their task to see whether he will operate efficiently (27).

In retrospect, the present pattern of maritime education, training and qualification was long practised before national systems of technical education were developed. Thus maritime education has remained largely outside the normal national education system with responsibility for costs remaining with the shipowners. Seafarers and shipowners do not, therefore, benefit from the growing range of higher technical education courses to the same extent as do other occupations and industries. Furthermore, the nature of shipping precludes seafarers from enjoying easy access to general education or cultural facilities in their leisure time like regular attendance at evening courses extending throughout the year. In fact, the major disadvantage of the isolation of maritime education from the main national education system is that the marine qualifications are not recognised within the education system and, in most cases, seafarers are forced to start from scratch if they wish to further their qualifications or re-train for other jobs.

For the nautical institutions to avoid partial extinction and/or continued isolation, resignation, and rejection from the mainstream of national systems of education, they must widen the scope of knowledge and improve on the courses with a standard of education that has a general application and offers the recipient job-satisfaction and professional mobility. The institutions must adapt positively to new requirements for maritime education and training that will cater for both ship based and shore based careers. Perhaps, the Rochdale report (28) succinctly put the whole problem in a better perspective when it stated:-

(28) Rochdale report on Shipping Industry in U.K. - Page 279.

In the rapidly changing conditions of to-day, however, it can be argued that the system, based as it is, on narrow but essential safety objectives, is in some important respects actually retarding the pace of development of flexible, well balanced and progressive training arrangements for all grades of seafarers, and that fundamental changes are needed. We do not for instance believe that the Department of Trade would find it easy, or even practical, to adopt its syllabuses and examinations adequately to the present situation in which it is increasingly desirable for many seafarers to receive training more broadly based than what they need for strictly safety purposes. The Board has no experience of setting standards and testing attainments in the wide areas of knowledge and efficiency.

Again, what other best conclusion can be derived from what David Mitchell, Parliamentary under Secretary of States for transport - U.K. said on the opening address to the Conference on Education and Training for Seafarers (29):-

A seafarer so educated and trained would be better prepared for employment ashore where advantage would be derived from his initial education supplemented by those unique qualities of independent thought and action which are developed at sea.

Even more thought provoking was what John Birch, general manager of power transmission products - U.K., said claiming that training methods for U.K. Seafarers was one of the causes of the shipping industries problem (30).

the result of the industry's training and operating philosophy was that it had developed one of the most expensive training systems but possibly the least effective. It is inconceivable that a person should be put in charge of an asset costing between £100 million without being educated at graduate level.

(29) "Education and Training" - London, 9th Feb. 1984
Seaways Magazine, March 1984.

(30) Writing in Lloyds List, Friday February 10, 1984 -
"Training for Seafarers is criticised".

There is no doubt that training establishments in the shipping industry face a dual challenge to provide both education and technical training for an ever changing fleet. But it should be necessary to avoid over dominance of training over education and/or education over training. The curriculum should not consist of a collection of topics inadequately linked to one general aim of obtaining certificates. There ought to be a good balance between education and training. Modern ships demand an extending range of skills from those who create them; those who sail in them; those who prepare staff for such service and those entrusted with determining their competence (31).

3.3.5 GOVERNMENTS - ROLE IN MARITIME EDUCATION AND TRAINING

Shipping transport as an industry must be one of the oldest in the world. The history of civilization thousands of years ago refer to ships carrying passengers and cargo and payments being made for that transport. The entry of the steamship into the maritime scene, brought with it as many problems as improvements in the safety of navigation. For, in those years, there were no universal steering and sailing rules and collision regulations; no standard system of navigation lights; no examinations for Masters and Mates. There was not even a standard time e.g. GMT for navigational purposes.

In most countries practising free economy for centuries, Governments seldom interfere in the shipping industry and even the shipowners very reluctantly accept such interference. But now we are facing the problems in this century of the introduction of sophisticated ships, complex and expensive instruments requiring highly qualified shipboard personnel; changing patterns of world trade; national and political sensitivity that has steadily drawn governments into the long cherished shipping traditions which are often said to be the strength of the shipping industry. Governments now have to play greater role in global seaborne trade; matters of maritime safety; pollution prevention at sea; education, training and certification of shipboard personnel. The axiom that lessons in safety at sea seems always to be learned the hard way with each occurring major

(31) The Royal Institution of Naval Architects - The Nautical Institute Magazine - March 1976.

disaster is no longer true. Nor is the economic reason rather than social conscience play greater part in the establishment of safety requirements. The competitive nature of international shipping and seaborne trade largely depends on better ships with better safety standards and better trained crew. Governments have to accept the fact that for the foreseeable future, it is safety at sea and highly qualified and motivated seafarers that will rule the waves (32).

Although, a long history of international co-operation in maritime matters, mainly in the form of international conventions, preceded the establishment of the International Maritime Organization, but the consensus opinion is that since the organisation came into force in 1958, greater awareness and co-operation have been created globally amongst maritime nations in the fields of safety at sea, pollution prevention at sea, training of personnel and international trade generally. Many Governments readily accept the international conventions on these matters as binding and in most cases, the conventions are made the laws of the land by various acts of parliament. Governments of maritime nations now have the opportunity to balance the degree of shipping casualties and economic losses against the benefits of a dynamic and pragmatic involvement in adequate training of seafarers, legislating safety standards and participating in and implementing international conventions on maritime matters.

An attempt has only been made in this chapter to focus attention on the components that are essentially necessary requisites in any healthy shipping industry. Each component plays an important role and complements the other factors. For any maritime education and training to be successful and useful to the shipping industry it is supposed to serve, the nautical institutions must take due cognizance of the rapid changes in new ship design; must consult and continuously keep in touch with ship-owners on their various and multiple requirements necessitated by constant changes in international seaborne trade and train the seafarers in such a way that will make them eternally proud of their profession by conjugating maritime education with the national education system.

(32) Hughes G. R. and Moreby D. H. - "Training for Safety at Sea".

Safety at Sea Magazine, London, May 23-27 1977 - Page 180.

CHAPTER 4

NIGERIAN SHIPPING POLICY

4.1 NIGERIAN SHIPPING POLICY

It is interesting to note that since Independence in 1960, successive Governments - both civilian and military had shown marked interest and concern in transportation systems in general and shipping in particular.

Each successive Governments realised that the developmental process of the country depends, to a very large extent, on the efficiency and well laid out transportation networks. All economic activities rely heavily on all forms of transport services for the movements of both physical inputs and outputs. In fact transportation needs essentially come from activities on other sectors of the economy such as industry and other socio-economic activities within the system.

In the report entitled the "Economic Co-ordination of Transportation Development in Nigeria" prepared by the Stanford Research Institute in 1961, it was stated that "the economic history of Nigeria is largely the story of the opening of its vast area by various forms of transportation". Again, in a sessional Paper No. 1 of 1965 entitled "Statement of Policy on Transport", Government policy on transportation was spelt out. In essence, the policy provided that co-ordinated development of various forms of transport will be promoted by concentrating on developing those modes which are capable of carrying persons and goods at reasonable cost per unit of service. The efficiency and effectiveness of the transport system influence the cost of every commodity consumed or exported and thereby affect the business, economic and industrial opportunities of every citizen.

The objectives and total awareness of successive Governments of Nigeria had remained constant and unbending towards the development of all modes of efficient, dynamic and flexible transport services which are

vital to the economic growth, expanding productivity and the general progress, health, safety convenience of the population. Of all sectors of the economy since 1960, the transport sector has commanded relatively higher investment funds than any other single factor. A summary of the total allocation to the transport sector under the successive National Development Plans since 1962 is presented in Table I.

Recognising the important role shipping can play in the economic growth of the country and desiring to pursue relentlessly such objectives and policies that will achieve the considered practical and national goals, the Government, publicly at a press conference on the 29th December 1981, outlined her National Shipping Policy (32). It was felt that a well articulated shipping policy designed to promote indigenous shipping interest, conserve the country's foreign exchange, increase the level of visible and invisible earnings through shipping and reduce the Nation's dependence on foreign shipping lines was, unquestionably, overdue. It is an accepted fact that banking, insurance, and shipping are the major sources of invisible earnings for any country. Nigeria has through effective policies and legislative actions benefitted from banking and insurance, but similar progress is yet to be made in the field of shipping. The view is held that to realise the maximum benefits from the shipping industry, the primary legislative tools for such successes must in part rest on the UNCTAD CODE on Liner Conferences and some international conventions.

The declared policy states, inter alia, that:-

it shall be the declared goal of Nigerian National Shipping Policy to effect the development and maintenance of national merchant marine capable of promoting Nigeria's domestic and international commerce. It is also the aim of this policy to ensure that Nigeria benefits from the fruits of her external trade and that the foreign exchange payments are effected in respect of services offered at our ports in line with international practice.

(32) The Shipping Policy of Nigeria 1981 - From the Secretariat National Shipping Policy Implementation Committee.

The Government announcement further expatiated on the goal for the Merchant Marine to be:-

- sufficient to carry the country's domestic and international seaborne trade,
- owned and operated by Nigerians bearing Nigerian flags as far as practicable,
- equipped and maintained within the ambit of international safety standards,
- supplemented by efficient facilities for ship building and repairs.

It is expected that the new national policy on shipping will achieve the following objectives:-

- to correct the existing imbalance in the shipping trade and implement the entire provision of UNCTAD CODE on the 40-40-20 sharing principle,
- to improve the country's balance of payments position by enhancing the earnings and conservation of foreign exchange from ocean shipping industry.
- to use the instrument of National shipping to promote the country's export trade and thus accelerate the rate of growth of the National economy,
- to use greater participation of indigenous shipping lines in conferences to influence the decision process of such conferences serving Nigeria's international seaborne trade,
- to promote the acquisition of shipping technology by creating and diversifying employment opportunities in shipping industry, through the stimulation and protection of indigenous shipping companies,
- to assist in the economic integration of the West and Central African sub-region,

- to project the good image of Nigeria abroad by flying the nation's flag on the high seas and world seaports.

In order to ensure effective implementation of the shipping policy, Government wisely set up an implementation committee to monitor and advise the Minister in charge of Transport in the following areas of shipping activities:-

- The implementation of the provisions of the UNCTAD CODE within the framework of international shipping industry in such a manner as to ensure effective carriage of Nigeria's sea-borne trade in volume and value by recognised Nigerian carriers.
- All aspects of commercial shipping especially those relating to cargo sharing, ship procurement and freight rates etc.
- Monitoring allocation of cargo among the indigenous and foreign ships operating within Nigerian territorial waters.
- Activities of shipping companies.
- Monitoring of foreign exchange transfers for port services at all Nigerian ports.
- Operation of clearing and forwarding agents and ships chandlers in areas where they affect the implementation of the policy.
- Ships agents must furnish from time to time the amount of money they disburse for the ships in their care against the foreign currency they import to service them.
- Agents must also furnish the total amount of freight earned by their ships on Nigerian exports.

Government also recognised the tremendous contributions the indigenous Lines could make in the shipping industry towards the successful implementation of the policy and made provisions to ensure

effective participation of the indigenous lines by introducing the following measures in the policy for full implementation:-

- National carriers which have ships will be encouraged to enlarge their fleet within economic limits. Those which do not own ships but charter them will eventually be encouraged to own their own ships after benefitting from the protective policy.
- National carriers would be encouraged to join the major conferences serving the Nigerian trade routes.
- Provisions will be put in all contracts and issuance of import licences which provides that substantial amount of goods coming into the country, for the execution of the Government projects will be carried by National carriers.
- National carriers will receive effective co-operation of the implementation committee in working out suitable arrangements in chartering more vessels which are in class and satisfying all aspects of safety regulations.
- A Ship Procurement Revolving Loan Fund will be created with the support of the financial institutions. Such loans will be granted to recognised national carriers for the purpose of ships procurement. Suitable terms will be worked out with all interested parties.
- The registration of new indigenous shipping companies will be liberalized and they shall during the formative period receive Government support. Such support will include operating subsidies, low interest on loans, interest subsidies, accelerated depreciation allowances, accumulation of tax-free reserves, cargo preference schemes and sabotage restrictions.

Finally, the Government in setting out this broad, far-reaching and important policy on shipping, conspicuously made itself aware of the fact that the effective implementation of the policy depends totally and

entirely upon adequate and sufficient manpower resources of the right calibre and training and therefore is determined to give active support to the education and training of marine personnel by way of giving bursaries awards to eligible students to study maritime subjects at nautical colleges and other maritime academies overseas; adequately strengthening the nautical college at Oron in order to provide specialized marine training and lastly ensuring that assistance is readily available to the indigenous shipping companies from the implementation committee in recruiting skilled personnel to man their ships. The shipping policy had been acclaimed as a great determination, foresightedness and aggressive policy.

CHAPTER 5

I.M.O REQUIREMENTS FOR EDUCATION AND TRAINING OF SEAFARERS

5.1 STCW CONVENTION - 1978

Before discussing the global significance of the convention on standards of training, certification and watch keeping for seafarers 1978, it will be necessary to give a brief background account of how the International Maritime Organization - I.M.O (formerly known as IMCO (34), came in force.

By the beginning of the 20th century, international merchant shipping had expanded tremendously gathering such momentum from the beginning of the 19th century when the great industrial revolution triggered an explosion in world trade. It was clear at that time that some sort of international actions ought to be taken in safety matters. As the United Kingdom was by then the largest maritime nation in the world with the longest history of maritime legislations and training for safety at sea, her Government played a leading role in bringing other maritime nations together for the purpose of concluding various international conventions relating to maritime safety and pollution prevention such as the international conference on safety at sea in 1913/14 (following the sinking in 1912 of the TITANIC with a loss of 1,489 persons); safety at sea conferences of 1929 and 1948 (again as the result of the disastrous fires on the MONRO CASTLE, L' ATLANTIQUE and NORMANDIE - lessons in safety at sea seemed always to be learned the hard way); the international conference in respect of load line 1930 (it was the Government of the United Kingdom that in 1906 took the powers for the first time to apply British Loadline Laws and other safety regulations to foreign vessels in British Ports) and the international conference for the prevention of pollution of the sea by oil 1954 (35).

(34) International Maritime Organization - IMO, was previously called Intergovernmental Maritime Consultative Organization - IMCO - until 22nd May 1982 when the new name - IMO - came into force.

(35) Hughes G. R. and Moreby D. H - "Safety at Sea" - London 1977.

As it would appear that the world noticed and, indeed, appreciated the selfless and relentless efforts of the Government of the United Kingdom in areas of international maritime safety and pollution prevention, the United Nations, soon after the war, recognised the need to create a specialised agency to deal solely with maritime matters. Accordingly, the United Nations Maritime Conference was convened in Geneva in 1948 and concluded the convention on the International Maritime Organization. The Convention formally came into force in 1958 and the existence of IMO came into being the same year. Since its modest start with 21 Member States, the Organization has steadily grown and its membership at present totals 126 members with one associate member. IMO, therefore, is to all intents and purposes, a universal maritime organization with its membership open to all member nations of the United Nations interested in shipping.

The objectives of IMO, as provided for in Article 1 of its convention are - inter alia: ,

- to provide machinery for co-operation among Governments in the field of governmental regulations and practices relating to technical matters of all kinds affecting shipping engaged in international trade; to encourage the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and the prevention and control of marine pollution from ships; and to deal with legal matters related to the purposes set out in the Article;
- to encourage the removal of discriminatory action and unnecessary restrictions by Governments affecting shipping engaged in international trade so as to promote the availability of shipping services to the commerce of the world without discrimination; assistance and encouragement given by a Government for the development of its national

shipping and for purposes of security does not in itself constitute discrimination, provided that such assistance and encouragement are not based on measures designed to restrict the freedom of shipping of all flags to take part in international trade;

- to provide for the consideration by the organization of matters concerning unfair restrictive practices by shipping concerns;
- to provide for the consideration by the organization of any matters concerning shipping that may be referred to it by any organ or specialised agency of the United Nations;
- to provide for the exchange of information among Governments on matters under consideration by the organization.

IMO co-operates with a number of other United Nations organizations having parallel and sometimes overlapping responsibilities in the fields of shipping economics, labour and specialised matters. Such specialised bodies like the International Labour Organization (ILO), the United Nations Conference on Trade and Development (UNCTAD); the International Telecommunication Union (ITF); the World Meteorological Organization (WMO); the World Health Organization (WHO); the United Nations Education, Scientific and Cultural Organization (UNESCO) and the Food and Agricultural Organization (FAO) send representatives to all important and appropriate meetings of the organization. Also, non-governmental organizations such as the International Chamber of Shipping (ICS), the International Organization for Standardization (ISO); the International Confederation of Free Trade Unions (ICFFT) and the International Association of Lighthouse Authority (IALA) also send representatives who offer their long outstanding expertise to the organization.

The IMO has no powers of enforcement for the ratified conventions. Rather, its unbending strength lies in its arduous functions of providing the forum and preparing the ground work for the adoption of legal and technical provisions of a convention by an International Conference

convened under its aegis. It is only the Governments of the various countries of the world that can ensure through national legislations that the legal and technical provisions of international conventions are effectively enforced.

Since the inception of IMO in 1958, the STCW convention can be said to be the only convention specifically focused on the human factor of safety at sea. Disasters which occurred during the last two decades and which were attributed to an overwhelming extent to human errors, clearly highlighted the need for such a convention. Statistics did show that the greatest single factor leading to a marine casualty was human fallibility and furthermore that the human element was responsible for 80 percent of all tanker accidents. Thus, there is a growing awareness and logical thinking within and outside the industry that the provision of the finest in equipment and technology is of little use if Masters, officers and crews are not thoroughly trained, properly experienced, well disciplined and adequately motivated.

5.2 HOW THE STCW CONVENTION DEVELOPED

The development of the STCW Convention started with the adoption at the IMO first International Conference in 1960 on safety of life at sea, of a recommendation aimed at furthering maritime training in co-operation with the International Labour Organization (36).

Pursuant to that recommendation, a joint IMO/ILO committee on training was established. The Committee had its first meeting in 1964 and prepared the "Document for Guidance" 1964. This Document gave guidance on the education and training of Masters, officers and seamen in the use and operation of aids to navigation, life-saving appliances, devices for the prevention, detection and extinction of fires, and other ship's equipment contributing to safety at sea.

In 1971, IMO Council decided that further measures were still needed to strengthen and improve standards of training and certification. Also, the IMO Assembly which met the same year decided to convene a conference to adopt a convention on the subject. The document was subsequently amended and expanded by the joint committee in 1975 and 1977.

(36) Morrison W.S.G - submission on "International Co-operation" at the International Conference on Shipborne Personnel - Rijeka, Yugoslavia. 4-7 May 1982. Organised by International Maritime Lecturers' Association.

Soon after, another conference met in 1978 and was attended by delegates from 72 countries. It was the largest conference ever held by IMO and was the first attempt to establish global minimum professional standards for seafarers. Previously, the standards of training, certification and watchkeeping of officers and ratings were established by individual governments usually without reference to practices in other countries. As a result, standards and procedures vary widely even though shipping is the most international of all industries. The convention was unanimously passed in the same year and by 27th April 1983, the requirement for entry into force was met. On the 28th April 1984, the convention officially and finally entered into force for countries who are parties to the convention.

(37) The convention prescribes minimum standards which countries are obliged to meet or exceed. In the majority of established maritime countries, standards are often higher than those stipulated in the convention. In some countries, however, standards are not so high and by ratifying or accepting the convention, governments of such countries undertake to implement and enforce its requirements.

5.2.1 THE CONTENTS OF THE STCW CONVENTION

The aim of the STCW convention is to establish, for the first time, internationally acceptable minimum professional standards for seafarers. The convention is not designed as a model on which all nations should necessarily base their crew requirements because in many countries the requirements may be higher than those laid down in the convention. Rather the convention typifies and reflects a compromise not only between the standards in developed and developing countries, but also between the various systems followed by the more advanced maritime countries. Most of the provisions lay down principles only and these provide flexibility for the Administrations which become parties to the convention.

5.2.2 OBJECTIVE

The main objective of the convention is the elimination of inadequacies and supplementing insufficient requirements in all areas and

(37) Much of the informations in this chapter came from the Magazine of IMO - Number 1 - 1984.

matters affecting the training, certification and watchkeeping for seafarers with a uniform set of unanimously accepted requirements. The implementation of the convention to a satisfactorily effective degree calls for a close co-operation of a number of persons and agencies owing to the inter-related nature of the provisions of the Articles and the technical annex which are in no small measures aimed at contributing to the smooth flow of international seaborne trade under conditions of safety and protection of the marine environment. The convention also imposes certain obligations and responsibility on the seafarers, the shipowners and the administrations.

5.2.3 THE ARTICLES AND ANNEX OF THE CONVENTION

The Convention is made up of 17 Articles, an Annex sub-divided into six chapters and 23 Resolutions. The Articles contain the legal provisions of the convention while the technical provisions are contained in the various sub-divisions of the Annex. The Resolutions are not mandatory instruments but are, nevertheless, linked to the convention and are designed to back up the Articles and the Annex of the convention. Thus, Governments can use the Resolutions in any way they want, in whole or in part provided it is in the spirit of the convention.

While it is not my intention to write copiously on the general aspects of the convention, I would like to confine myself in highlighting only few areas of the legal and technical provisions of the convention which should attract more attention. One specially important feature of the convention is that it will apply to ships of non-party states when visiting ports of states which are parties to the convention. Article X requires parties to apply the control measures to ships of all flags to the extent necessary to ensure that no more favourable treatment is given to ships entitled to fly the flag of a state which is not party than is given to ships entitled to fly the flag of a state that is a party. This singular Article has indirectly established firmly the legal authority of enforcement world wide.

From the technical provisions of the Annex of the convention, Regulation 1/4 deals with control procedures and elaborates further on

Article X. Regulation 1/4 mandates party states to check the certificates of personnel and assess the ability of seafarers to maintain convention standards in certain eventualities such as the ship's involvement in a collision or grounding; the discharge of an illegal substance or erratic or unsafe manoeuvring. Failure of seafarers to hold a certificate and/or to have an appropriate valid certificate or valid dispensation would result in the party carrying out the control having to take steps to ensure that the ship will not sail unless and until the requirements are met to the extent that the danger has been removed.

Regulation II specifically spells out the mandatory minimum requirements for certificating Masters, and chief officers; officers in charge of navigational watches and requirements for ratings forming part of a navigational watch and further demarcates sizes of ships in terms of gross tonnage to different grades of certificates which should be possessed by officers serving on them. For example, Regulation 11/2 deals with Masters and chief mates of ships of 200 gross tons to 1,600 gross tons and for ships of 1,600 gross tons or more. Candidate wishing to obtain the requisite certificates in order to be able to sail on the two types of ships must first meet the requirements for certification as an officer in charge of navigational watch on ships of 200 gross register tonnage or more and must have acquired the necessary approved sea-going service in that capacity.

Regulation 11/3 sets out mandatory minimum requirements for certification of officers in charge of a navigational watch and Masters of ships of less than 200 gross tonnes. For ships of less than 200 gross tons which are not engaged on near coastal voyages, Masters of such ships must hold an appropriate certificate having acquired approved sea-going service of not less than 12 months as officer in charge of a navigational watch in addition to satisfying the administration that they possess adequate knowledge of subjects listed in the appropriate appendix.

Regulation 11/4 contains the mandatory minimum requirements for certification of officers in charge of a navigational watch of ships of 200 gross tonnes or more. The age limit is 18 years and three years

seagoing service which must include at least six months of bridge watchkeeping duties under the supervision of a qualified officer.

With the rapidly changing pattern of shipping due to new technologies and other factors, it was duly recognised that old serving officers must of necessity keep abreast of the new changes. Thus, provision was made in Regulation 11/5 which clearly stipulates that Masters and officers should be required at regular intervals and not exceeding five years to satisfy their respective administration as their continuing fitness and retention of their professional competence. To ensure that this particular provision is carried out, it is further required that administrations formulate a structure of refresher courses especially for re-entrance to sea-going service and also ensure that all ships under their jurisdiction are provided with texts of changes in international regulations concerning safety at sea and marine environment protection measures.

Requirements for deck ratings forming part of a navigational watch form the subject matter of Regulation 11/6. Ratings who comply with this regulation must not be less than 16 years old. They also should have completed at least six months sea-going service or undergone special training in a prescribed number of subjects. Service of at least one year during the five years prior to the entry into force of the convention for any administration may be regarded as equivalent to the prescribed sea-service.

The last two regulations of chapter II deal with basic principles to be observed in keeping watches in port and lists mandatory minimum requirements for a watch in port on ships carrying hazardous cargo. In both cases, it is necessary to take recognizance of the recommendations on principles and operational guidance for deck officers in charge of a watch in port and recommendations on the principles and operational guidance for engineer officers in charge of an engineering watch in port.

The regulations in chapter III deal with engineer officers in a similar format to chapter II dealing with deck officers except that instead of gross tonnages of ships being the criteria as in chapter II, propulsion power in kilowatts is used to determine the sizes of engines

which different grades of engineer officers are permitted to handle.

Chapter IV concludes on the last of the three officer departments that comprise the nucleus of every ship - that is the Radio department. Regulation IV/1 states that radio officers must hold a certificate issued under the provisions of the Radio Regulations and have adequate qualifying service. The officers must also pass an examination in subjects listed in the appropriate appendix with emphasis on safety and emergency situations. Regulation IV/2 contains provisions which are designed to ensure the continued proficiency and updating of knowledge of radio officers whilst regulation IV/3 deals with minimum requirements for certification of radio-telephone operators. This last regulation is also linked with the provisions of the Radio Regulations and prospective candidates are additionally required to pass an examination and to meet the requirements listed in the relevant appendix.

The growing importance and continued steady increase in the number of tankers operating worldwide necessitated the inclusion of chapter V in the Annex of the convention. Chapter V deals with the mandatory minimum requirements for the training and qualifications of Masters, officers and ratings of oil tankers, chemical tankers and liquified gas tankers. The intention of the chapter is to ensure that officers and ratings who might have specific duties to perform in relation to cargo and cargo equipments on tankers should have completed an appropriate shore-based fire-fighting course and attained required period of shipboard service or approved familiarization course. Attention is paid not only to safety aspects but also to pollution prevention methods.

The last but not the least of all the chapters in the Annex - Chapter VI - contains provisions of proficiency in survival craft. The chapter established requirements governing the issuing of certificates of proficiency in survival craft. These include approved sea-going service of not less than 12 months or nine months if the candidate has attended an approved course. Also, there is provision for testing by examination or continuous assessment during an approved training course. The appendix following the chapter lists the minimum knowledge required for the issue of certificates of proficiency.

Historically, Governments of maritime nations had over the centuries endeavoured, either single-handedly or in conjunction with other friendly nations, to evolve a system of training and examinations for safety of those who are to be in charge of the navigation and management of ships. It is indeed gratifying that the STCW convention has added a great impetus to that early evolution and development in safety of shipping. It must be hailed as a significant achievement being the first international instrument designed to improve safety at sea globally under the same uniform standards.

CHAPTER 6

MARITIME EDUCATION AND TRAINING IN OTHER COUNTRIES

6.1 A LOOK INTO OTHER INSTITUTION'S SET-UP

Perhaps, it is time now to look into the different system of maritime education and training in some other countries, notably those countries with long maritime history and experience. The brief comparison will also offer a better appreciation and acknowledgement of the common and unifying role STCW convention will play world wide.

6.2 THE BRITISH SYSTEM

(38) The United Kingdom was amongst the first great maritime nations to evolve an early system of training and certification of officers. The motivation was due as much to economic reasons as to social pressures. From the economic point, the British power and influence over the waves and seaborne trade began to suffer greatly from the competition of better ships and better trained crew from other nations. Socially, the heavy losses of ships and men in the years 1816, 1917 and 1818 enraged public outcry and concern about safety standards. Thus, the Government was forced to act and in 1836, a select committee of the House of Commons was set up to inquire into shipping losses. This led to the first mercantile marine Act of 1850 which established local marine boards, who included in their functions a compulsory system of examination for Masters and mates of foreign going ships. Minor legislative changes took place and the subsequent legislations that followed in 1862, 1880 and 1883 covered the examinations for engineer officers; requirements for able seaman and the competence of fishermen. These legislative changes consolidated into the Merchant Shipping Act of 1894 which regulated all aspects of British shipping for over a century and made the Board of Trade (39) responsible for the issue of certificates of competency for

(38) Hughes G. R and Moreby D. H. - Safety at Sea Magazine - May 23-27, 1977. Page 179.

(39) Board of Trade is now known as Department of Transport - DOT.

officers, a responsibility still exercised by the Government department till this very day.

Just before the economic recession and the dramatic impact of automation forced the Government to scale down the number of nautical institutions to just under eight, there used to be about 24 nautical colleges scattered all over the country. Between these colleges, different educational philosophies emerged. Infact, not one college quite understood the systems of other colleges; there was a wide range of courses of varying length and content; entrance qualifications differed greatly owing to the interference by shipowners who financed and controlled most of the colleges. The number of interests involved bred much conflicts amongst the colleges and denied them wider range of co-operation and opportunities.

It was not until the 1960's that real changes actually began to take place with the absorption of nautical colleges into local colleges of further education. Before this time, it was not necessary for the new aspirants to sea career to have reached any educational standard or to have followed any course of instructions. The only qualification needed by a candidate for a second mate certificate was four years sea service on deck and good eyesight. But, with the merger of nautical colleges with local colleges of further education, sandwich training and mid-apprenticeship release courses were established. Furthermore, the Merchant Navy Training Board (MNTB) originally formed in 1942, helped to establish a uniform minimum educational entry standard; a systematic and progressive training programme and a nationally recognized qualification (40).

In 1964, a Joint Committee for Ordinary National Diploma (OND) in nautical education was formed. The Committee was assigned the duty of working out an arrangement which will simultaneously offer prospective officers a nationally recognized educational qualification and professional certificate of competency. Although the number of candidates enrolled in the OND courses were never encouraging mainly because only few prospective candidates had the necessary "O" level passes to qualify for entry, but the successes of those few candidates in terms of pass rate in the examinations were encouraging. Moreover, the scheme under scored the point that better qualification results in shorter training (41).

(40) Robinson D.M. - "Nautical Education and Training in U.K" - A paper presented at the conference on - Nautical Education and Training in Europe - Bremen, October 1977. Page 75.

(41) Eric Clubb - "Changing Patterns in Cadet training" - Fair Play Magazine - 11th August 1983. Page 9.

The partial success of OND scheme gave impetus to the development of other national certificates concurrent with professional certificates. Thus, the Joint Committee was further charged with the responsibility of drawing up courses leading to Ordinary National Certificate (ONC) - the entry requirements are slightly below that of OND; the Higher National Diploma in nautical science and a scheme for a science degree in nautical studies.

These four major courses - Ordinary National Diploma (OND), Ordinary National Certificate (ONC), Higher National Diploma in Nautical Science (HND), and a B.Sc. degree in nautical studies - are currently being followed by the few remaining nautical colleges now existing in U.K. The courses attract different entry requirements and requisite minimum periods at college. Also, depending on the scheme chosen, the Department of Transport will grant graduated sea remission for the periods spent at college and allows exemptions from certain papers in both the second and first mate's certificate examinations. See figure I.

6.2.1 TECHNICIAN EDUCATION COUNCIL (TEC)

As a result of continuous revisions of educational systems in U.K, in line with technological changes and the demands of industry, the U.K. Government set up the Technician Education Council (TEC) on the recommendation of the Haslegrave Committee on technical education. The TEC took over the work of various joint committees for national certificates and diplomas. Thus, in 1979, the ordinary national certificates and diplomas and the higher national certificates were superseded by Ordinary Technical Diplomas and Certificates and Higher Technical Certificates in Nautical Science of the Technician Education Council. In principle, what the philosophy of TEC is all about is that apart from the required common core subjects for the TEC award, one requires additional subject units in specialized areas. In theory, this allows for flexibility between different industries with the individual needing to cover only the additional units outside the required common core subjects to convert his or her qualification. The diplomas and higher certificates are administered by a programme committee for maritime studies which also is

responsible for programmes in engineering, radio and electronics and naval architecture.

6.2.2 NEW U.K. CERTIFICATE STRUCTURE

Before the new certificate structure came into being what had existed were mainly two types of certificate structures - the foreign going certificates of competency and home trade certificates for Masters and mates. The home trade certificates were limited to vessels trading between the River Elbe and Brest, the United Kingdom and Ireland.

The new certificate structure was introduced in September 1978 consisting of five grades of certificates. Whilst grade one, two, and three certificates still correspond to the traditional Master, first mate and second mate (foreign going) certificates respectively the home trade certificates were replaced with grades four and five. The advantage of the new structure is that certificates from grades two to three can be endorsed for restricted use in terms of size of vessels and trading areas in accordance with STCW convention. The new structure also offers flexibility of manpower and so guarantees that all vessels have certificated Masters and officers.

In conclusion, it can be acknowledged that the most important improvement in the present British system is the fact that officer entry into the sea career now follows a definite entry requirements, a planned and multiple choice of schemes of training of one kind or another. The new schemes also offer a majority of officers an opportunity to obtain a qualification which is recognized outside the shipping community in addition to his professional certificate of competency. This has meant that companies are now in a better position to attract better qualified new aspirants. Also, officers who leave the sea either by choice or of necessity, have something which indicates a level of achievement that a prospective employer can understand.

6.3 THE CONTINENTAL SYSTEM

Generally, the systems of maritime education and training in the countries of the continental Europe seem to be based on the same principles but with different entrance requirements and methods of certification existing in each country. These countries realized in the early 70's that maritime education and training ought to be linked with the land based system of education and training. The concept was to give essentially a broad based education and training to seafarers to enable them to seek alternative jobs ashore when for personal reasons or unforeseen circumstances they decide to quit the sea career without necessarily losing a great deal of their economic and social status previously enjoyed at sea. The system also aims at attracting young students/aspirants with above average educational qualifications into the profession.

For example, in Norway, the education of maritime officers was for a very long time based on a rather weak general system of education as seen from a non-professional point of view. This led to the appointment of a committee in 1972 with the mandate to provide a balanced education system which should take into account modifications in the land based national education system designed to satisfy the training needs of the shipping industry. One of the interesting recommendations made by the committee was that young aspirants should be given an extensive education of a general nature or technically oriented alongside the maritime specialization. The thinking can be seen as a reflection on the part of the authority to provide education and training in such a way that would facilitate the mariner's later entry into shore-based jobs in the shipping industry (42).

In Belgium, it was long felt that mariners find it difficult to re-enter universities or other higher technical institutions after a long spell at sea and at their middle ages when they are married and ladden with family problems. Thus, their scheme of education and training is designed not only to keep pace with development in marine technology but also to provide the type of educational background the mariners need to enter the shipping and/or other shipping related industries ashore. It is better explained in the words of A. Westerlink, Director, Hogere

(42) Ditlefsen R. - "Nautical Education and Training in Norway" -
Proceedings on "Nautical Education and Training in Europe" -
Bremen, October 1977. Page 47.

Zeevaartschool, Belgium:-

Our aim is to attract young students to that magnificent career of Ship's Master but we are also aware that we must not frighten them by the idea that they will have to stay all their lives at sea. We have to show them and to assure them that the possibility to stay ashore, at the same social level, is real the day when they will be obliged by family-affairs, psychological difficulties or physical deficiencies.

What most of the countries of continental Europe have achieved is the realization of a system that combines nautical studies with academic courses simultaneously. The system is based on a programme of 4 - 5 academic years of studies both in professional subjects and in general nature subjects leading to a nationally recognized degree. The academic period is interspersed with a specified sea-service period. As the students progress and acquire necessary sea service experience, they are awarded the appropriate professional certificate of competency after passing the necessary examinations at the end of each stage. At the end of the 4th/5th academic year, they sit for the degree examination. Successful candidates, on completion of the required seetime, then sit for the final Master's certificate examination. The Danish and West German systems are shown here only as examples and do not represent common systems to all other countries in Europe. See figures II and III.

Thus, an aspirant entering the sea career at the age of 18 can boast of a good nationally recognized degree and a bank of sea experience by the time he is 28 years or there about. This is the age at which most people start their second career in life. They now have an excellent option of either settling down on a particular shore job or advancing further in some areas of specialization for another two to three years of study.

6.3.1 THE DANISH SYSTEM

In Denmark, maritime education and training is under the management and control of the Directorate of Maritime Training which is an institution under the Ministry of Industry. The Directorate is responsible for the operation of all maritime schools and training ships. Appointment of teachers to schools, allocation of resources, development of syllabus for individual subjects, issuing of text books and other books used by the school and preparation and conduct of examinations fall within the purview of the Directorate.

Although the nautical schools in Denmark are very much centrally controlled, but there is an excellent communication links between all those individuals and bodies that make the system work. Thus, teachers and students are consulted when-ever any decisions affecting them are to be made. Also, an advisory committee on maritime education which is made up of representatives of the Government, shipowners, seafarers, shipmasters, mates, radio officers, cook and steward organization, motormen union, fishing boat owners society, shipmasters for smaller ships, Ministry of Defence, students organization, seamen union and organization of teachers at navigation schools among others, meets once a year. Their discussions greatly influence the decisions and instructions of the Directorate.

Denmark cherishes the principle of education based on training and enriching individuals knowledge for his/her personal betterment. Based on this premise, all education and training in Denmark is financed by the Government, seamen's education and training being no exception.

All persons wishing to be trained as either ordinary rating and/or an officer, first go through a pre-sea school for five months after nine to twelve years of primary or secondary schooling. The pre-sea training is compulsory irrespective of educational background. There are five such pre-sea schools, three being state schools and two private schools. The private schools are approved by the Government and receive state aids. During the five months course, the trainees are instructed in basic practical ship's work especially in the use of safety equipments

in the ships. Some general subjects such as Danish, English, Sociology, Mathematics, Physics and Gymnastics are also taught during the same period.

On successful completion of the pre-sea training, the trainees are sent out on board merchant ships for the necessary sea training. The training period required can be completed in different ways as follows:-

- through a five months' voyage on the training ship "DANMARK" followed by 16 months' service as mate apprentice.
- through 21 months' service as mate apprentice in merchant ships.
- through 21 months' service as ordinary seaman followed by a special course of ten weeks at a school ashore.
- through 36 months' service as ordinary seaman or able seaman in merchant ships.

On completion of the training period at sea, the trainees are admitted to any of the four navigation schools in Denmark. The period of study at the navigation schools is three years. Students who, however, have followed correspondence courses or in some other manner acquired the necessary foundation for further study may sit special entrance examination and if successful, may skip six to twelve months of the normal study time at the navigation school. The whole course of study right up to Master's examination is done in one stretch if the student wishes to do so.

6.3.1.1 ISSUING OF CERTIFICATES

Along the three years period of study at the navigation school, certificates are issued to students who had completed some part of the study and wished to go back to sea before completing the rest of the study. Thus, after successful completion of 12 months in the mates class, one can obtain a second class certificate which will enable the recipient to serve in the capacity of second/first officer in merchant ships or as a chief officer on vessels less than 1600 tons unrestricted trade. Up to 24 months sea service of which 12 months will be served as a

chief officer can earn the recipient a Master second class certificate without any examination. A holder of Master second class can serve as a Master of vessels of 1600 tons.

Those who go the whole hog of three years continuous study obtain, on passing the Master's examinations at the end of three years, a mate's certificate first class entitling the holder to sign on any Danish vessel, irrespective of tonnage and trade, as chief officer.

The Master's certificate is obtained without any further examination but requires the holder of mates certificate first class to serve as a deck officer for not less than 24 months out of which 12 months should be in the capacity of a chief officer. Alternatively the holder of mates' certificates first class can serve as an officer for a period of 60 months out of which 36 months should be in the capacity of a second officer in ships larger than 1400 tons (43).

6.3.2. WEST GERMAN SYSTEM OF MARITIME EDUCATION AND TRAINING

Recently, an attempt was made in West Germany to merge together nautical academies and polytechnical colleges into one national education system. Thus, all polytechnics and nautical academies run three years courses.

Generally, there are three levels of education before the tertiary level. The primary and secondary education are combined together requiring each child to be at school for either 9, 10 or 13 years respectively. Those able to complete 13 years schooling have the opportunity of entering either into a university or a polytechnic.

Entrance qualification into any nautical academy in West Germany has been designed in a way to cater for the three levels of primary cum secondary education. Students with only 9 years of primary/secondary education are admitted for Master's coastal trade certificates whilst those students who had 10 years of schooling are good enough to study for medium trade certificates which will entitle them to sail on vessels of 1600 g.r.t. The holders of medium trade certificates can also serve as watch keeping officers in any foreign trade. The Master's certificate courses require the highest entry qualification of 13 years primary/

(43) The information on the Danish System was based on the personal interview the writer had at the Directorate of Maritime Education - Denmark. November 1984.

secondary schooling. Opportunity also abounds for those studying for lower grade certificates to switch over for higher grade certificates.

All aspirants for the various grades of certificates must first attend a sort of orientation course for two years. This course does not follow a definite pattern but the strength lies in the combination of instructions at workshops, training ships and courses in safety at sea. At the end of the two years course, students are then sent to sea as able seamen for 18 months sea experience.

On completion of the required 18 months sea service and in line with the system of courses in the polytechnics, aspirants for Master's certificates do a three years straight study. At the end of the three years study, successful students are awarded foreign going watch keeping certificates. From this point, there is no more examinations needed other than two years sea service to be eligible for the issuance of a foreign going Master's certificate.

6.3.2.1 GRADES OF CERTIFICATES

West German marine certificates of competency are divided into three main groups mainly - (a) coastal trade certificates (b) medium trade certificates and (c) foreign going trade certificates. For each of the certificates, the following requisite conditions must be met -
Coastal Trade Certificates:-

- a minimum of 9 years schooling
 - 2 years pre sea training
 - 18 months sea service experience
 - 18 months study at the nautical school.
- successful candidates at the end of the course receive watch keeping certificates.
- 2 years sea service as a watch keeping officer on coasters
 - Eligibility to serve as a Master on any coasters after accumulating 2 years sea service as a watch keeping officer.

Medium Trade Certificates:-

- a minimum of 10 years schooling
- 2 years pre sea training
- 18 months' sea service experience
- 2 years study at the nautical school.
Successful candidates at the end of the course receive watch keeping certificates.
- 2 years sea service as a watch keeping officer on medium trade vessels. (the limits of trade are designated by the Government from time to time)
- Eligibility to become a Master on any medium trade ships after the necessary 2 years sea service as a watch keeping officer.

Foreign Going Trade Certificates:-

- a minimum of 13 years schooling.
- 2 years orientation courses.
- 18 months sea service experience.
- 3 years full time study at the nautical school.
Successful candidates at the end of the course receive watch keeping certificates in addition to a diploma certificate in nautical science.
- 2 years sea service as a watch keeping officer on unrestricted foreign going ships.
- Eligibility for a Master's certificate of competence without any further examinations what-so-ever on completion of the required 2 years sea service as a watch keeping officer.

The new system of education, training and certification for seafarers has been developed after due consultations with all interested parties and in line with the national education policy. It would appear that in arriving at this system that the national and social conditions of the country had been taken into account. The system serves both the interests of the industry and the seafarers themselves (44).

(44) The information on the West German system was based on the personal interview the writer had with the Rector of the Bremen Nautical Academy on the 28th November 1984 - Bremen.

6.4 THE AUSTRALIAN SYSTEM

Australia, as an older member of the commonwealth, had operated a system of marine certificates of competency which was closely based on the United Kingdom system. As was the case before the new Australian Maritime College was established, the certificates of competency and the way in which the examinations were operated, followed closely on the United Kingdom system.

But during the late 1960's and early 1970's, there were some significant developments taking place on the international scene. Many of the established maritime countries were reviewing their traditional systems of maritime education and training. And in the later part of the 70's, work was proceeding towards the 1978 STCW convention. The United Kingdom whose system Australia had traditionally followed, was also at this time beginning to develop the maritime diploma and degree courses within its national education system and at the same time developing a new structure of certification. These moderate changes precipitated a growing awareness in Australia that their marine training provisions were lagging behind those of other countries. There were also a scarcity of highly qualified staff who generally had to be recruited from overseas because there were no courses in Australia leading to the highest maritime qualification. All in all, it seemed an appropriate time for Australia to review its own requirements (45).

Thus, the many investigations, discussions and inquiries involving the shipping and fishing industries, regulatory authorities and the commission on advanced education led to the development of a proposal urging the Australian Federal Government to establish a national facility. Eventually, a commission of inquiry into the maritime industry was established in 1973. The Government asked the commission (which had wide-ranging terms of reference covering the operations of the maritime industry) to report as a matter of priority on - "the training requirements of the industry including the establishment of an Australian Merchant Marine College. The Commission submitted its report (known as the "Summers" report (46)) in May 1974. The major issues dealt with

(45) Waters D.M. - Unpublished Lecture notes on "Maritime Education" at the World Maritime University - 1984.

(46) Summers M. M. was the Chairman of the Commission of Inquiry into the maritime industry, Australia. - "Report on training requirements for sea going personnel" - 1974.

in the report were (47):-

- whether all those who work on Australian commercial ships were trained to a high enough standard using the present system,
- whether the present methods of certifying crew's competency was suitable now and for the future,
- whether there is a need for more technical training and a higher level of education,
- whether an Australian Merchant Marine College should be established to provide a complete and extended education for seafarers.

With such questions as - "what are the possibilities of handling shipping in the future with people trained in the present way ?" and "can we expect to be able to find good crew to handle ships that cost millions of dollars ?", the commission did not find it difficult to conclude that training for the shipping and fishing industries was inadequate; that the Government should establish a central maritime college within the advanced education sector; that the college should offer courses for deck, engineer, radio officers and masters of large fishing vessels; that the college should guide and co-ordinate marine training offered by technical colleges servicing local requirements elsewhere in the country; that the college programme should incorporate the traditional "Safety Oriented" certificate of competency requirements within systematic courses of education and training and that the department of transport should phase out its own examinations for competency certificates and accept college passes in their stead. The college programmes should also encompass commercial and managerial work - not required for the certificates of competency - and lead to recognized educational qualifications. The report deplored the existing pattern of marine education and qualifications which was set before a national system of technical education was developed and remained largely outside the national system, with responsibility for costs remaining with the shipowner and the seafarers.

In November 1974, the Government accepted the commission's

(47) Report of the commission of inquiry into the maritime industry, Australia. 1974.

findings and agreed to establish an Australian Maritime College. The Maritime College Act 1978 formally established the Australian Maritime College as a Federal Statutory authority - governed by its own council. As a national institution - established and fully funded by the Federal Government - the college is the only one of its kind in Australia providing exclusively for maritime and maritime related education and training.

(48) The college has three schools namely, Nautical Studies, Engineering and Fisheries. Courses offered within the School of Nautical Studies are as follows:-

- Diploma of applied Science (Nautical Studies)
- Bachelor of applied Science (Nautical Studies)
- Postgraduate Diploma in Hydrographic Surveying
- Bridge courses

Within the school of Engineering courses offered include:-

- Diploma of Engineering (Marine)
- Bachelor of Engineering (Marine)
- Associate Diploma in Marine Radiocommunication
- Associate Diploma in Maritime Electronics
- Radar Maintenance
- Post-Experience Diploma in Marine Technology and Management

The School of Fisheries provide the following courses:-

- Certificate of Technology in Fisheries operation
- Diploma of Applied Science (Fishery Technology)
- Postgraduate Diploma in Fisheries Technology
- Bridging Courses

6.4.1 DIPLOMA OF APPLIED SCIENCE (NAUTICAL SCIENCE)

The course is of four years (eight semesters) duration. It is a sandwich course - that is, periods at college are interspersed with marine industrial training. For entry into the course, applicants are required to meet tertiary admission standards set by the state in which they completed secondary education. Satisfactory results at higher school certificate (HSC) or equivalent level in mathematics, english and

(48) From the Prospectus of Australian Maritime College.

physics or a related subject are normal requirements for this course. Applicants must be able to gain industrial experience and normally do so through a cadetship with a shipping company. Sometimes, special entrance consideration may be given to candidates, including mature age applicants who do not meet normal entrance requirements. Statutory exemptions may also be made for statutory certificates of competency up to and including Master class one level. The course gives intending deck officers and professionals an academic grooming in the practical training necessary for progression from junior officer to shipmaster. The graduate may become a ships navigating officer, work in pilotage or for a marine or government authority.

6.4.2 BACHELOR OF APPLIED SCIENCE (NAUTICAL STUDIES)

The course is of three years duration with a lapse of one year being possible between each year of study. Entrance requirements are similar to those required for Diploma of Applied Science, The degree course is intended to provide a professional qualification for those wishing to advance to positions of higher executive responsibilities in the shipping, port and allied industries. Students may later pursue specialist options in the areas of technology, navigation and commerce.

The Bridging courses are designed for the student without the required normal entry qualifications for diploma and degree courses. The courses are intended primarily for serving seaman and shipwrights and are tailored to meet individual needs. Holders of certificates of competency may qualify for advanced standing in diploma and degree courses provided they satisfactorily complete a course of bridging studies.

6.5 THE AMERICAN SYSTEM

There are three basic systems leading to the qualification of a deck or engineer officer in the United States Merchant Marine namely:-

- To enter the merchant marine academies after completing high school
- To complete three years sea-service as a deck or

engine room rating and then sit the third mate or third assistant engineer licence examination conducted by the United States Coastguard

- To complete a short course at one of the institutions run by the unions or private institutes after completing the required sea-service and then sitting the licence examination

There are six merchant marine academies in the United States accepting high school graduates for training to become deck or engineer officers. The major academies are:-

- The Maritime College - State University of New York (Fort Schuyler)
- The Moody College of Marine Science - Texan A & M University
- California Maritime Academy
- Maine Maritime Academy
- Massachusetts Maritime Academy
- Great Lakes Maritime Academy (for officers of Great Lakes Ships)

(49) The main objective of these institutions is to give students an academic background for a Bachelor of Science degree in addition to offering the necessary professional training for licences in the United States merchant marine and also an added opportunity to be commissioned in the United States Naval Reserve. The academies aim at providing a programme of sufficient depth to prepare the graduates to become leaders in the maritime industry both at sea and ashore. This involves a certain amount of character training as well as academic study. The normal entry requirements into the academies is high school graduation and ages between 17 and 22.

The United States merchant marine academy at Kings Point is run very much along military lines and all students follow a course of study that leads not only to a Coast Guard Licence but also to a reserve commission in either the United States Navy or the Coast Guard. Its present character has grown out of its links both with the state system

(49) Kinney S. Rear Admiral (Rtd.) - Lecture on U.S. System at the World Maritime University - Malmo, Sweden. 1984

of higher education and with the United States military. The course at the academy for both deck and engine cadets is of four years duration. Of this time the cadets spend 5 to 6 months at sea during the second and third year. During this period, work on all aspects of shipboard (including labour relations and ship's business) has to be carried out.

6.5.1 EXAMINATIONS FOR LICENCES

Besides the academic examinations held in the various maritime academies, the students must sit for the examination conducted by the Coast Guard for the 3rd mate or 3rd assistant engineer certificates. The academies do not award a degree to a student until he succeeds in the licencing certificate. In the same token, the Coast Guard will not allow any student with unsatisfactory results at the academy to sit for licencing examination as remission of sea-service is earned on the grounds of successful academic training at college. Cadets who fail in their academy examinations but who wish to continue their career at sea, go onboard ships as ordinary seamen until they acquire three years sea service and then sit for their Coast Guard Licence.

6.5.2 CERTIFICATION OF OFFICERS

There are principally four statutory certificates for deck officers and for engineer officers.

They are:-

Third Mate	Third Assistant Engineer
Second Mate	Second Assistant Engineer
Chief Mate	First Assistant Engineer
Master	Chief Engineer

To gain a certificate as Third Mate or Third Assistant Engineer, a candidate must be at least 19 years of age and have had three years service at sea or alternatively he must be a graduate of a Merchant Marine Academy. Satisfactory completion of a course at a United States Government operated training school earns four months remission of

sea-service. To gain a certificate as a Second Mate or Second Assistant Engineer a candidate must be at least 21 years of age and have served as Third Mate or Third Assistant Engineer for at least a year. After a year's service as Second mate or Second Assistant Engineer, the Chief Mate or First Assistant Engineer's licence is awarded. Finally, at 23 years of age with a year's experience as Chief Mate or First Assistant Engineer, a Master's or Chief Engineer's licence may be obtained. Deck and Engineer officers may attend upgrading course at private or union schools prior to sitting the various examinations, but this is not compulsory. These courses tend to be of about two months duration.

The Licence examinations are held in 23 centres in various parts of the United States, once each month. The results appear after 10-15 days. All answer papers are forwarded to a central examination centre for grading. Failure in up to two sections incurs referrals and in more than two sections attracts the penalty of complete re-examination.

CHAPTER 7

PROPOSED SYSTEM FOR NIGERIA

7.1 AN OUTLOOK INTO THE SYSTEM

From the scenario of all that have been said in the previous chapters, there is no doubt what-so-ever that the Government in deciding to establish the Nautical Institution at Oron looked beyond her borders and took a periscopic view of the future. A country with a population of well over 80 million people; a coast line of more than 600 nautical miles; that generates over 70 percent of the entire sea borne trade in the West and Central African sub-region; an oil exporter; a tremendous agricultural potentials and unlimited quantity of mineral resources yet un-tapped must be prepared for the role she is destined to play in the regional and international seaborne trade.

The concept of education is in most cases linked with the concept of "human capital" as a factor of production in the development process. But on a broader sense, education should also be seen as a means of enriching an individuals knowledge and developing his full personality in order to assert his own real existence. It is a pre-requisite to better thinking; a means to move from one state of knowledge to a better one; it affords the opportunity to create a disciplined nation; assists in the planning and formulating of actions, taking decisions and making choices for the future. The government policy should not be related only to the demand and supply market of the industry but should rather offer free and fair opportunity to every individual wishing out of his volution and choice to enter the industry. This is why it seems to me that any approved model system of maritime education and training should be intergrated with nationally recognized qualifications gained through greater use of the land-based national education system. The advantage of this system lies in the offer of flexibility of job opportunities.

The Nautical College should be looked upon as the Central Maritime College in Nigeria where the education and training of all personnel engaged in shipping and shipping related industries could be trained to the highest internationally recognized standards particularly in the areas of safety at sea and oil pollution prevention. One of the great advantages of centralization is that a great number of students could very well benefit from advanced equipments than would have been possible if different courses are held in a number of ill-equipped schools and quasi colleges.

Nigeria has a commendable high rate of literacy although the percentage varies from one region of the country to another. In some areas, the literacy rate is well over 70 percent. With over 23 universities and over 17 colleges of technology and Polytechnics, the number of graduates coming out each year from these institutions surpass the available job opportunities in the country.

The present economic recession the world over has helped to worsen the labour market. Thus, it is quite common to see graduates remain unemployed for about 12 months and in some cases, depending on what one has studied, the period of applicant extends much longer. It is possible to devise a system which ought to attract these highly employable graduates with the advantage of shorter periods at school due to the high standards already attained. Also the cost of training will be very much reduced. For example, a cadet with a HND certificate will require a lesser time at the school but will meet the required minimum sea-service in line with the STCW Convention. The lesser time at school means reduced cost and a quicker turnout. Graduates with appropriate disciplines can also avail themselves of the opportunity. These crop of seafarers will eventually fill the high positions of nautical teachers and administrators; maritime lawyers, surveyors, adjusters, marine insurance executives, port managers, marine economists, naval architects and maritime consultants.

In designing a system, notice should be taken of the two main universally accepted streams of education and training of seafarers namely - Front End system and Horse-Pipe method. The former simply

means that a higher entrance qualification is required and entrants go through systematic planned training programme designed to produce officers capable of filling top positions in both Government and private sectors. The horse pipe method is a system designed for the lower rank and file to lead them at their own pace to higher positions in the ship. Unlike the front end system, those who pass through the horse-pipe system tend to stay at sea longer and more dedicated in their duties. Thus, the system to be adopted should be flexible enough to accommodate both types of training with marked bias towards the horse pipe system for the retention of hard-core officers and ratings.

7.2 PROPOSED SYSTEM FOR TRAINING OF RATINGS

Hitherto, there is no requirement for formal training of ratings in our ships nor is there any requirements for any qualifications. The sophistication of modern ships designs, automation, new modes of carriage of goods and the requirements of international conventions have totally changed the traditional roles of ratings a decade ago into a scientific and dynamic role. The operation of a ship now demands that the lowest cadre of ship's personnel should be trained in a way to complement the duties of officers. Days are gone when the primary duties of ratings are restricted mainly to painting and general cleanliness of the ship. Now, by STCW convention, the ratings forming part of a navigation/engineer room watch should be included in training schemes. They are playing greater role in matters of safety at sea and pollution prevention. Infact, it is becoming a common trend in large shipping companies in traditionally maritime countries to evolve a common entry point for both cadets and ratings thus offering equal opportunity for everybody to rise to the very top.

The training ought to be structured in a manner that the standard career ladder from a rating to a bridge watch keeping officer should be achieved in a reasonable training period especially for ratings with above average standard of education. Further-more, the rating should

be trained for general purpose duties - that is - each rating is trained in both deck and engine room duties. This option will help serve the following purposes:-

- to prepare for the increasing trend in reduced manning occasioned by increasing use of sophisticated equipment, thus maintaining the advantages of low crew cost
- the standard of training will be high as would knowledge of general safety precautions increase
- middle manpower would be created with real possibility of securing alternative jobs ashore when redundancy exists on ships
- to attract international shipowners to employ our ratings.

For all the proposed system - both for ratings and officers, it is absolutely necessary that every new entrant to the profession should first attend a pre sea course at the college before going to sea. The main reason for advocating this principle is that it is of utmost importance that new entrants should first be taught something about safety on board for their own safety and those with whom they are going to work with and how to protect themselves against dangers and accidents. They should also know the basic operational systems on board and how to behave on board.

7.2.1 TRAINING STRUCTURE

- a) Entrance Qualification - Due to the high standard of education and training required by international conventions and the changing nature of ships' operation, new entrants should have attempted West African School Certificate examination or completed successfully junior secondary education in addition to other vocational training.
- b) Age - Entrants should be between 18 and 22 years old and must be physically and psychologically fit with good eye sight and hearing qualities.

- c)
1. A three months pre-sea training for the very new entrants in subjects dealing mainly in safety and engine room tools and routines.
 2. 18 months sea-service as ordinary seaman or engine room cleaner.
 3. 3 months at school when the following subjects will be undertaken.
 - Proficiency in survival, seamanship, fire-fighting, engineering knowledge.
 - use of tools, piping system and safety aspects of engine room.

At the end of the course, successful candidates should sail as able seamen or as engine room greasers II.
 4. 12 months sea-service during which certain assignments will be required to be carried out.
 5. 3 months at school during which the following subjects will be taught.
 - the requirements of the STCW convention for ratings forming part bridge/engine room watch; seamanship, human relations on board, tanker safety courses.
 - At the end of the course, candidates should sit examinations for certificates as quartermaster or greaser grade I.
 6. 18 months sea service during which period certain job assignments should be performed.
 7. 3 months at college for river master certificate/head greaser certificate. Subjects to be taken should include introduction to chart and chart instruments. Bridge equipment, elementary knowledge of management, pollution prevention and seamanship. The idea will be to introduce at an earlier stage subjects that those who might be ambitious enough to pursue higher certificate would be required to know. Successful candidates will be issued with

a River Master's certificate. The holders of the certificates shall be entitled to be incharge of all crafts operating only within the inland rivers. The holders shall also be qualified to enter courses leading to higher certificates of competency.

7.3 PROPOSED SYSTEM FOR TRAINING OFFICERS

In the discussions throughout this sub-section, the emphasis will be on the education and training of officers who will man various types of ships and tonnages along near-coastal waters, short sea runs - inter-regional trades - and unrestricted deep sea sailing together with a number of sophisticated small ships in the fishing and off-shore exploration industry which operate beyond the limits of port state control.

Considering all that have been said before, one might seriously ask again whether in the present stage of technologicalized shipping industry, should continuing education and training of officers be provided within the land national education system of the country or in an exclusively and purely marine establishment. I believe it is in the best interest of the industry and the seafarers themselves that any system of maritime education and training designed should be linked to the land national education system for three considered reasons:-

- It would appear that from the trend all over the world, the majority of those joining the industry in recent years make seafaring career a relatively short one. The implication of this phenomenon is that people who will take up the career will only do that if the training they undergo has status in industry generally and this could only be possible if the maritime college is intergrated with the national education system.
- The number of prospective trainees required in our shipping industry now and in the foreseeable future will always be moderately and relatively small. An exclusive college might not be able to sustain the appropriate facilities and create the necessary environments to ensure that it keeps pace with changes in the industrial world.

- The comparable small trainees involved would make a maritime college separate from the national education system of the country financially costly because the cost of equipment and facilities necessary to offer the trainees the type of education and training required to make them flexible in relation to job opportunities ashore and encourage further independent learning and research, is very high.

If we are to have a system that offers a wide range of opportunities to a very large spectrum of the population; an opportunity to conduct research and a desire for critical thinking and specialization, then, the college must be affiliated to other institutions of higher learning.

7.3.1 TRAINING STRUCTURE

The scheme we should be aiming at should encourage both the Front-End and Horse-Pipe methods of education and training. This means that the entrance qualifications should be as flexible as would allow each individual to work towards the top at his own pace and under his own peculiar physical and psychological conditions. The possibility of changing from one course system to another must also be taken into consideration in order to encourage brilliant and ambitious seafarers as well as making allowances to accommodate the oblique cases.

Greater use of already trained professionals should be encouraged as a matter of Government policy at the present stages of our development as such policy will provide the following advantages:-

- the scheme will allow the professionals to select a sea-going career at a more mature age.
- shorter duration of training leading to lesser costs.
- officers are less likely to leave the marine environment when they finish and seek employment outside the industry.

- the calibre of officers the scheme will produce will have the ability to tackle new problems, perform training role in the industry and carry out professional research
- there should be positive improvement in ship management leading to increased efficiency and safety at sea and prevention of pollution of the sea.

7.3.2 CERTIFICATE STRUCTURE

Since the type of certificates to be issued largely depends on the various levels of scheme of training in line with the STCW convention, it is important to touch on the subject. Training and certification should be well understood. An institution can have two or three basic training programmes but as many certificates as possible can be issued depending on the required sea time. Also, certificates can be issued on basis of area of operation and size of vessels. It is a matter of each country devising their own system taking the STCW conventions as a guide line.

At this juncture, it is necessary to briefly touch on the United Kingdom new system of "Class Certification" which appears to offer the best flexibility and mobility to certificated officers for serving in different ships. Previously in the United Kingdom, they had two basic types of certificates namely foreign going certificates of competency and home trade certificates of competency. The education and training for the holders of the two different certificates were such that it was not always easy and/or even possible in certain cases for a home trade certificate holder to serve as a watchkeeping officer in a foreign going ship. By introducing a system of "Classed" certificates numbering from class one certificate (the highest) to class five certificate (the lowest), majority of officers could serve with endorsement where necessary, both on home trade ships and foreign going ships. Only holders of Class V certificates are not allowed to sail as watch keeping officers on foreign going ships. What this means is that the education and training of certi-

ficated officers are uniformly standardized in line with STCW convention.

It is recommended that the system should be studied carefully and be applied to suit our own needs. The system offers a step by step progression to the highest position. It is a way of encouraging those with motivation, ambition and intelligence to reach out for the future. The "Classed" system also creates a quasi equilibrium of demand and supply markets between foreign and home trade ships.

CHAPTER 8

RECOMMENDATION FOR THE IMPLEMENTATION OF THE PROPOSED SYSTEM

The world as a whole has been able to reach the present stage of civilization due to the diagnosis of the past which assisted in the planning of the future; a guided system of trial and error adventures and the courage, resolute ambition and dignity of mankind to better the past. We are very fortunate and privileged to have at our disposal the experiences and factors of development of countries far more advanced in the field of education and training of marine personnel. We should carefully relate such experiences to areas where they serve to improve our own system bearing in mind the political, social and economic conditions of the country. The major problem of nautical education in developing countries is that those who provide funds for the training are not always the same consumers of the products. Thus the discrepancy creates lack of national interest.

8.1 THE NAUTICAL COLLEGE - ORON

It is observed that since 1979 when the college started, no formal law (Act of Parliament) has been passed legally establishing the college. The college is controlled and run by the Ministry of Transport in the ambit of the permanent secretary's duties. This means that the college can only function on the personal disposition and degree of interest the incumbent minister and/or permanent secretary has on the college. As the posts of a Minister and permanent secretary are political, continuity of policy and purpose is bound to suffer. Therefore, efforts should be made to formally legalize the existence of the college by appropriate Government decree thereby specifying clearly how the college should be governed and the objectives and functions of the college. In line with what prevails

in other countries and institutions, an autonomous governing council comprising of representatives from the industry, academics, seafarers, ministry of education and Government should be established with the following objectives and functions.

Objectives

- To provide adequate facilities and offer instructions in line with international conventions for fundamental theoretical studies and practical training in maritime and maritime related subjects leading individuals to obtain various certificates of competency.
- To fashion the theoretical studies and practical training in such a manner as to take account of the needs and aspirations of individuals at the same time meeting with the present and future needs of the shipping and shipping related industries.
- To meet the needs of seafarers who wish to progress beyond the minimum qualifications or to diversify into other areas of study.
- To conduct degree programmes in shipping and shipping related subjects and to carry out research projects in areas of interest both to the industry and the college.
- To provide refresher training courses for the purpose of upgrading certificates of competency for serving officers at sea.
- To organize conferences and seminars when appropriate.
- To offer correspondence courses for seafarers wishing to prepare for full time studies at the college; and when and where appropriate, to conduct evening classes for up dating personal knowledge.
- To act as an advisory body on career paths for new entrants and especially for those who for health,

family or personal reasons have changed the original intention of a life-long seagoing career.

Functions

- To conduct an institution for the provision of such maritime and maritime related education and training as the governing council determines to be nationally and internationally sufficient requirements for persons who wish to become officers on our merchant and/or fishing vessels; or those who are engaged in connection with shipping.
- To use the facilities and resources of the college to meet the appropriate objectives and to advance and develop knowledge and skills in the fields with which the college is most suited for and concerned.
- To consult and maintain liaison with other institutions and authorities both in Nigeria and abroad that are concerned with the provisions of maritime education and training and in other related fields.
- To produce disciplined officers and create a conducive atmosphere for the fulfilment of any of the set objectives and proceeding functions.

8.2 LOCATION OF THE COLLEGE

It is on record that all the three different Government appointed bodies set up to look into the possibility for establishing a nautical college, recommended other sites other than Oron for the location of the college. Apparently, political factors heavily influenced the final choice of Oron as the suitable site. Oron is both geographically and strategically very remote from the majority of the population, the shipping industries and other institutions of higher learning. It is important in setting up a nautical college that due regard is taken of its closest association with the industry it is created to serve; that the various types of activities at the college are not isolated from the

shipping industry and the rest of other institutions of higher learning; that maximum use and knowledge can be derived from equipments in nearby institutions and that a greater number of the population can directly or indirectly gain academically from the college.

The college at Oron is still at its formative stage with no real infrastructures built in yet except for some magnificent buildings that remind people of the political vacillation of the last civilian administration. I am still of the opinion that the present building at Oron should be used for a new college of higher education and the nautical college moved to either Lagos, Portharcourt or even Calabar as originally recommended. The site of the college is in itself a problem that might inhibit among other things international and national co-operation.

8.3 ORGANIZATIONAL STRUCTURE

The college should, at its present developmental stage, have a simple organizational structure, but nearly identical to what exists in other institutions of higher learning. Depending on the progress and exigences of the college, review of the structure can take place at any time. There should be a Governing Council incharge of the overall policy and governance of the college. The Governing Council should have powers to carry out the following functions on behalf of the college:

- to enter into contracts
- to erect buildings
- to employ such staff as are necessary for the efficient performance of its functions.
- to do all things that are necessary or convenient to be done for or in connection with the performance of the college functions.
- to accept gifts, devices, and bequests made to the college, whether on trust or otherwise and act as trustee of money or other property vested in the college upon trust.

The Rector should be the chief executive and the overall head of the college. The Rector is only answerable to the Governing Council and has the unenviable task of conducting the affairs of the college from day to day. Assisting the Rector will be the Deputy Rector - (also holds the position of Director of Education and Planning) - and other heads of departments. For full details, see the organizational chart.

8.4 TEACHING STAFF

The backbone of any institute of higher learning is the arrays of highly qualified teachers that such institution can boast of. It is the members of the teaching staff that pioneer, evaluate, update and encourage personal study and research by students and the college as a whole. The teachers also instill discipline and integrity and good character in the body and mind of students thereby giving them not only education but also providing them with the temperaments for becoming good citizens and leaders.

With the exception of one lecturer, the rest of the teaching staff at the college are expatriate officers. For the stability of the college, the situation cannot be allowed to persist longer. Apart from the major problem of training qualified nautical teachers which takes sometimes 12 - 15 years of maritime training and academic proficiency, it is regrettable that the policies and attitudes of some Governments provide additional obstacles as succinctly stated by A. Sadek (50):-

- As far as the developing countries are concerned, there must be more awareness of the priority of the teaching staff problem. Once the decision of establishing a maritime institute is taken, the program of training the future teachers must commence even before laying the first brick in the buildings. This program should be carried out by sending the potential teachers to advanced maritime institutes abroad or to local universities and higher institutes of engineering and technology. To attract the proper candidates, good conditions of

(50) Sadek A. - "Problems Encountered in Establishing a Nautical College in an Emergent Country" - Journal of the Arab Maritime Transport Academy. Vo. 9 - No. 17, Page 4 - 10.

employment should be adopted. It is well known that seafaring officers find it difficult to accept teaching jobs because of its inferior salaries compared to the salaries at sea; some balance must be considered.

Besides, the training of teachers is much more important than the construction of buildings. Constructing a massive building and equipping it with the most modern laboratories and teaching aids is so much easier than building up a nautical teaching staff. It must be always borne in mind that the properly qualified teachers will themselves create programs, produce teaching materials, training aids and can really give an enormous output even in the total absence of grand buildings. Training the teachers should therefore take the first priority even at the expense of constructing the buildings.

Another questionable argument is the absence of candidates for teaching posts. It is quite evident that even the smallest and most poverty-stricken countries are always able to produce an adequate number of ministers, ambassadors and senior army officers, so why not maritime teachers too. The only solution to this problem is the creation of reasonably good conditions of employment to attract the potential teachers.

Government should be made more aware of the seriousness of the problem of the teaching staff. Employing foreign teachers should only be considered as a transitory stage. No school can depend totally on teachers from another country. Attractive conditions of employment should be offered in order to attract suitable Nigerians into the teaching field. One way of achieving this, is to equate the status of the nautical college to that of a university in order to have salaries high enough to attract qualified Nigerians.

8.5 PROCUREMENT OF EQUIPMENTS

What really makes a good nautical school tick, is the ability to conduct successfully special mandatory courses such as radar course, arpa/simulator course, tanker training, fire fighting courses and navigational aid/computer training. Thus, there should be a careful selection of necessary equipment needed to augment the special training courses in conformity with the STCW convention and beyond. The equipments should bear serious relevance to the particular courses or training offered by the college. The equipments should also have wider application and beneficial in training the generality of students. As new trend in ship design tend to lean on integrated automation and reduced manning which technical developments in shipping had already achieved, type and make of equipments to be used in the college should play a complementary role and assist in further research.

8.6 ADEQUATE AND DEPENDABLE LIBRARY:

Libraries have always been looked at as a reservoir of knowledge in storage. It is a reference place for the past, the present and the future. Some distinguished scholars think that a good library is better than a teacher. In fact, many academicians reached their highest eminence through studying from libraries. The importance of a well up-to-date library cannot, therefore be over-emphasized. A good library augments teaching, it encourages thinking, broadens the outlook of individual and enriches his knowledge and creates a disciplined mind. The set up of the library should be given priority.

8.7 RELATIONSHIP TO INDUSTRIES

Since nautical colleges are established to train qualified marine personnel for shipping and shipping related industries, it is only a matter of common sense that those industries should be actively involved in the formulation and design of the education and training of marine personnel. The increasing complexity of the modern ships require not only training in purely statutory obligations of safety at sea but also

far beyond the range of training that marine personnel should undergo. The shipping interests should feel free to indicate areas where the college should carry out research programmes. The best way to maintain such a vital relationship between the industries and the college is to appoint some representatives of the industries as members of the Governing Council and Academic Board members. This will no doubt keep either side abreast of issues of current concern to the other and will permit quick and effective adaptation to important changes and developments.

8.8 INTERNATIONAL CO-OPERATION WITH OTHER NAUTICAL COLLEGES

Shipping is the most international of all industries in the world. It can be said that all nautical colleges the world over face some common problems. But, what is not common is that these problems are solved differently by each institution. Through international co-operation, these common problems and people who are capable of solving them are brought together. For developing countries and/or newly emerging nautical colleges, the advantages such a co-operation offers are not only updating of knowledge and the feeling of being capable but also an invaluable communication link, exchange of ideas and a balanced platform of opinions and assessments on the common problems.

Oron college should endeavour to link up internationally with other colleges with good exchange programmes through which the staff can improve their own qualification and gain wider experience and influence on training requirements and offer sound advice to both Government and industry.

8.9 A LOOK INTO THE FUTURE

Future is all about people, events, conditions of success and failure and a probe into the uncertainties. In the words of R.H.A. Gezels, Principal Surveyor (51), Lloyds Register of Shipping:-

- The trouble with the future to-day is that it is so unpredictable. A decade ago social change fuelled by technology was just as rampant as to-day but it was

(51) A paper on "European co-operation and the EEC"- at seminar on "The Practice of Maritime Education and Training in Europe and the new IMCO Requirements"- Amsterdam 5 - 6 June 1980. Page 74.

change that was confidently known to be exponential. To-day, things are quite different; we have discovered that change itself has changed. Decisions that used to be easy have become difficult because of the many uncertainties. When information is purchased from futurologists and other scientists in an attempt to reduce the uncertainty, what just as often as not turns up is information about yet more, new uncertainties.

In planning for the future, we should critically look at the past and take adequate recognizance of the present. Shipping is becoming more and more competitive and expensive. The present world economic recession has made any conceivable prediction and decision more difficult. The fleets of the great maritime nations are fast shrinking and most of the developing countries are jittery over their shipping policies on whether to expand or find an exit.

What is not uncertain is that the progressive gains made in developing specialized and automated ships and the resultant reduced manning will no doubt continue to be the trend of the future. It is important therefore, to review constantly the type of maritime education and training offered to the students. Also, to attract the high calibre of officers for the future, it is inevitable that nationally recognised qualifications gained through greater use of national education system must be incorporated into future training system for seafarers. There is no doubt that the degree of expertise necessary in the top positions on a ship required broader based education and equal corresponding degree of specialised training. While smaller crews would be the order of the future, the number of highly skilled officers would at the same time be in greater demand.

Not-with-standing all that have been said, if we sincerely believe that the ship is, indeed, the central unit of operation around which maritime institutions and shipping systems revolve with the seafarer acting as the nucleus of that central unit, then we must heed the statement of G. Zade of the World Maritime University that:-

If you give close attention to acceptable on board

conditions and above all offer the seafarer 'officer' a chance by a well balanced curriculum to go ashore, there will be an increasing expectation that he will remain; but educate him in a way that forces him to stay at sea, for then he will leave under any conditions what-so-ever and he will contribute to the profession's reputation - who can go will stay.

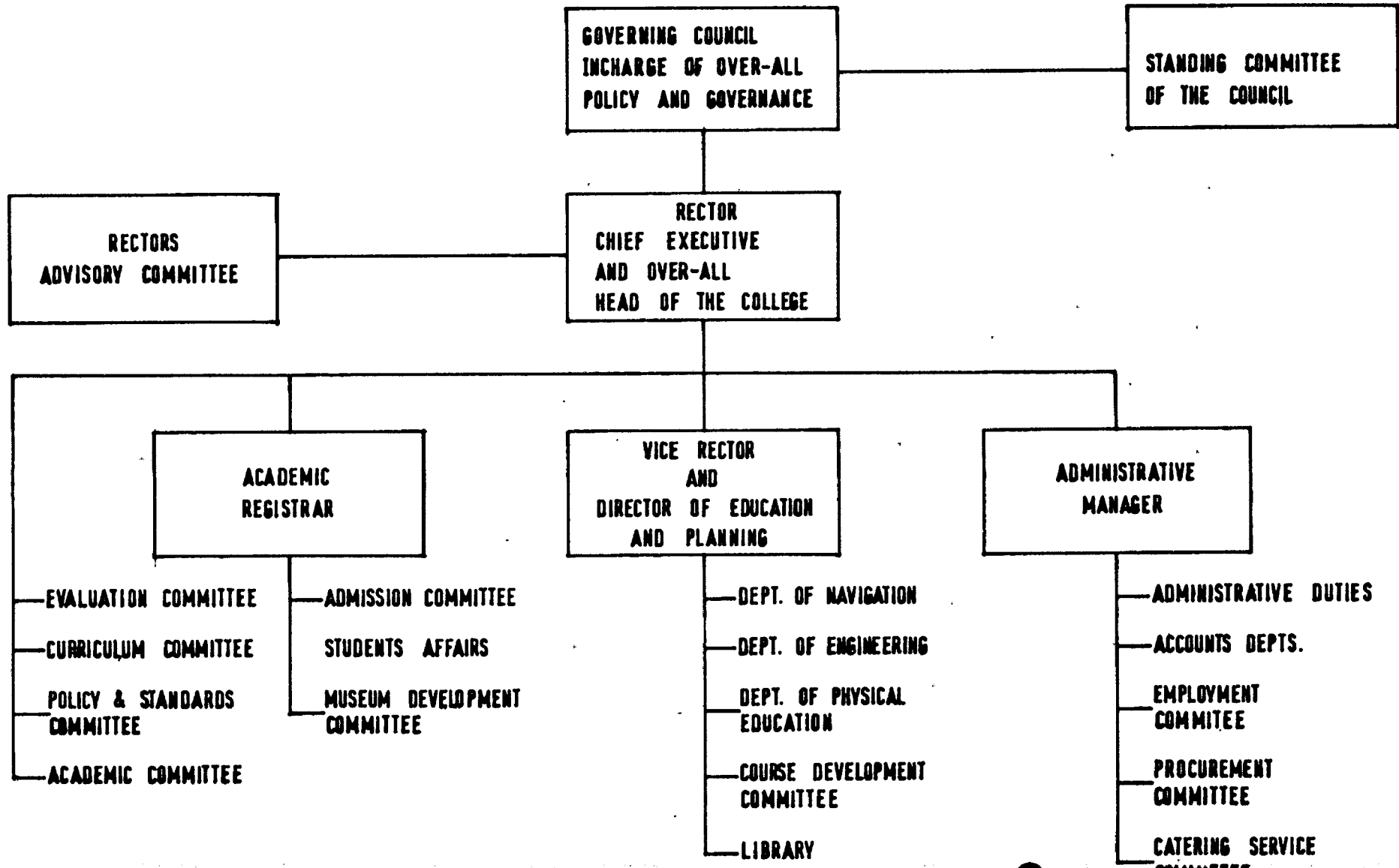
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RECOMMENDED ORGANIZATIONAL STRUCTURE



PROPOSED TRAINING SCHEME FOR RATING

3 MONTHS AT SCHOOL FOR
RIVERMASTER CERT. / HEAD GREASER CERT.

PHASE FOUR

18 MONTHS SEA SERVICE AS
QUARTERMASTER / GREASER I

3 MONTHS AT COLLEGE FOR
QUARTERMASTER CERT. / GREASER I

PHASE THREE

12 MONTHS SEA SERVICE AS ABLE SEAMAN
ABOVE OR GREASER II

3 MONTHS AT COLLEGE

PHASE TWO

18 MONTHS SEA SERVICE AS
ORDINARY SEAMAN / ENGINE ROOM CLEANER

3 MONTHS PRE SEA COURSE
AT COLLEGE

PHASE ONE

ENTRANCE QUALIFICATION

- (1) ATTEMPTED SCHOOL CERTIFICATE EXAMINATION
- (2) JUNIOR HIGH SCHOOL PLUS VOCATIONAL TRAINING

TRAINING STRUCTURE FOR RATINGS

The primary aim of the training structure of the scheme is to produce dual purpose ratings to meet the requirements of both Ratings forming part of navigational watch and an engine room watch. The scheme provides for adequate basic education and long practical sea experience. It also lays the basic foundation for those willing to enter the next stage of officer's course.

(a) Entrance Qualification:-

The increased use of automation and the ever-changing nature of international seaborne trade and the high standard of education and training required by international conventions require that ratings of the future must possess sufficient and basic educational knowledge. Thus attempted West African school certificate and/or junior secondary school level plus vocational training should be considered as the minimum standard qualification. The new educational policy, that is the 6-3-3-4 system, has been taken into consideration.

(b) Age:- Entrants should not be less than 18 years of age. Must be physically and psychologically fit with good eyesight and hearing qualities.

(c) Phase One:- A three-month pre-sea training for the new entrants in subjects dealing mainly in safety, engine room tools and routines on board ships. 18 months sea-service follows during which they sail as ordinary seamen/engine room greasers.

(d) Phase Two:- Three months at the college when the following subjects will be undertaken - Proficiency in survival techniques, seamanship, fire fighting, engineering knowledge - use of tools, piping system and safety aspects of engine room, health hazards and personal safety. At the end of the course, successful candidates should sail as able seamen on deck and/or work in the

engine room/greaser II. 12 months sea-service follows during which period they acquire the ability to steer the ship and comply with helm orders.

- (e) Phase Three:- Three months at the college to meet the full requirements of STCW convention for ratings forming part of a navigational watch or forming part of an engine room watch. In addition, elementary knowledge and how to handle dangerous and hazardous cargoes should be taught. At the end of the course, candidates should sit examinations for certificates as quarter master/greaser grade I. Then 12 months Sea Service follows.
- (f) Phase Four:- Six months at the college leading to a River masters certificate/Head greaser certificate (candidates are to take at this level an option of either seating for river masters certificate or head greaser certificate). For river masters certificate, the subjects to be taught are - chartwork, practical navigation, general ship knowledge, meteorology, seamanship, mathematics, general sciences, signals, bridge equipments, elementary knowledge of management and simple economics. The idea is to introduce at the very early stages subjects that those who might be ambitious enough to pursue higher certificates are required to know. Successful candidates will be issued with a river masters certificate. The holder of this certificate shall be entitled to be in charge of all vessels operating only within the inland rivers. The certificate also qualifies the holder to enter for courses leading to higher certificates of competency.

PROPOSED SYLLABUS FOR RATINGS' TRAINING

Phase One

1. Basic knowledge of different parts of the ship and engine room.
2. Personal safety and the safety of others and the environment, health hazards.
3. Ship routines.
4. Proper use of deck and engine room tools.
5. What to do during emergencies.
6. Various deck and engine room duties.
7. Inculcate discipline and self-respect
8. How to take and obey orders.
9. To practice ship steering at sea.

Phase Two

1. Proficiency in survival
2. Seamanship.
3. Fire fighting.
4. Engineering knowledge - use of tools, piping system, safety aspects of the engine room.
5. Principle of first aid.
6. Knowledge of the various compasses in use in the ship.
7. How to steer ships and take helm orders.
8. Understanding ship's vocabulary.
9. Understanding the terms used in machinery and names of machinery and equipments in use in the engine room.
10. How to keep a proper look-out.

Phase Three

1. An update of the knowledge of various compasses.
2. How to change-over from automatic pilot to hand steering and vice-versa when required.
3. Knowledge of the use of appropriate internal communication and alarm systems (including the engine room system).

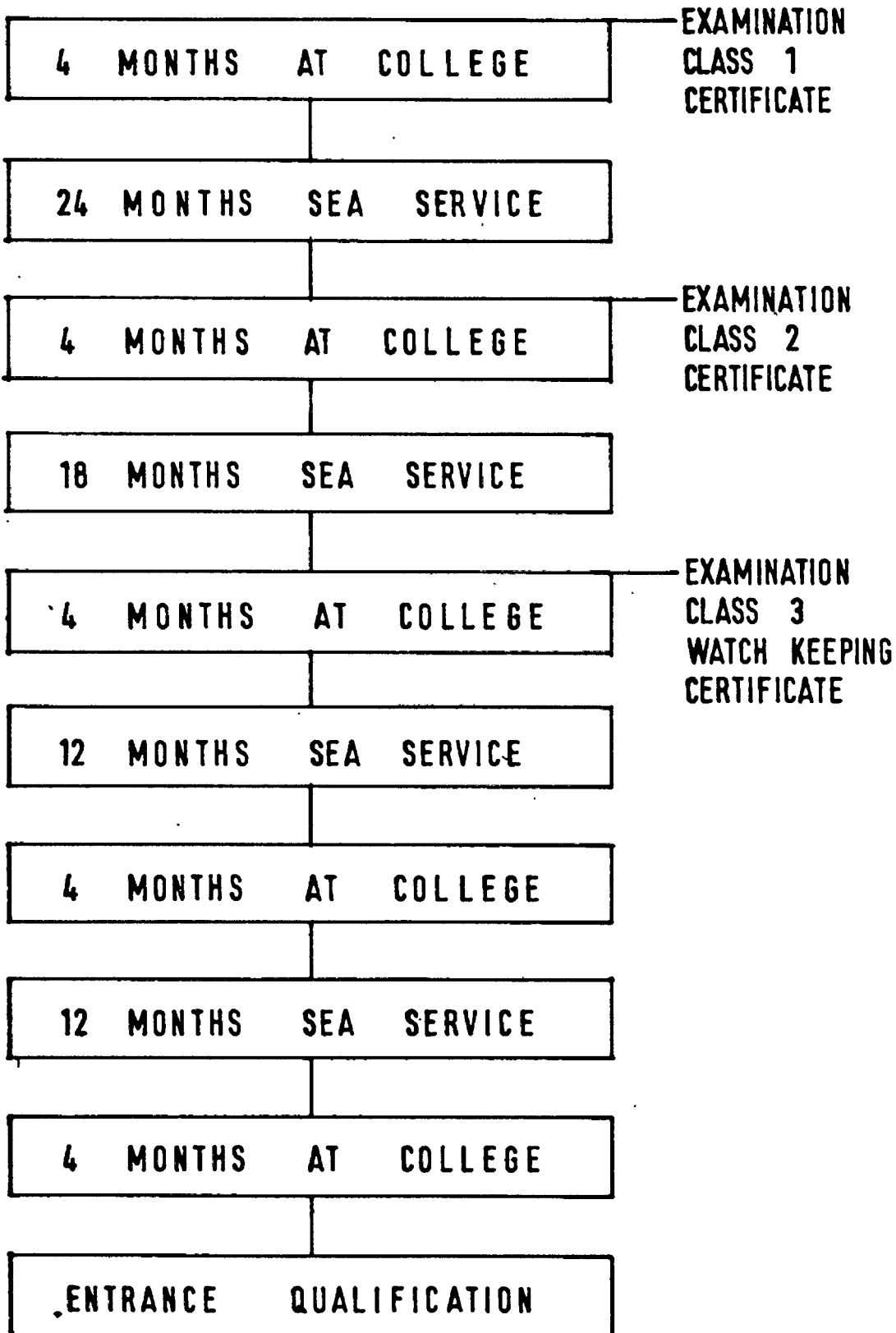
4. Knowledge of pyrotechnic distress signals.
5. Knowledge of emergency duties.
6. Knowledge of safe operation of boilers.
7. Knowledge of escape routes from machinery spaces.
8. Knowledge of various locations and use of fire-fighting equipments in the engine room.
9. Understanding of human relations on board.
10. Pollution prevention measures.
11. An up-date in seamanship.
12. Tanker safety requirements.

Phase Four

1. Review of mathematics.
2. Chart Work and chart instruments.
3. Practical elementary navigation.
4. General ship knowledge.
5. Elementary principle of meteorology.
6. Seamanship.
7. Signals.
8. Introduction to radar principles.
9. Elementary economics with emphasis on transport.
10. Industrial relations.
11. Elementary knowledge of management.
12. Elementary knowledge of maritime law.
13. General science subjects.

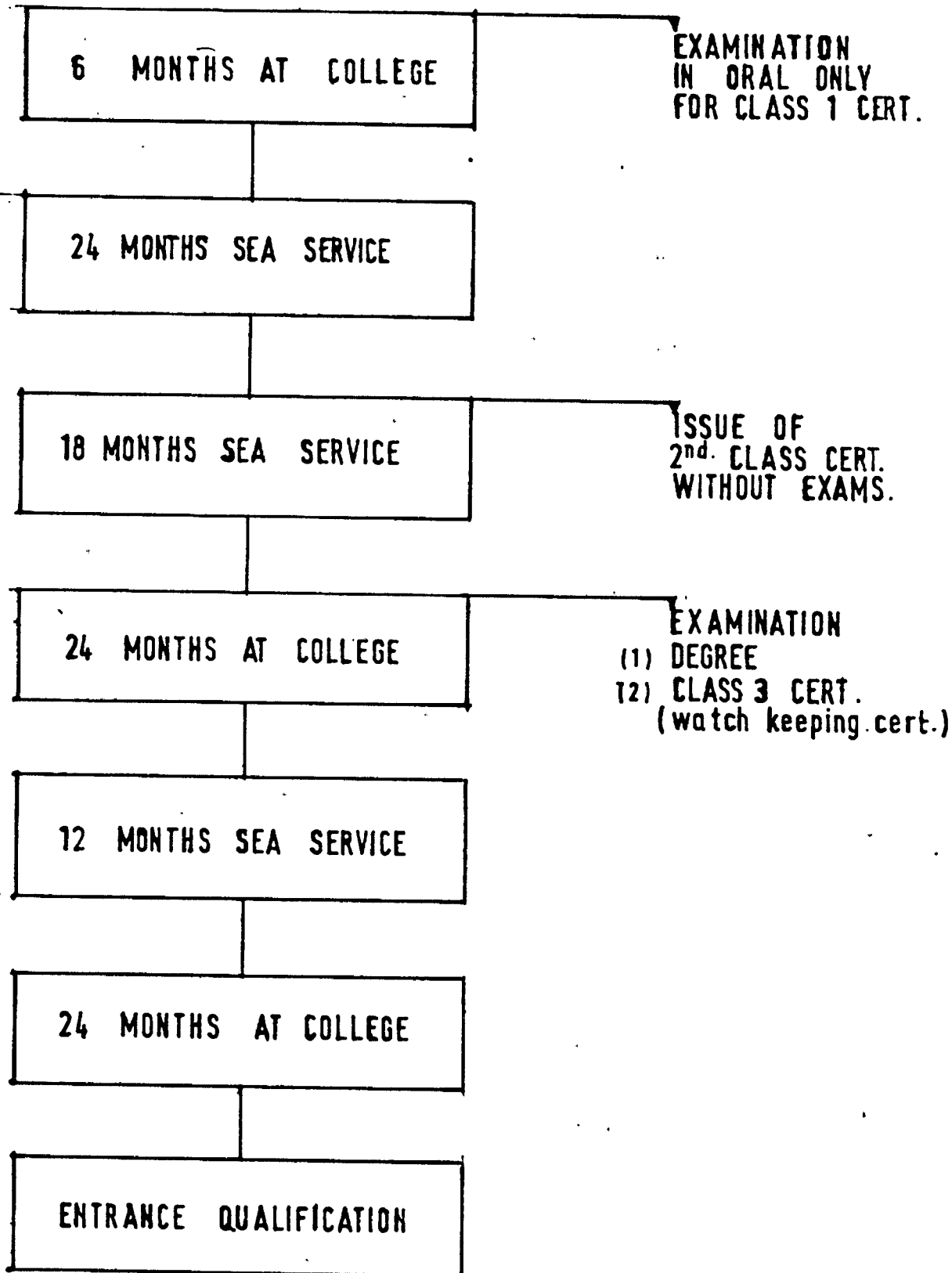
PROPOSED TRAINING SCHEME FOR OFFICERS

SCHEME "A" ENTRANCE QUALIFICATION — A RECOGNISED
DEGREE IN APPROPRIATE DISCIPLINES

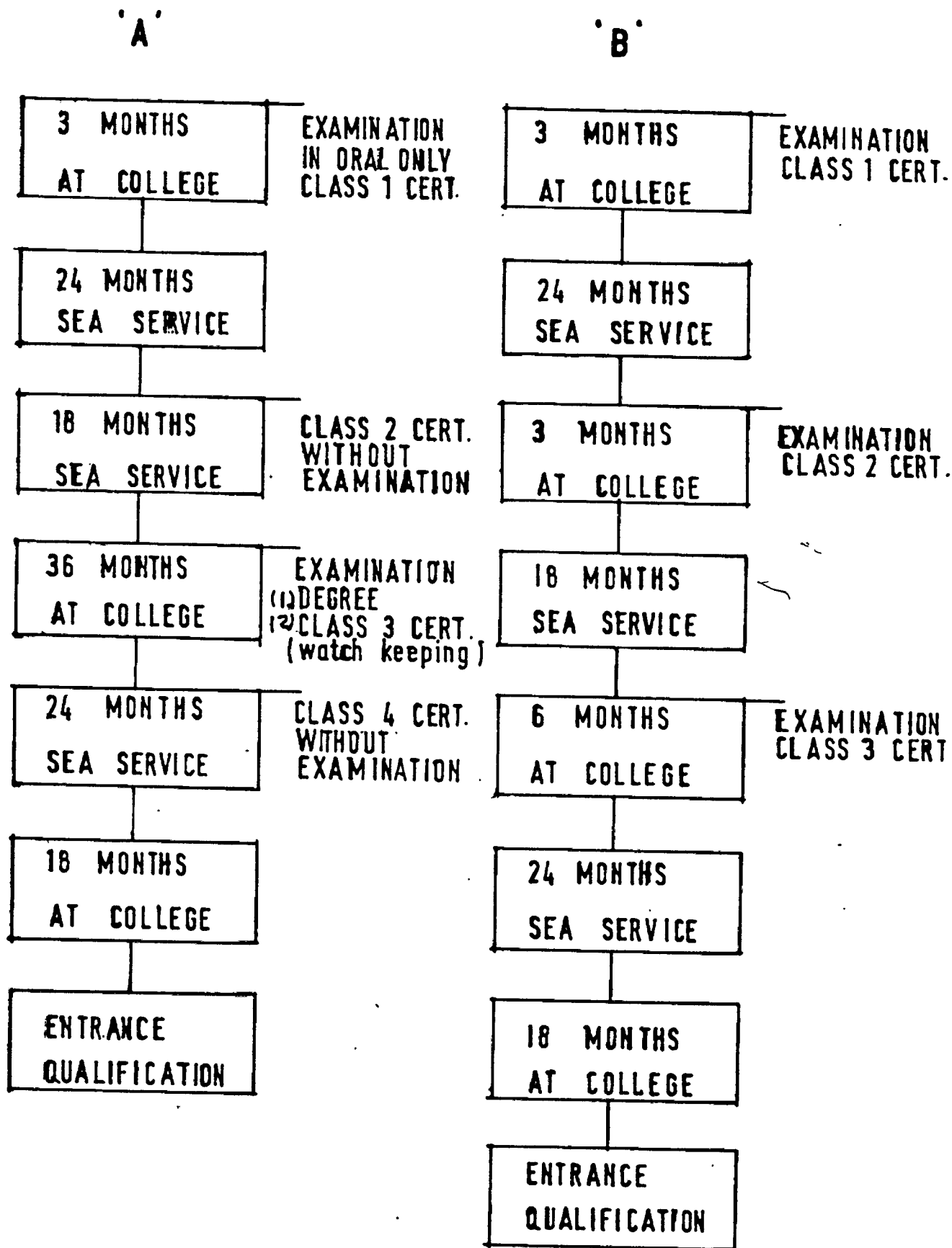


SCHEME B :- ENTRANCE QUALIFICATION

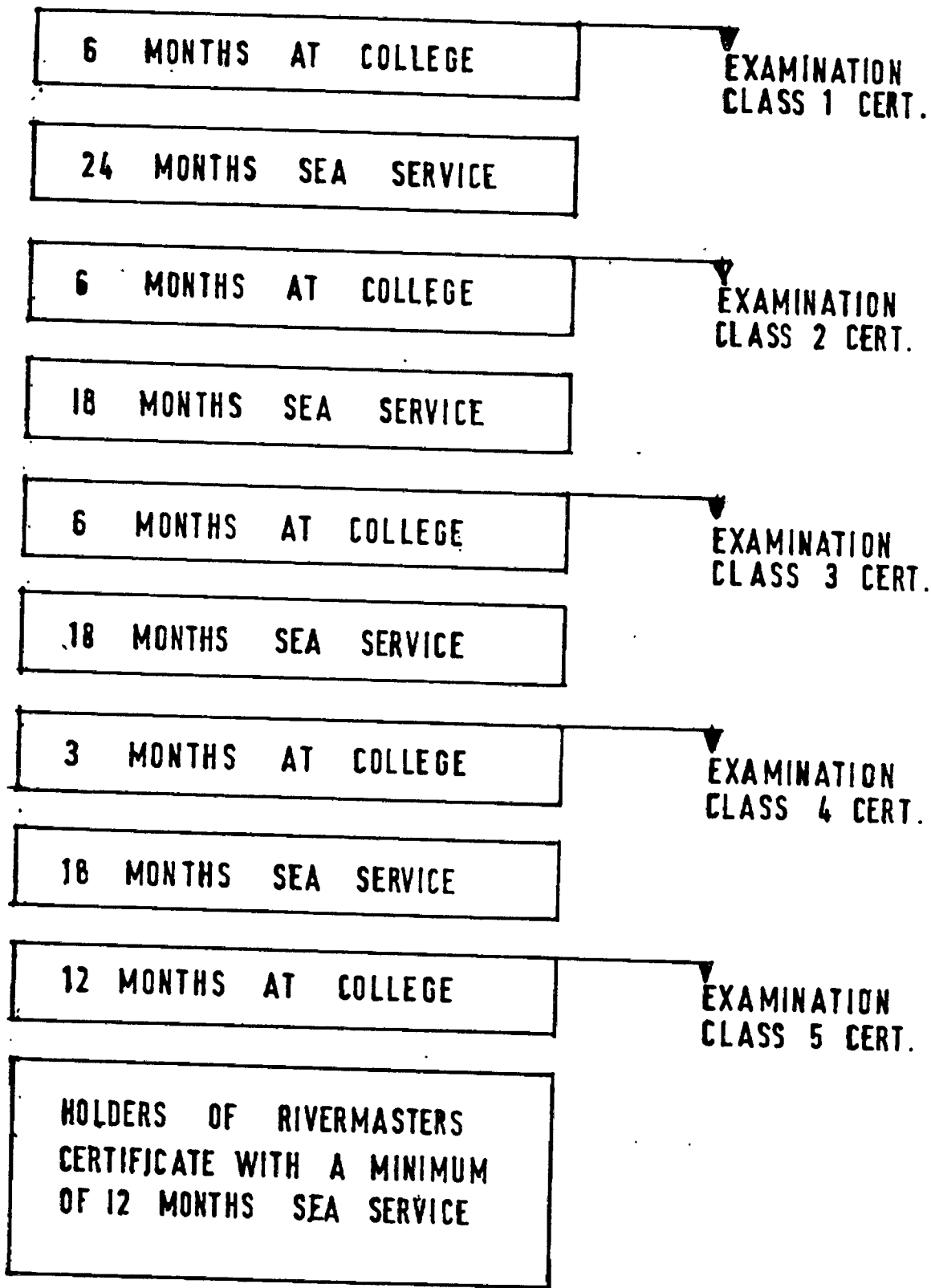
- (1) 3 'A' LEVELS IN APPROPRIATE SUBJECTS
- (2) HIGHER NATIONAL DIPLOMA CERTIFICATE



SCHEME C :- ENTRANCE QUALIFICATION SENIOR SECONDARY SCHOOL LEVEL



SCHEME D :- ENTRANCE QUALIFICATION
(i) RIVER MASTERS CERTIFICATE



TRAINING STRUCTURE FOR OFFICERS

As was mentioned in the last chapter, the U.K. system of class certification should be adopted for the flexibility and mobility the system offers to certificated officers. Moreover, the STCW convention now requires ships engaged on near-coastal voyages to carry certificated officers and classes 4 and 5 certificates meet this particular demand. It is left to the Ministry of Transport to set out the limitations to which classes 4 and 5 certificate holders should be confined to in terms of areas of operation and size of vessels, and if desirable, the requirements for appropriate endorsements with regards to Masters of vessels on near coastal voyages and watch keeping officers.

The schemes have been carefully drawn up to meet the demand and ambition of every citizen, to encourage both front-end and horse-pipe types of training and to offer equal opportunity and fairness to individuals regardless of their social and educational backgrounds. The various schemes have taken into consideration the social and developmental stages in the human resources. The objective is to evolve a system that will influence and weld together the interests and inter-relationship between shipowners, seafarers and Governments; offer the best education and training; guarantee the future development of shipping technology and offer the society at large the economic benefits of the college.

As no system is wholly perfect and at best fulfils certain objectives, I have only attempted to create a base upon which changes, improvements and new ideas can be added to and any short-comings eliminated. In fact, the schemes I have suggested are meant to provoke intellectual discussions into areas such as the role of maritime education and training in the economic developments of the country, syllabus, professional certificates cum land based degree, conflict between human operator and automation, and research.

SCHEME A

This scheme aims at attracting the pool of interested graduates who will in the future fill in the important posts of maritime lawyers, marine insurance executives, marine surveyors, maritime administrators, maritime educators, shipping managers, shipping consultants and a lot of other job opportunities in shipping related industries. Graduates in the following disciplines shall be eligible - Hydrographic Survey; Computer Sciences, Chemistry, Physics, Economics, Law, Naval Architecture, Mathematics, Psychology, Management and Industrial Relations.

The scheme allows matured students to select a seagoing career at a more convenient time. With such high educational background, the students learn quickly and will possess the necessary ability to tackle new problems, increase efficiency and safety and promote research. Apart from the advantage of shorter training period and savings in training costs, the graduates are less likely to leave the marine industry and the environments when they finish their training and seek employment else where.

SCHEME B

The scheme offers a balanced education and training leading to both nationally recognised degree and professional qualifications in the shipping fields. It is aimed at intelligent young adults with affinity to sea career. As the adults start earlier in life, opportunity abound for further studies and research before settling down for reasons of family commitments and/or for other personal reasons. This crop of officers are expected to play a leading role in the industry and encourage professional seafarers to take a positive and greater part in ship management leading to increased efficiency and safety standards.

SCHEME C

The scheme is designed for the average students whose ambitions are not beyond the professional certificates. The scheme aims at creating traditional seafarers of the future.

SCHEME D

It simply guarantees equal opportunity and fairness to every citizen to develop at his/her pace. It is a scheme designed to encourage the seafarers on the lowest ladder to climb to the highest position. It aims at encouraging dedicated seafarers to remain at sea longer than any other group.

PROPOSED SYLLABUS FOR OFFICERS' TRAINING

Scheme "A"

1. Navigation.
2. Ship Stability.
3. Ship Construction.
4. Engineering Knowledge.
5. Computer and electronic sciences.
6. Navigational aids and instruments.
7. Seamanship.
8. Signals.
9. Ships business and Law.
10. Industrial Relations.
11. Management.
12. Statistics.
13. Sociology.

Scheme "B"

1. Applied Science. (Chemistry or Physics to degree level)
2. Advanced Mathematics (Pure & Applied to degree level)
3. Statistics (To degree level)
4. Practical Navigation.
5. General Ship Knowledge.
6. Chart Work.
7. Seamanship.
8. Meteorology and oceanography (to degree level)
9. Signals.
10. Ship Stability.
11. Ship construction.
12. Ship's business and Law.
13. Computer and electronic Sciences (to degree level)

14. Navigational Aids and Instruments.
15. Economics (to degree level)
16. Management (to degree level)
17. Industrial Relations (to degree level)
18. Psychology (to degree level)
19. Sociology (to degree level)
20. Engineering Knowledge.

NOTE

Each student shall ~~choose~~ choose one of the subjects to be studied at degree level in his first year and he is expected to graduate in that discipline.

Scheme C

1. Applied Sciences.
2. Mathematics.
3. Statistics.
4. Practical Navigation.
5. General Ship Knowledge.
6. Chart Work.
7. Seamanship.
8. Meteorology.
9. Signals.
10. Ship Stability.
11. Ship Construction.
12. Computer and electronic sciences.
13. Navigational aids and instruments.
14. Ships business and Law.
15. Knowledge of Management.
16. Knowledge of Industrial Relations.
17. Economics.
18. Psychology.
19. Sociology.
20. Engineering and Control System.

NOTE

Students following Scheme C - "A", shall follow the same system as students in Scheme B.

Scheme D

Appropriate sections of the STCW convention shall be followed for each class of certificate with necessary modifications to suit national interest.

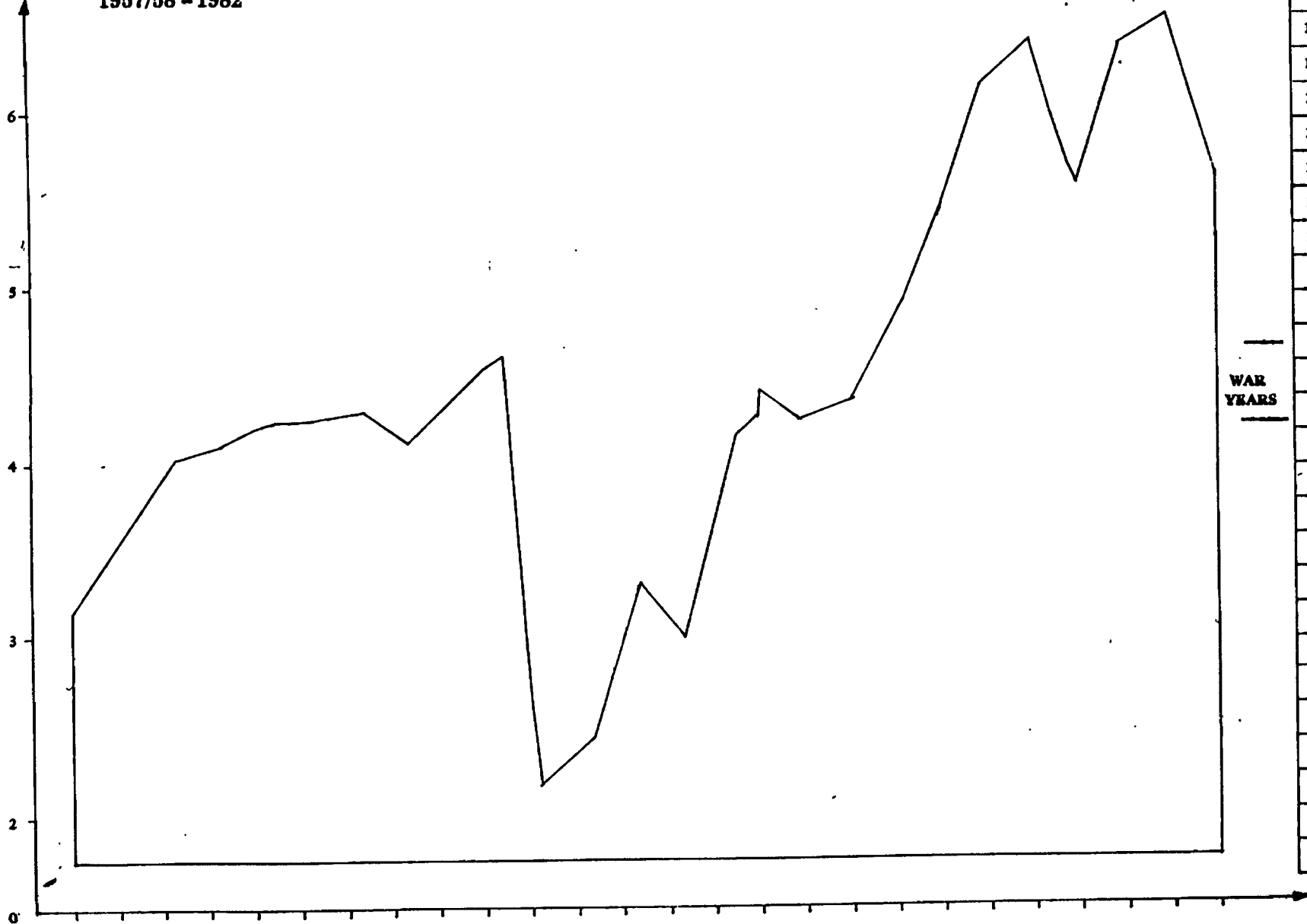
PUBLIC SECTOR PLANNED CAPITAL INVESTMENT IN TRANSPORT, 1962-85

Plan Period	Plan Size (₹ million)	Transport Sector Allocation (₹ million)	Modal Distribution			As per cent of Transport Sector Allocation			Transport Sector Allocation as per cent of Plan Size
			Land	Air	Water	Land	Air	Water	
1962-68	1,586,000	309,092	211,940	20,644	76,508	68	7	25	19
1970-74	2,050,738	472,398	359,840	51,284	61,274	76	11	13	23
1975-80	43,314,009	9,677,541	8,025,453	801,326	850,762	83	8	9	22
1981-85	70,500,000	10,474,462	8,863,323	653,100	958,039	85	6	9	15

**NUMBER OF VESSELS ENTERED NIGERIAN PORTS
(INCLUDING CRUDE OIL TERMINALS)
1957/58 - 1982**

NUMBER OF
VESSELS ('000)

TABLE II



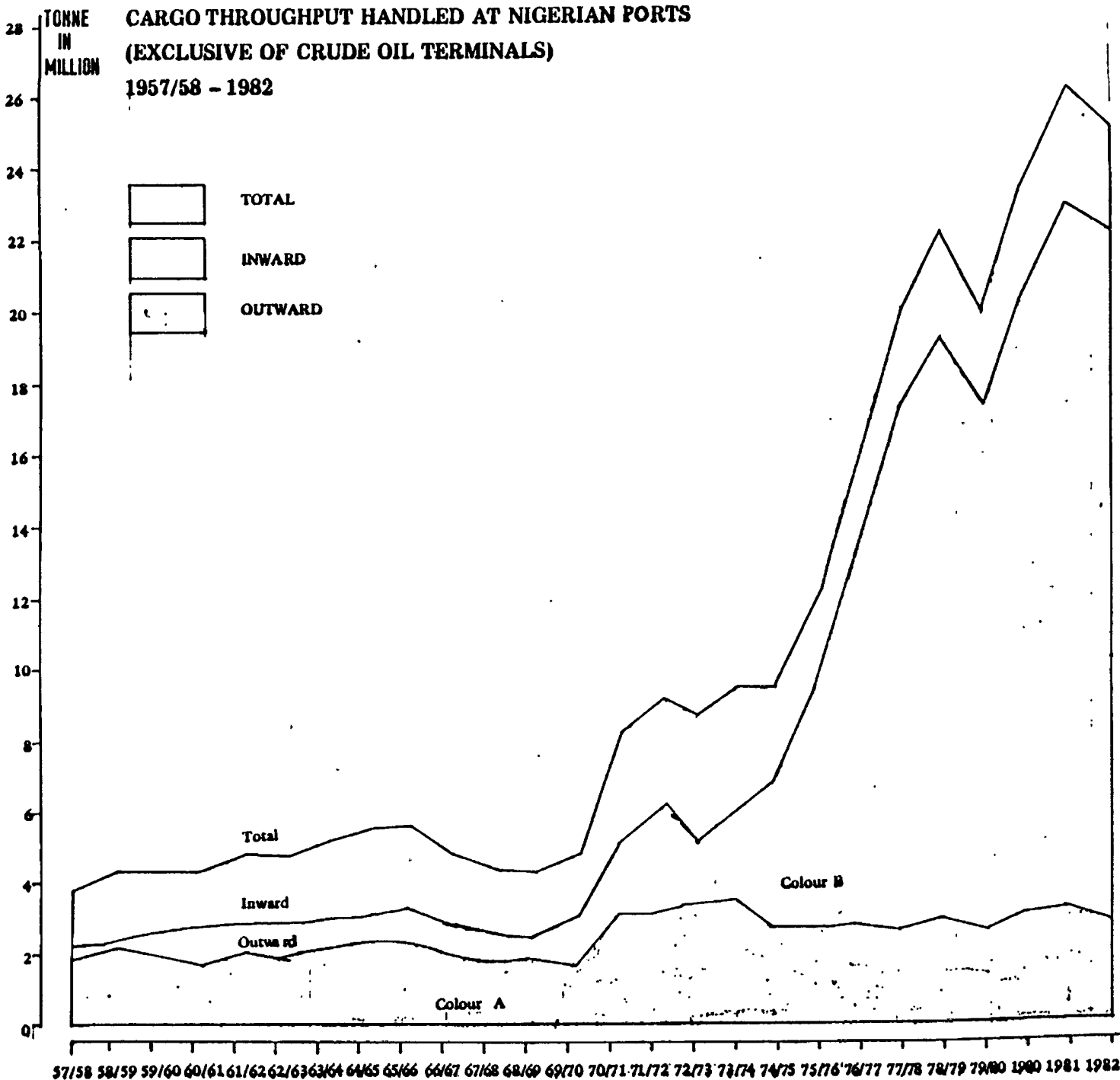
57/58 58/59 59/60 60/61 61/62 62/63 63/64 64/65 65/66 66/67 67/68 68/69 69/70 70/71 71/72 72/73 73/74 74/75 75/76 76/77 77/78 78/79 79/80 1980 1981 1982 YEAR

WAR
YEARS

YEAR	NUMBER OF VESSELS
1957/58	3140
1958/59	3592
1959/60	3996
1960/61	4076
1961/62	4217
1962/63	4245
1963/64	4283
1964/65	4112
1965/66	4374
1966/67	4632
1967/68	2179
1968/69	2427
1969/70	3322
1970/71	2985
1971/72	4213
1972/73	4454
1973/74	4295
1974/75	4388
1975/76	4828
1976/77	5430
1977/78	6190
1978/79	6437
1979/80	5617
1980	6409
1981	6569
1982	5639

**CARGO THROUGHPUT HANDLED AT NIGERIAN PORTS
(EXCLUSIVE OF CRUDE OIL TERMINALS)
1957/58 - 1982**

TABLE III



(TONNE)			
YEAR	INWARD	OUTWARD	TOTAL
1957/58	1680222	1419552	3099744
1958/59	1823506	1720356	3543862
1959/60	2110440	1482901	3593341
1960/61	225643	1374263	3630716
1961/62	2350087	1664431	4014518
1962/63	2387446	1631560	4019006
1963/64	2527730	1830576	4358306
1964/65	2640672	2037828	4678500
1965/66	2853627	1997834	4851461
1966/67	2428106	1753800	4181906
1967/68	2272681	1562887	3835568
1968/69	2177611	1661517	3839128
1969/70	2719518	1507964	4227482
1970/71	4492152	2816851	7309003
1971/72	5281466	2831638	8113104
1972/73	4459164	3103075	7562239
1973/74	5256724	3218696	8475420
1974/75	5979492	2461934	8441426
1975/76	8481284	2518241	10999525
1976/77	11853063	2552183	14405246
1977/78	15694964	2419808	18114772
1978/79	17395286	2679951	20075237
1979/80	15600380	2356815	17957195
1980	18561915	2827706	21389621
1981	20728974	2913742	23642716
1982	20073797	2537432	22611229

TABLE V

TRAFFIC OF THE NIGER RIVER TRANSPORT
BY MAJOR PORT OF ORIGIN AND DESTINATION

1959 - 1960

Port	Downstream		Upstream	
	Tons	Percent	Tons	Percent
Baro	42,029	37.3	24,787	37.0
Garua	12,601	11.1	12,217	18.2
Idah	11,922	10.6	1,115	1.7
Onitsha	9,814	8.7	21,345	31.9
Lokoja	9,573	8.5	1,719	2.6
Numan	5,701	5.1	664	1.0
Makurdi	4,352	3.9	0	-
Assay Batani	4,078	3.6	491	0.7
Dalmare	3,335	3.0	325	0.5
Ibi	2,425	2.2	0	-
Gana Gana/Okpari	2,252	2.0	278	0.4
Yola	1	-	2,093	3.1
Lau	1	-	416	0.6
Other	4,562	4.0	1,560	2.3
TOTAL	112,644	100.0	67,010	100.0

Source: STANDORD Research Institute - The economic co-ordination of Transport Development in Nigeria.

T A B L E VI

TRAFFIC OF THE NIGER RIVER TRANSPORT
BY MAJOR COMMODITY

1959-1960

	Downstream Traffic		Upstream Traffic	
	Tons	Percent	Tons	Percent
Groundnuts	52,608	45.7	0	-
Palm Kernels	28,400	25.2	0	-
Cotton Lint	13,738	12.2	0	-
Cotton Seed	6,921	6.1	0	-
Benin Seed	6,201	5.5	0	-
Palm Oil	3,106	2.8	0	-
Sundries	1,670	1.5	0	-
Cement	0	-	34,363	51.2
General	0	-	12,797	19.1
Salt	0	-	12,472	18.6
Timber	0	-	3,141	4.7
Twills	0	-	2,150	3.2
Caskage	0	-	1,179	1.8
Corrugated Sheets	0	-	480	0.7
Coal	0	-	360	0.5
Textile Stores	0	-	68	0.2
Total	112,644	100.0	67,010	100.0

Source: STANDORD Research Institute - The economic co-ordination of Transport Development in Nigeria.

The Central Water Corporation which came into being during the Military Era and owned by a number of states jointly now replaces former companies that were once famous for their ventures in these areas.

ENROLMENT IN PRIMARY SCHOOLS. 1975-76 TO 1981-85

State	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Anambra	641,775	826,783	907,252	911,377	961,503	1,000,617	1,019,718	1,030,030	1,042,570	1,908,327
Bauchi	126,300	220,211	329,611	362,811	399,092	473,025	538,118	582,524	596,098	611,300
Bendel	606,115	676,373	751,712	792,921	835,740	877,537	921,403	967,473	1,011,493	1,057,516
Benue	256,747	535,096	629,243	838,723	866,400	894,991	921,801	952,262	893,687	1,015,150
Borno	136,964	214,170	369,052	529,620	693,294	750,232	769,226	788,698	808,664	829,135
Cross River	597,182	119,550	768,292	824,500	850,834	870,528	892,567	915,149	938,328	962,083
Gongola	158,200	206,330	322,313	397,705	473,097	542,197	592,560	636,500	668,569	685,494
Imo	739,031	938,400	1,003,824	1,014,467	1,025,110	1,096,868	1,151,718	1,209,297	1,269,762	1,269,762
Kaduna	218,204	460,349	613,091	747,125	845,125	956,005	1,025,747	1,051,720	1,078,343	1,105,636
Kano	160,340	341,806	472,813	659,927	842,928	952,333	1,025,910	1,137,735	1,510,720	1,548,966
Kwara	181,050	250,785	394,030	493,241	588,388	680,176	701,888	718,266	837,282	834,170
Lagos	355,645	288,429	400,405	434,453	465,140	494,072	524,803	557,446	592,120	628,950
Niger	55,377	113,852	181,781	277,495	319,755	368,454	424,570	445,800	488,090	491,500
Ogun	240,701	282,333	299,015	345,393	350,423	398,013	408,088	418,420	429,011	439,872
Ondo	332,611	403,260	428,119	464,395	478,154	523,580	576,985	617,374	647,625	667,700
Oyo	582,452	734,832	866,340	966,362	1,281,744	1,296,210	1,336,716	1,362,667	1,397,163	1,477,299
Plateau	147,873	317,487	365,554	452,056	536,546	544,300	626,652	673,553	707,231	742,593
Rivers	275,591	346,961	430,388	470,438	510,488	553,930	601,070	631,124	667,020	710,370
Sokoto	138,138	206,177	301,542	397,351	423,592	528,520	642,680	731,090	825,030	930,030
NIGERIA	5,950,296	8,342,060	9,845,838	11,457,772	12,749,403	13,819,579	14,702,247	15,428,028	16,488,506	17,527,393

Federal Ministry of Education
 Planning and Development Section
 Statistics Unit,
 Lagos.

STATISTICS OF SECONDARY EDUCATION IN NIGERIA

NUMBER OF SECONDARY GRAMMAR/COMMERCIAL SCHOOLS AND THEIR ENROLMENT, 1975-76-1980-81

No.	State	1975-76		1976-77		1977-78		1978-79		1979-80		1980-81	
		No. of Schools	Enrolment	No. of Schools	Enrolment	No. of Schools	Enrolment	No. of Schools	Enrolment	No. of Schools	Enrolment	No. of Schools	Enrolment
1.	Anambra	95	64,601	131	80,346	186	97,313	249	112,786	370	145,780	445	175,588
2.	Bauchi	10	4,225	10	4,697	12	5,132	25	8,407	48	13,359	48	1,924
3.	Bendel	149	82,407	147	95,330	167	107,011	187	122,662	267	185,216	467	255,366
4.	Benue	58	14,311	69	22,355	75	30,870	158	46,728	183	44,728	185	46,970
5.	Borno	17	5,282	17	6,240	23	8,231	23	10,381	59	14,000	59	14,700
6.	Cross River	91	40,213	98	50,362	134	66,341	178	87,506	210	105,417	440	126,495
7.	Gongola	18	6,405	22	8,068	27	10,025	35	15,233	44	19,983	44	20,982
8.	Imo	127	85,998	147	110,140	221	155,858	276	173,935	350	251,000	410	440,000
9.	Kaduna	29	18,606	34	23,680	40	32,440	48	35,318	74	34,738	74	44,837
10.	Kano	20	7,482	25	10,095	30	12,987	30	16,957	33	19,768	48	55,034
11.	Kwara	70	27,856	78	31,806	80	38,243	75	47,725	105	60,657	161	74,739
12.	Lagos	110	64,232	93	78,331	98	82,956	79	89,139	125	154,000	226	215,600
13.	Niger	13	4,342	14	5,048	17	6,312	17	7,640	27	10,770	27	11,308
14.	Ogun	99	43,812	97	46,938	106	50,674	119	54,000	151	73,071	326	125,326
15.	Ondo	233	72,081	261	78,468	261	81,879	252	85,589	252	139,258	419	203,815
16.	Oyo	261	113,287	300	128,136	293	147,786	328	165,476	378	204,318	687	262,229
17.	Plateau	38	11,330	43	12,534	49	16,678	51	20,914	75	26,638	75	27,970
18.	Rivers	52	32,080	52	33,027	87	49,538	95	48,829	97	74,606	137	81,644
19.	Sokoto	23	6,367	22	6,553	22	7,638	26	9,628	58	20,565	58	21,593
Nigeria		1,513	704,917	1,560	832,154	1,928	1,007,902	2,259	1,159,401	2,908	1,557,877	4,334	2,226,124

T A B L E I X

ENROLMENT IN NIGERIAN COLLEGES OF TECHNOLOGY AND
POLYTECHNICS 1975-76, 1980-81-1984-85

Year	Enrolment
1975-76	11,993
1976-77	17,452
1977-78	19,880
1978-79	29,829
1979-80	35,777
1980-81	41,097
1981-82	46,985
1982-83	53,766
1983-84	61,388
1984-85	70,455

ALL NIGERRIAN UNIVERSITIES ENROLMENT TREND

All Figures are actual

Field of Study	Year				
	1975-76	1976-77	1977-78	1978-79	1979-80
Art and Humanities	5,132	6,485	6,938	5,963	8,731
Agriculture	1,625	1,990	2,321	1,959	2,497
Administration	1,703	2,112	1,845	3,368	2,593
Education	5,126	7,025	6,239	6,298	9,489
Engineering	2,426	2,768	3,381	2,554	3,981
Environtal Studies	826	962	993	1,325	1,786
Law	1,574	1,906	1,045	2,222	2,565
Medicine	4,045	4,469	6,123	8,847	7,354
Natural Sciences	5,000	6,101	6,338	6,491	7,453
Social Sciences	3,595	4,539	4,877	7,376	8,343
Veterinary Medicine	459	520	515	618	459
All Disciplines	31,511	38,877	41,417	45,201	57,772

TABLE X

NIGERIAN UNIVERSITIES
PROJECTED ENROLMENTS - 1981-85

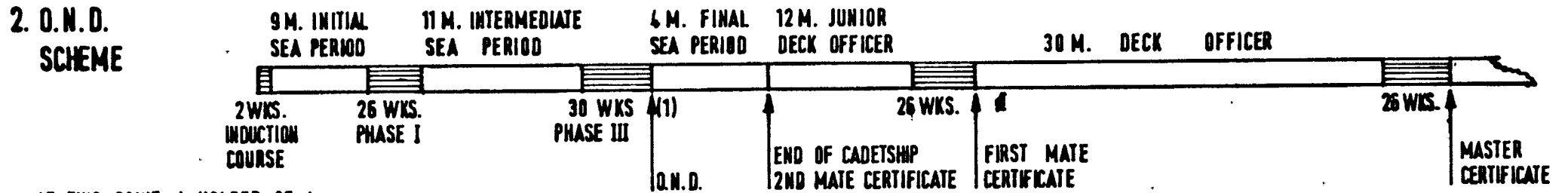
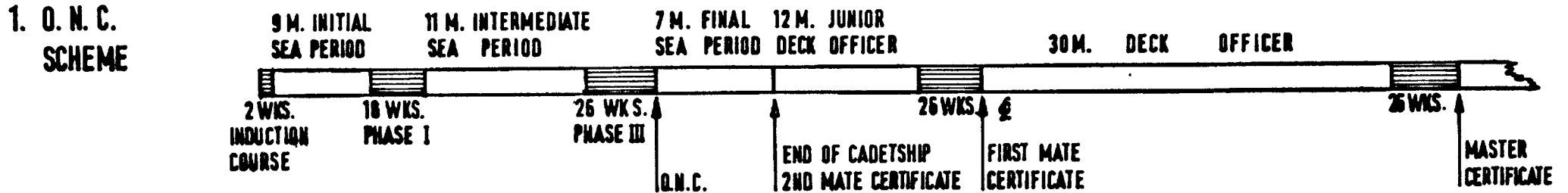
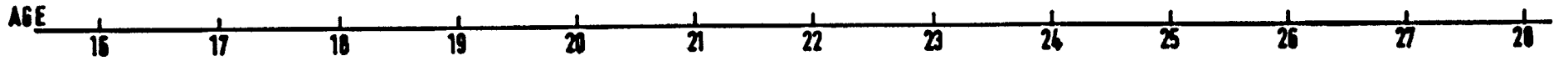
Universities	1980-81	1981-82	1982-83	1983-84	1984-85
Ibadan	8,595	9,557	10,034	10,285	10,485
Lagos	8,894	9,557	10,242	10,595	10,905
Nigeria, Nsukka	8,060	8,642	9,411	10,170	10,625
Zaria	10,396	11,122	12,279	12,170	12,985
Ife	8,711	9,217	9,620	10,342	10,675
Benin	3,890	4,660	5,681	6,560	6,985
Jos	3,293	4,135	5,158	6,045	6,610
Calabar	2,751	3,436	4,151	5,031	6,015
Kano	2,775	3,550	4,275	3,035	6,115
Maiduguri	3,393	4,398	5,009	5,685	6,150
Sokoto	1,717	2,532	3,317	4,217	4,625
Ilorin	2,042	2,999	4,204	5,220	6,215
Portharcourt	1,976	2,504	3,155	3,935	4,830
Bauchi	-	400	600	800	1,000
Markurdi	-	250	500	750	1,000
Owerri	-	250	500	750	1,000
Ondo	-	-	250	500	750
Gongola	-	-	250	500	750
Ogun	-	-	-	250	500
Niger	-	-	-	250	500
ALL UNIVERSITIES	66,553	77,209	88,636	99,090	108,720

T A B L E X I

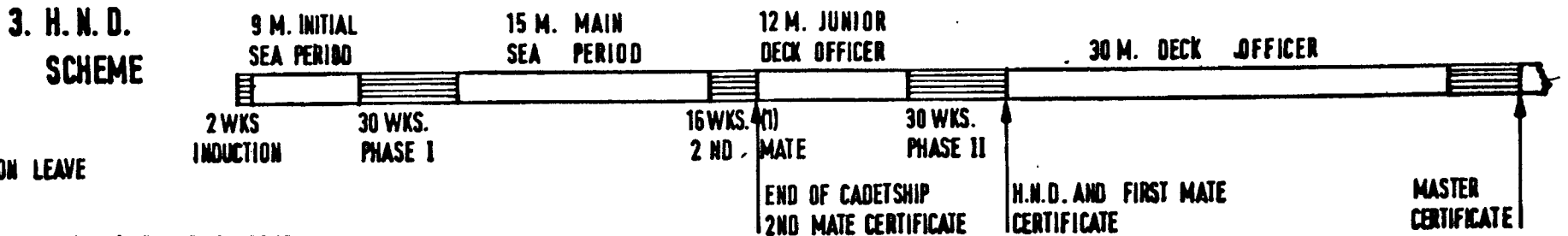
CAPITAL EXPENDITURE BY GOVERNMENT 1981-1985SECTOR: EDUCATION

				N million
No.	State	State Govt. Expenditure N 000	Local Govt. Expenditure N 000	Total State L.G.A.'s Expenditure N 000
1.	Anambra	184.200	35.100	219.310
2.	Bauchi	123.684	106.550	230.234
3.	Bendel	300.000	128.208	428.208
4.	Benue	112.040	51.279	163.310
5.	Borno	264.100	68.940	323.040
6.	Cross River	173.789	89.501	213.290
7.	Gongola	209.574	68.067	277.641
8.	Imo	121.520	46.000	167.520
9.	Kaduna	255.224	129.550	384.774
10.	Kano	408.300	168.811	577.111
11.	Kwara	205.750	20.375	226.125
12.	Lagos	97.724	8.198	105.922
13.	Niger	193.65p	38.790	232.440
14.	Ogun	269.820	9.616	279.436
15.	Ondo	241.117	33.128	274.245
16.	Oyo	476.683	2.331	479.014
17.	Plateau	191.245	14.205	205.405
18.	Rivers	226.600	4.400	231.000
19.	Sokoto	198.000	37.000	235.000
	TOTAL GOVTS. (STATE AND LOCAL)	4,253.020	1,000.059	5,253.079
	FEDERAL	2,450.000	-	2,450.000
	TOTAL ALL GOVERNMENTS	6,703.020	1,000.059	7,703.079

BRITISH MERCHANT NAVY TRAINING OF DECK OFFICERS.

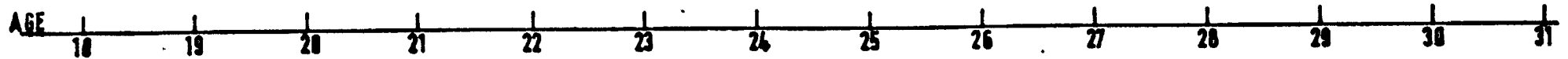


AT THIS POINT A HOLDER OF A GOOD O.N.D. OR O.N.C. MAY UNDERTAKE A 3 YEAR DEGREE IN NAUTICA STUDIES



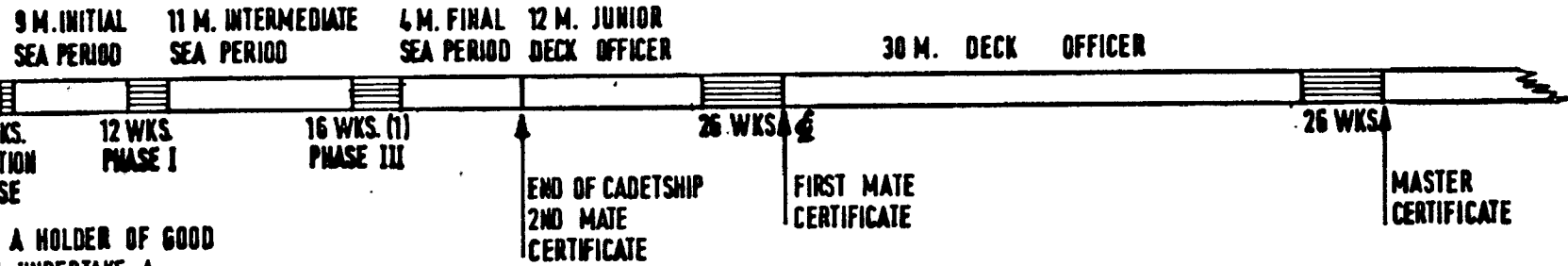
AT SEA & ON LEAVE
 AT COLLEGE

(1) INCLUDES 6 WKS. FIRE & RADAR COURSES.



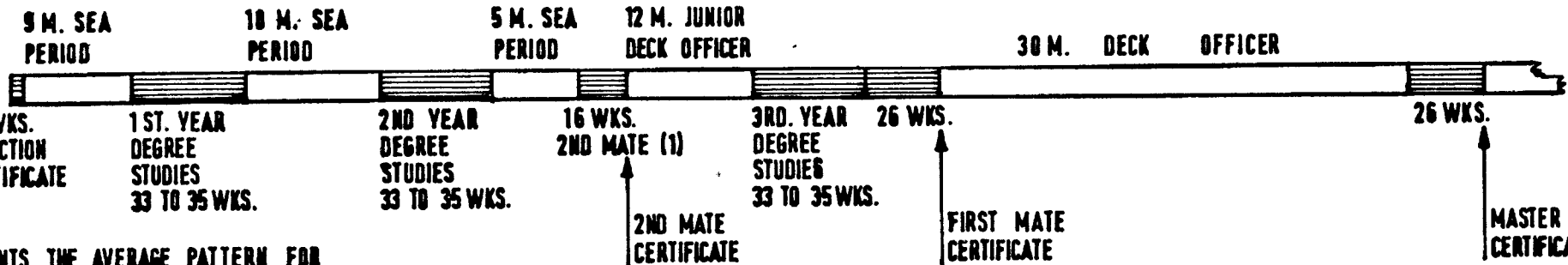
4. M.N.T.B.

'A' LEVEL ENTRY



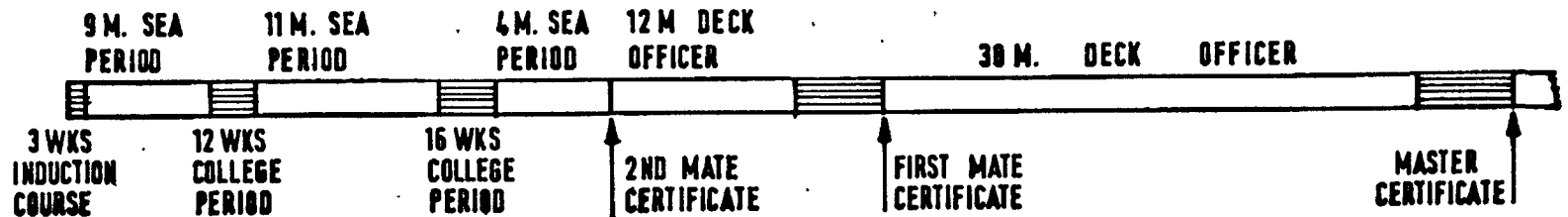
AT THIS POINT A HOLDER OF GOOD 'A' LEVELS MAY UNDERTAKE A 3 YEARS DEGREE IN NAUTICAL STUDIES

5. DEGREE ENTRY



NOTE: THIS REPRESENTS THE AVERAGE PATTERN FOR A DEGREE STUDENT TO FOLLOW, THERE ARE MANY VARIATIONS

6. GRADUATE ENTRY



□ AT SEA & ON LEAVE

▨ AT COLLEGE

(1) INCLUDES 4 WKS. FIRE & RADAR COURSES.

COURSES FOR DECK CADETS

The sea service requirement for the Second Mate certificate is reduced from 4 years to 3 years for a deck cadet undergoing a training programme recognised by the Department of Trade and the Merchant Navy Training Board. Since 1970 the shipping industry has itself agreed that no deck cadet will be recruited for sponsored sandwich course training, who is not in possession of a minimum education standard.

The sea service can be further reduced by (a) the time spent on residential courses in approved colleges during the cadetship (b) for persons with higher academic qualifications i.e. 'A' levels. The minimum sea service required before a successful candidate is issued with a Second Mate certificate is 24 months.

ENTRY REQUIREMENTS 1. O.N.C. SCHEME. The minimum is four ordinary levels in the G.C.E. at grades A, B or C or equivalent in S.C.E. or grade I in the C.S.E. examinations, or comparable overseas levels. These must include Mathematics or Physics and two other subjects, one involving the use of English.

2. O.N.D. SCHEME. The minimum is four ordinary levels in the G.C.E. at grades A, B or C or equivalent. These must include Mathematics, an appropriate Science subject, one involving the use of English and one other.

3. H.N.D. SCHEME. Passes in at least five subjects at 'O' level in the G.C.E. at grades A, B or C or approved equivalent, which must include Mathematics, a Physical Science and an English subject. At least two subjects including either Mathematics or a Physical Science must have been studied to 'A' level and at least one passed at that level.

4. M.N.T.B. 'A' LEVEL ENTRY SCHEME. As Scheme 3 for 'O' levels but at least two subjects including Mathematics and a Physical Science must have been studied to 'A' level and at least one passed at that level. Alternatively in addition to the 'O' levels, passes in at least two 'A' levels provided one of them is Mathematics or Physics.

5. DECREE SCHEME. As scheme 3 for 'O' levels but passes in Mathematics and a Physical Science must be obtained at 'A' level. A candidate with three 'A' levels in the appropriate subjects can be admitted with only four 'O' levels in the appropriate subjects.

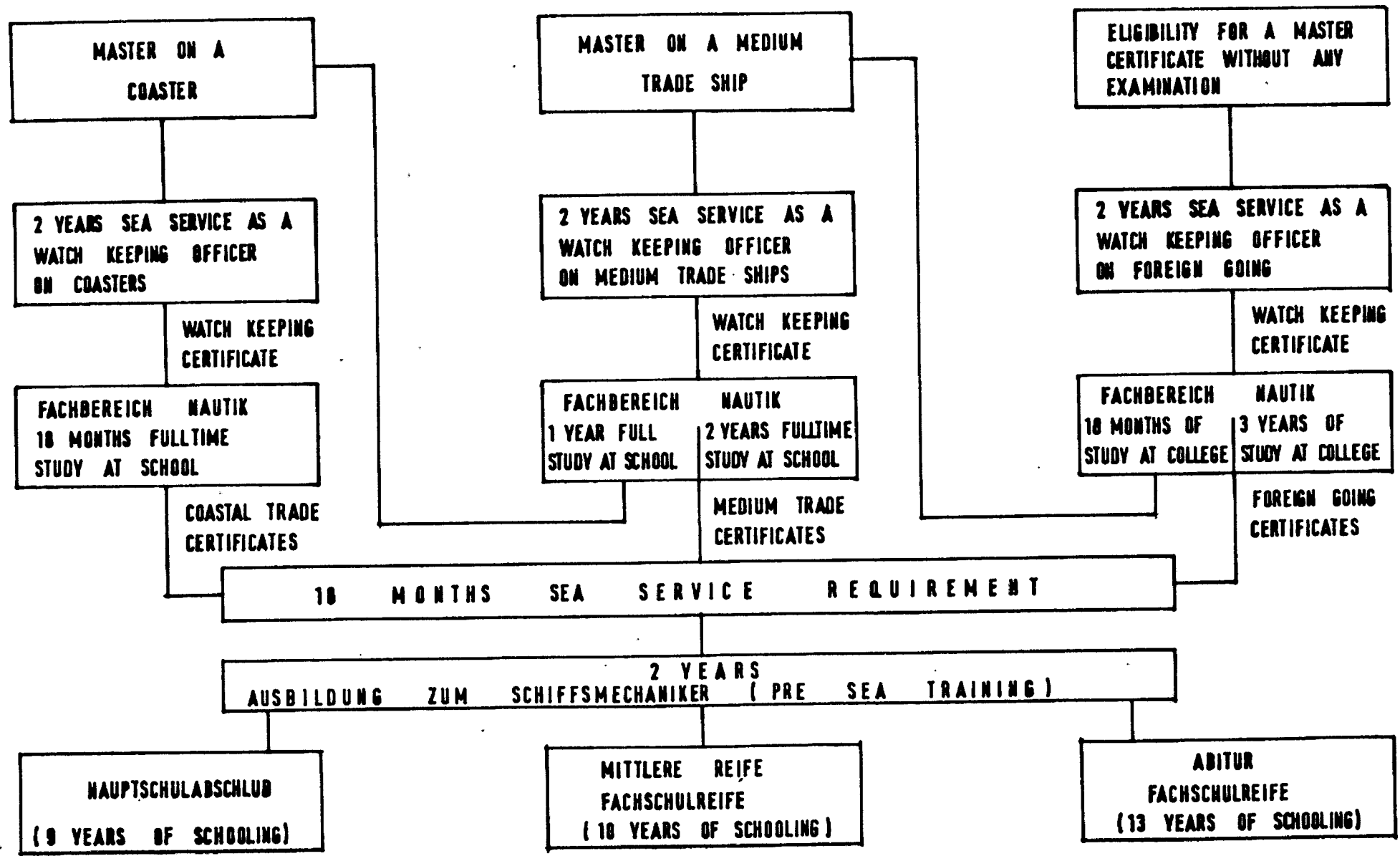
6. GRADUATE SCHEME. A candidate should hold a first degree in an appropriate discipline with 'O' and 'A' similar to the requirements for scheme 5.

INDUCTION COURSE. In scheme 1 to 5 inclusive, the Induction Course is as laid down by the M.N. Training Board. It is residential and consists of 64 hours of instruction including a 2 day fire fighting course and 1 day Survival course. One college of the thirteen colleges offering induction courses, extends the course to twelve weeks.

INITIAL SEA PERIOD. A period at sea of approximately nine months during the first year of cadetship. Practical training is given about ship following a schedule laid down by the M.N.T.B. and recorded for each cadet in a Deck Cadet's Record Book by the ship's Master and Officers. The college responsible for the cadet's academic progress sets technical projects and preliminary studies which are monitored through correspondence. The projects are designed to introduce a cadet to his ship and assist with the initial vocational studies.

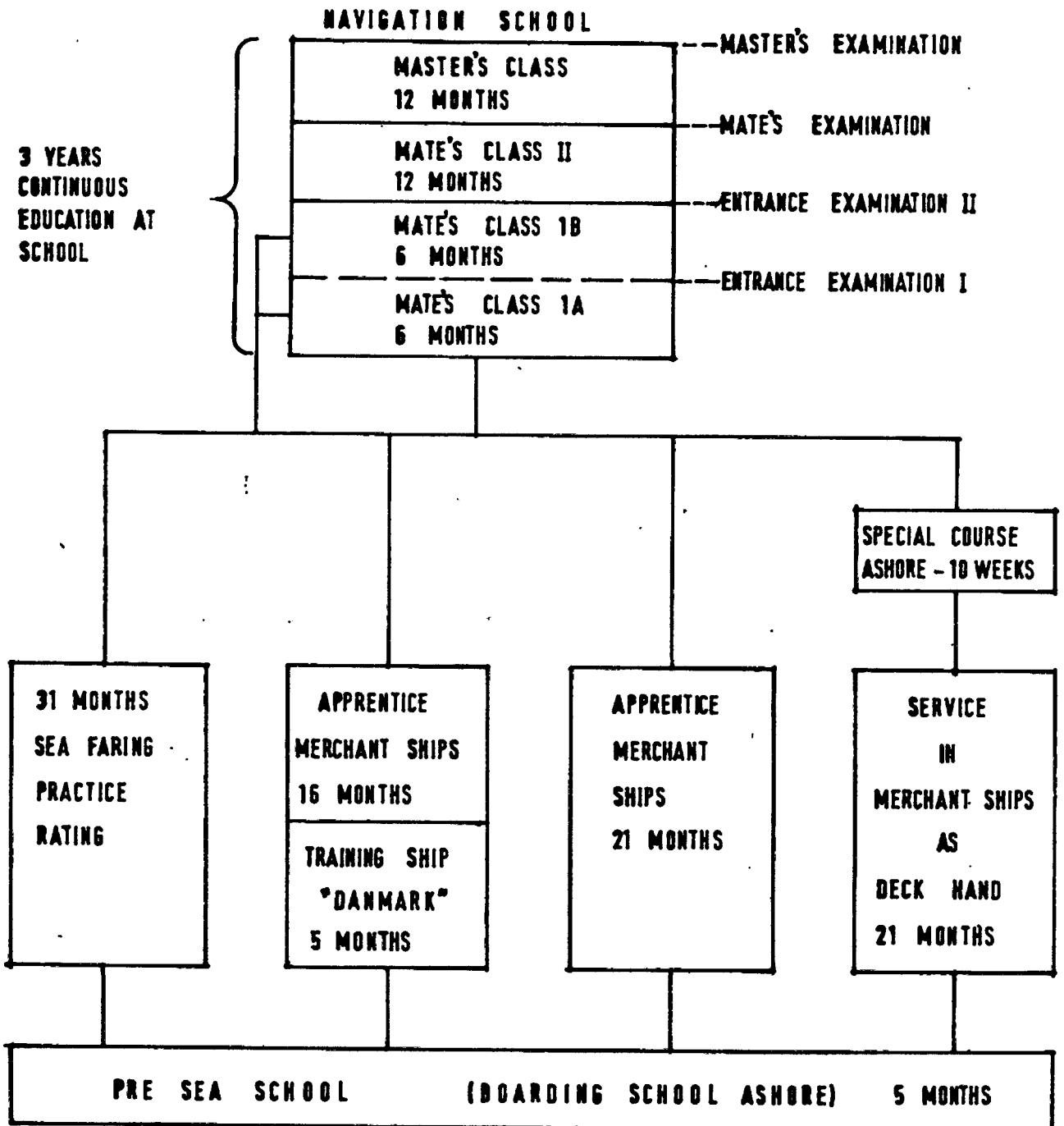
WEST GERMAN SYSTEM OF MARITIME EDUCATION AND TRAINING

FIGURE II



DIRECTORATE OF MARITIME EDUCATION
DENMARK

EDUCATION AND TRAINING IN DENMARK
DEEP SEA MASTER



DIRECTORATE OF MARITIME EDUCATION
DENMARK

CURRICULUM

DANISH PRE SEA SCHOOLS

2 terms a year - 5 months each.

<u>Subjects</u>	<u>Lessons of apprx.45 Min.</u>	
Life saving appliances, practical training, Emergency procedures and safety at sea	apprx.	80
Firefighting and drills	"	30
Practical seamanship	"	120
Theoretical seamanship	"	40
Navigation and Rules of the Road	"	60
Machinery and tools	"	150
Sociology	"	70
Danish and English	"	60
Hygiene	"	20
Gymnastics and swimming	"	60
Mathematics	"	40
Physics	"	30
Lessons per course	Total	690

DIRECTORATE OF MARITIME EDUCATION
DENMARK

CURRICULUM

DANISH NAVIGATION SCHOOLS

Lessons of apprx.45 Min.

Subjects	Mate's class		Mate's class II	Master's class
	I A	I B		
Danish	4	4	3	2
English	6	6	4	4
Mathematics	13	6	3	-
Computer Systems and Data Processing	-	2	-	-
Physics (incl.electro- technics)	12	6	5	-
Navigation	-	6	7	9
Shipbuilding, stability etc.	-	3	4	6
Cargo handling	-	-	-	2
Rules of the Road and signalling	-	2	3	-
Maritime Law	-	-	2	4
Shipping administration	-	-	-	3
Engineering	-	-	3	-
Hygiene	-	-	1	1
Meteorology and Geography	-	-	-	4
Lessons per week, total	35	35	35	35

DIRECTORATE OF MARITIME EDUCATION
DENMARK

CURRICULUM

SPECIAL COURSE FOR DECK HANDS

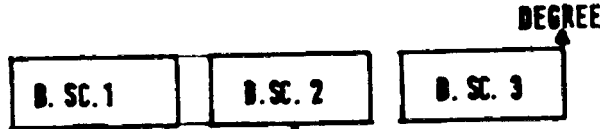
2 terms a year - 10 weeks each.

<u>Subjects</u>	<u>Lessons of apprx.45 Min.</u>
Danish and English/Mathematics and Physics	apprx. 90
Hygiene	" 20
Machinery	" 20
Navigation and Rules of the Road.....	" 30
Safety at sea incl. firefighting.....	" 70
Seamanship	" 60
Maintenance and tools	" 60
Sociology etc.....	" 50
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Lessons per course	Total 400
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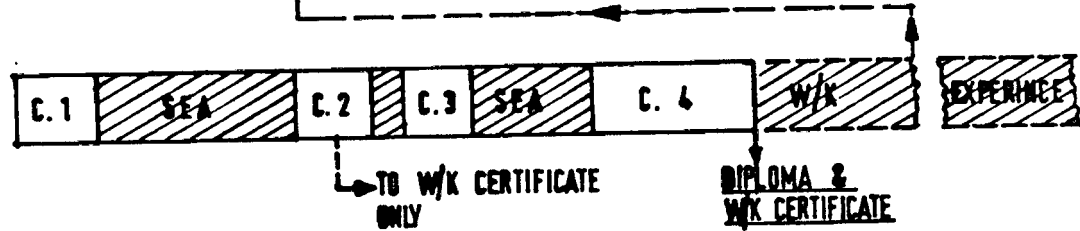
OUTLINE OF ACADEMIC PROGRAMS AT A.M.C.

NAUTICAL

APP. SC. (COMMERCIAL SHIPPING PRACTICE; SHIP TECHNOLOGY; OR PORT OPERATIONS)

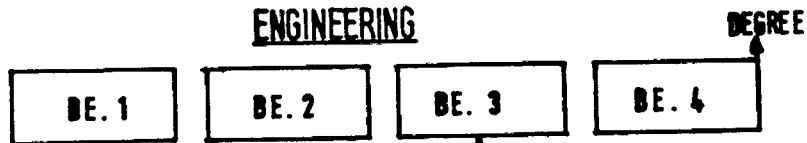


CADET/ DIPLOMA NAUTICAL SCIENCE



ENGINEERING

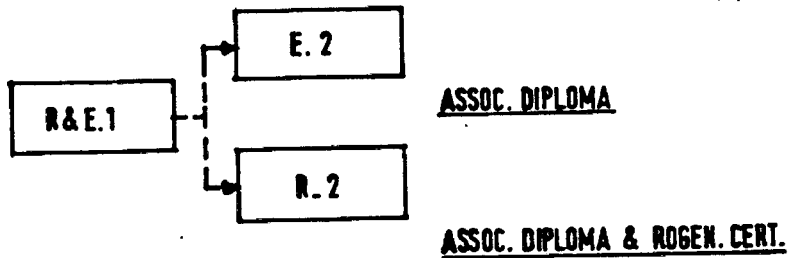
B. ENG. (MARITIME)



CADET DIPLOMA (MARINE ENGINEERING)

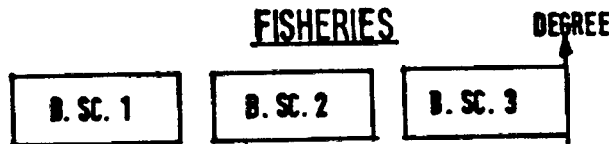


ELECTRONICS
ASSOCIATE DIPLOMA
RADIO COMM.



FISHERIES

B. APP. SC. (FISH TECHNOLOGY)



POSTGRADUATE COURSES
(ONE YEAR MODULAR COURSES)

- . HYDROGRAPHIC SURVEYING
- . COMMERCIAL SHIPPING PRACTICE
- . ADVANCED MARINE ENGINEERING
- . FISHERIES TECHNOLOGY

CERTIFICATE OF TECHNOLOGY & W/K CERTIFICATE

MISCELLANEOUS COURSES

- . VARIOUS SHORT SPECIALIST
- . CERTIFICATE OF COMPETENCY
- . RATING, BASIC & UPGRADING