A REPORT ON THE DEVELOPMENT OF AN INSTRUCTIONAL UNIT ENTITLED, "SHIPBUILDING AT THE MARYSTOWN SHIPYARD"

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Instructional Unit entitled,
"SHIPBUILDING AT THE MARYSTOWN SHIPYARD"

by

Ross Tilley (C)

A Project Submitted
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ABSTRACT

The purpose of this study was to develop a unit of instruction on shipbuilding in Newfoundland. The instructional material has been developed as a supplementary aid to the existing grade six history textbook, Shipbuilding In The Maritimes. The unit is a multimedia package consisting of a slide-tape presentation, overhead transparencies, and a teacher's manual.

Various developmental stages were involved in the completion of the instructional package. An exploratory survey was conducted by the developer prior to the development of the package. This survey determined the attitude of social studies teachers in Newfoundland towards the use of mediated instructional packages within the classroom. The results of the survey indicated a positive teacher attitude towards the use of mediated packages as teaching aids.

When the instructional package was completed, a content specialist, learner specialist, media specialist and students were consulted for the purpose of evaluating the contents and technical qualities of the package. Based upon recommendations from these evaluators, suggested changes were made in the package.

After completion of the formative evaluation, the package was piloted in three grade six classes, in three schools located in different areas of Newfoundland. A total of ninety-five grade six students were involved in the

initial testing of the media package.

In determining the effectiveness of the package as a teaching unit, the developer used two types of instruments: a pretest-posttest method for evaluating the achievement level of the students, after exposure to the package; and a teacher attitude and student attitude questionnaire to determine how teachers and students felt towards the technical aspects of the package. An observer's checklist was also used to determine the effectiveness of the package as an instructional teaching unit. Results of the questionnaires revealed that the instructional package was a very effective teaching aid and both teachers and students held positive attitudes towards the technical aspects of the instructional materials.

In summary, the materials in the package have been used and evaluated, not only by grade six history teachers, but also by social studies teachers in grades five to eight. Both teacher and student response has been positive towards the mediated package, Shipbuilding At The Marystown Shipyard.

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CHAPTER I

INTRODUCTION

Shipbuilding, ships and the sea have played a major role in the lives of Newfoundland people for many centuries. Historians, such as F. Briffet (1964), state that the sea was the chief source of livelihood for Newfoundland inhabitants long before the discovery and colonization of the Island by the whiteman. In the past, Newfoundland settlers have depended upon the building of sturdy ships and boats to provide them with a means of obtaining a livelihood. Today, however, in most communities around Newfoundland shipbuilding and boat-building are much less prevelant. Many Newfoundlanders feel that a very important part of their cultural heritage is gradually disappearing.

Although their forefathers were fishermen by trade, most of the school children living in Newfoundland today know very little about the tradition of shipbuilding and boat-building. In past centuries, ships and boats were frequent topics of discussion in most households in Newfoundland, since most of the people living in the Province at that time were fishermen. Consequently children living in those days grew up in an era when ships and boats were of extreme importance to the settlers of Newfoundland. Those children, therefore, undoubtly realized the value and need for the building of sturdy boats and ships. Historians, such as F.

Briffet (1964), tell us that in the early days of colonization the fishing trade was not an occupation of the Newfoundland fisherman only. Men, women, and children were involved in carrying out the basic operations that were necessary to prepare the daily catch of fish for market. The whole family, therefore, lived a daily life centered around the sea. Whether the work for the day involved the cleaning of a catch of fish, the mending of torn nets, or the cutting of timber for the building of a new boat, their work was endless and in many instances very unrewarding. When the generation of today hears an old fisherman remark, "I growed up in a fishin' punt, me' son", it should be realized that, although what the old fisherman said is not the best English, the saying is very true in all its entirety.

Most children today, however, belong to families whose means of livelihood is not depended on the sea. Unlike families of by-gone years, ships and boats are seldom mentioned at the supper table. These children, therefore, are not aware of the value of ships and boats to the Newfoundland people. Granted there are still many fishermen fishing in Newfoundland today, but the involvement of the entire family into the trade is not as great as it was in past centuries. Fishermen today tend to look upon their occupation as a trade. If the trade does not prove to be successful the fishermen can turn to some other means of livelihood. In the early days, however, fishing was the chief source of livelihood, and a good seasons harvest of fish meant the difference

between starvation or plenty during the long months of winter.

Although many Newfoundland children today may be aware that the sea has been and still is of great importance to the people of Newfoundland, many are not aware of the dependence and the skill that goes into the building of sturdy ships and boats. The purpose of this project was to produce an instructional package which would help school aged children of today learn more about shipbuilding and boatbuilding in Newfoundland.

CHAPTER II

NEEDS ASSESSMENT

One very common occurrence which seems to plague the educational system in the Newfoundland schools is the educating of the Newfoundland youth with vast amounts of information about other countries. Information about Newfoundland tends to be neglected and forgotten.

Examination of the different textbooks in use at any grade level in the Newfoundland schools will show that the majority of the textbooks have been written and produced in other countries, especially the United States. Examples of this are evident with such textbooks as Thrust (Galaxy). This book is in use in the grade seven literature program. In the grade eight literature course the book, Focus is used as the text. Both of these books are printed in the United States by Scott, Foreman and Company. Modern Physical Science is the science textbook in use in grade ten. This book is printed in the United States by Holt, Rinehart and Wilson. In grade seven and eight, Exploring World History is the textbook in use in the social studies program. This book is printed in New York by Globe Book Company. In grade eleven, Twentieth Century World is the history text in use. This book is printed in the United States by Scott, Foreman and Company. Newfoundland students, therefore, are continually being bombarded by American ideas, views and materials. An

education for any child should include exposure to materials and information from other countries. At the same time, however, information and materials should be supplied to educate the child about the land or country in which the child is living.

Many teachers and educational groups, such as the Educational Media Council, agree that more materials about Newfoundland must be introduced and taught in the schools if the present generation of Newfoundland is to grow up as adults who are appreciative, concerned, and knowledgeable about their own province. Concern of teachers is very well illustrated by the involvement of many teachers in the designing and producing of curriculum materials relating to issues in Newfoundland. For example, a group of teachers on the Burin Peninsula have worked together for several years in producing a multi-media package entitled, Resettlement On The Burin Peninsula. These teachers did not receive payment for working on this package. Since they felt the need to make students more knowledgeable about resettlement these teachers worked very hard to develop an instructional package on resettlement in Newfoundland. The instructional package is now produced and available to schools throughout all of Canada. Many other teachers throughout Newfoundland are involved in similar projects. Such action on the part of teachers gives a very good indication that teachers do feel there is a great need for more Newfoundland related materials in the schools. In fact

the Department of Education has hired its own production specialist to produce instructional materials related to Newfoundland.

Parents too, are concerned about how very little information about Newfoundland is being taught to their children. Numerous complaints in particular come from parents in this province who may be labelled as immigrants. These are parents who have come to work in Newfoundland from foreign countries such as Scotland and England. In areas such as Marystown where there are large concentrations of foreign people, teachers receive many requests from these people to teach their children more information about Newfoundland. Many Newfoundland parents who have lived in the province since birth hold the same opinion that not enough information about Newfoundland is taught in the schools. One particular incident illustrating this point occurred at a parent teacher meeting in a school at Cow Head. A parent, who was a fisherman, asked the teachers why information about the fishing trade was not being taught to his child. The man admitted that he did not want his son to become a fisherman, yet the man stated a desire to have his son acquire some information connected with fishing, such as: how to knit a trap, how to set out a trap or even how to tie knots in a rope. No teacher, however, was able to supply the man with a good reason why such information was not being taught in the school, except that the Department of Education did not require or recommend it in their course of studies for

Newfoundland schools.

Most students find they are living in a small province about which they know very little, yet they are eager to find out more. This was seen by the writer one day at the Salt Pond Elementary School while he was filling in on a class period for a teacher who had suddenly taken ill. The class was grade seven and since no seatwork had been arranged for the students, the writer decided to play a game with the students. The game involved giving the name of a community or town in Newfoundland, then giving reasons why that name might have been given to that community. The game began with the writer asking the students how they thought their hometown got its name. From there, discussion led to the names of other communities. By the middle of the class period a map of Newfoundland was brought into the classroom and each student took a turn selecting a place name for discussion. These students were completely fascinated with many of the place names they discovered in Newfoundland. In fact, the students became so involved with this project that the history teacher had to continue the lesson in the next history class. This very simple exercise provided for these students new knowledge about Newfoundland. They became familiar with places in Newfoundland which previously they did not know existed. Many times during the class students asked questions such as, "What does this place look like?", "How far is this place from our hometown?" This simple exercise illustrates how little information children know about

Newfoundland. It also shows how much they would like to know.

Another example which points out the need for more Newfoundland materials in the schools occurred at the Salt Pond Elementary School when the writer questioned a student as to whether the student could name the capital of Australia. Without hesitation the student replied, "Canberra". When the student was asked to name the capital of Newfoundland, the student very quickly replied, "Corner Brook". Does such an answer provide any indication as to the amount of knowledge other students in Newfoundland know about their province?

THE PROBLEM

Chapter II stated that much of the information, views and ideas presented to Newfoundland students come from instructional materials produced in other countries. Such an educational process will continue in this province unless sufficient and adequate instructional materials, relating to Newfoundland, are produced and made available to teachers and students.

A move to help students acquire more knowledge about their province began in the early part of the 1970's in Newfoundland. At this time, The Department of Education introduced a series of booklets, as textbooks, into the grade six social studies program. Only one booklet from this series dealt with a topic relevant to the province of Newfoundland.

This booklet was Shipbuilding In The Maritimes.

The writer spent a tremendous amount of time discussing this textbook with such people as grade six history teachers, principals, Memorial University Professors and students throughout various parts of Newfoundland. Discussion about the text centered around such questions as, "To what extent do you think this textbook will help a student in the schools of Newfoundland to become better educated about shipbuilding and boatbuilding in this province?" "If it were your choice, would you recommend this book as a textbook for teaching a unit of work on present day shipbuilding techniques and facilities?" "Why?" "As a student do you think that this book helps you in learning about shipbuilding in Newfoundland?" From the oral answers provided by these people unanimous opinion was voiced supporting the book as a very useful introductory aid to teaching the topic of shipbuilding. These same people, however, were unanimous in their opinion that the book was very unsuitable for teaching shipbuilding in Newfoundland since it failed to supply students with any information on this topic. The majority of the grade six history teachers who were questioned critized the book because it focused too heavily on shipbuilding from past centuries rather than concentrating on present day shipbuilding techniques and facilities. Not only does the book demonstrate this historical aspect in its written content, but the pictures included in the book also depict scenes relating to shipbuilding from by-gone years.

The majority of the students questioned, thought that the textbook was stimulating and interesting. However, most students found the book to be of little value when they were searching for information on present day shipbuilding in Newfoundland or elsewhere.

Principals and professors were of the opinion that the book did injustice to the topic of shipbuilding in Newfoundland. They too, like the teachers, found that the book leaned too heavily towards the historical aspect of shipbuilding.

In summary, the problem revolves around the lack of supportive materials for teaching a unit of work in grade six history on the topic of shipbuilding in Newfoundland. Teachers are constantly complaining that resource materials about Newfoundland are almost impossible to obtain. If Newfoundland materials are to be made available to students in the schools the materials must first be developed.

SOLUTION

It is a well known and established fact that the pioneers of Newfoundland did not have the modern facilities and services that are available to the people of the province today. These people could not go out and buy manufactured items from large department stores. The things these people needed had to be made by the people themselves. Teachers can follow this example today. If a teacher finds that no resource materials

are available to teach a particular unit of work, one solution is for that teacher to develop the materials or assign projects whereby such materials can be produced by the students.

Another method through which more Newfoundland materials can be made available to teachers and students is through the development of resource materials by graduate students at Memorial University. Such is evident with the present instructional package. This package will provide supplementary material for teaching a unit of work on shipbuilding in the grade six history program.

MATERIALS IN EXISTENCE

From personal inquiry and research at the Education and Main Libraries of Memorial University; CAVE; College of Fisheries Library; Instructional Materials Centre of The Department of Education; The National Film Board of Canada and various public libraries throughout the city of St. John's, the investigation showed that there are no media packages developed on shipbuilding in Newfoundland.

Upon examination of the various printed materials found which related to shipbuilding and boatbuilding, none of the materials were suitable for use with grade six students. The high level vocabulary and technical terms used in the books were far above the reading level of elementary students. The books, however, should be beneficial to teachers deciding

to teach a unit of study on shipbuilding. Some of the books examined and found to be unsuitable for grade six students were:

1. Ships by Robina Farbrother (1963). This book focuses mainly on describing different types of ships, beginning with the history of ships then leading up to the more modern ships of today. One chapter of the book deals with shipbuilding. Other chapters deal with such topics as: ships in art, races and regattas and figureheads. The book is very well written and contains many coloured as well as many black and white pictures.
2. Small Boats by Philip C. Bolger (1973). This is a recently written book dealing with the building of small wooden boats. Each chapter of the book consists of a particular boat design along with a very thorough description of that design. This book is designed more for use by college students.
3. Boatbuilding by Howard I. Chapelle (1969). This book focuses on the building of small wooden boats. Plans of various boats are presented in the book with a complete description of how to construct that particular boat.
4. Boatbuilding With Steel by Gilbert C. Klingel (1973). This book is a thorough discussion of the use of steel for building small boats, both yachts and working craft. A separate chapter of the book deals with the building of boats from aluminum.

Investigation into the non-print resources turned up several sixteen millimeter films which could be very effectively integrated into a unit of teaching on shipbuilding. Some of these are:

1. Dockside. This is a fifteen minute, colour 16 mm. film produced in 1973 by Churchill films. It is an intensely visual film supplemented occasionally by narration. The film is divided into three sequences: the gigantic cranes that take containerized cargo from hold to trailer truck, conveyor slings and belts that speed cartons, and the unloading of automobiles. Integrated with these features is a rich swirl of human activity: people mending nets, cooking crabs, filleting fish and sailing. This film would be very effective in stimulating class discussion at almost any grade level.
2. Ships In Drydock. This is a twelve minute, colour 16mm. film produced in 1969 by Charles Cahill And Associates. The film shows the care and maintenance of ships and the operation of a drydock. The film should prove very useful with students from the elementary level through to high school level. Good information is provided in the film, but the poor colour quality tends to lessen the impact of the film on its audience.
3. Down To The Sea. This is a twenty-one minute, black and white 16mm. film produced in 1949. The film depicts shipbuilding in Britain at this period of time. It describes the entire operation of building a ship from

the time when the designer experiments with models in a tank, until the new ship sets out on its maiden voyage. Although the film is old, students at the grade six level should find the film very interesting and amusing.

4. Jim Decker Builds A Longliner. This is a nineteen minute, black and white 16mm. film, produced by The National Film Board of Canada. It tells how a Fogo Island man built a longliner with labor lent to him by his friends. It tells how the man overcame the problems of financing and the lack of tools and government support. This film would not be effective for use at the grade six level since the content of the film is aimed more for adult audience.

5. Bulkhead: Setting A Watertight Bulkhead Into A Hull. This is a seventeen minute black and white 16mm. film produced in 1942 by The Jam Handy Organization. It shows a demonstration by a shipwright of the setting of a watertight bulkhead into a hull. This is first demonstrated on a model ship then on a real ship. The information presented in the film is too far advanced for elementary students. Highly technical terms are used throughout the film.

6. Boats: Buoyancy, Stability, Propulsion. This is a fourteen minute black and white 16mm. film, produced in 1969 by Coronet Films. This film shows how buoyancy and stability are maintained in a ship at sea. It also shows various methods of propulsion and examines how a

submarine submerges and rises. The information in the film is far above the comphrension level of grade six students.

7. Shipbuilders of Essex. This is a twenty-one minute black and white 16mm. film, produced in 1950 by United World Films. The film shows the building of wooden ships at the shipyards of Essex. Although this film is old it is very interesting and very simple to understand. Grade six students should find it very entertaining and informative.
8. Boat For A Fisherman. This is a very old, ten minute, black and white 16mm. film, produced by The Central Office of Information. It shows the Building of a small Wooden fishing boat by a fisherman in England, using simple basic tools for cutting and sawing the materials. The content of the film would not appeal to the interest of grade six students.

In addition to the above 16mm. films, the investigation also turned up two filmstrips. They were:

1. The Development Of The Ship. This filmstrip consists of three parts: part one deals with ancient and medieval ships, part two looks at ships between the periods 1485-1805, and part three looks at ships of the nineteenth and twentieth centuries. The information presented in the filmstrip is too highly advanced for students in grade six.
2. The Story Of The Ship. This is a twenty-six frame, black

and white filmstrip. It shows the development of the ship in all its stages from early man astride a log to the Queen Elizabeth of today. The filmstrip is very simple to understand and grade six students should find it very interesting and informative.

CHAPTER III

LEARNER ANALYSIS

INTRODUCTION

Any group of people, whether it is a group of business men, a group of fishermen, a group of teachers or a group of students, possess various characteristics which make the group unique from all other groups. Such is the case with grade six students in the schools of Newfoundland. These students, as a group, have certain characteristics which make the group different from other classes in the schools. Other characteristics of the group, however, make them similar to other classes of students in the Newfoundland schools.

AGE

The majority of grade six students have chronological ages which range from 11.6 to 12.6 years. Such information is available through the registers kept in all schools throughout the province of Newfoundland. Results of tests such as the Peabody Test of Vocabulary and the Wisc Test indicate that the majority of these students are both physically and mentally mature in relation to their chronological ages. The grouping of these students into classes

is based on the results obtained from achievement test given to the students. Percentages obtained on these tests determine the class into which each student is placed.

ACHIEVEMENT

Achievement records show that the majority of grade six students range from average to high achievers in the subject area of social studies, as determined by the Canadian Test Of Basic Skills. Many teachers agree that students when given the opportunity can work very effectively without help from the teacher. Such opportunities are becoming very frequent in many of the schools in Newfoundland. The trend in teaching today is to allow more time for students to spend working at individual or group projects in the library. Such projects may vary from an assignment on the Beothuck Indians to an experiment in science. Teachers state that the integration of this idea into their program, tends to provide many students with more confidence resulting in better quality assignments.

ATTITUDES

History teachers at the Salt Pond Elementary School confirm that most grade six students have developed a positive attitude towards the social studies program. Attitudes are noted to be even stronger when class interest is focused on

a particular topic pertaining to the every day world of the students. For example students have been noted by teachers to work more enthusiastically on a project which relates to their home community rather than when assigned a project on some topic relating to another country.

Teachers find that motivation and interest are strengthened through the use of audio-visual aids such as films, filmstrips, slides, audio-tapes, and overhead transparencies. Recently a grade six history teacher at the Salt Pond Elementary School was teaching the story of The Battle of The Plains of Abraham. The students enjoyed the topic but continually kept getting the generals, Montcalm and Wolfe, mixed up. No matter how often the topic was explained, confusion remained until the teacher showed the students a movie film about The Battle of The Plains of Abraham. After seeing the film the students' misconceptions were clarified. They were motivated by the film to the extent that they decided to stage their own in class version, of the battle. The film, therefore, was a stimulating experience for these grade six students. It not only provided the students with the opportunity to see and hear what was happening, but it also helped to span the gap of space and time in bringing students into a world which existed long before they were born.

EXPERIENCE WITH MEDIA

To determine whether various types of audio-visual equipment was available to teachers, the developer conducted a survey throughout the province of Newfoundland. A questionnaire was sent to 42 schools, chosen at random, throughout the Island (see appendix A). The questionnaire was designed to determine if grade six social studies teachers had access to the basic audio-visual equipment which is necessary to implement the present instructional package into the classroom. Such equipment includes, a cassette tape recorder, a slide projector, and an overhead projector. Thirty-one out of the 42 questionnaires were returned. All 31 questionnaires indicated that social studies teachers had access to the audio-visual equipment necessary to use the present media package in the classroom.

Social studies teachers state that they have integrated very effectively the use of audio-visual materials such as slides, filmstrips, films, overhead transparencies and audio-tapes, into their teaching program.

Students confirm that they are permitted to use audio-visual equipment and materials whenever necessary, such as when doing research for projects. Many students operate audio-visual equipment for the teacher whenever audio-visual aids are used in the classroom.

RELATIONSHIPS

Many teachers state that they are discontented with the high pupil-teacher ratio within the Newfoundland schools. In fact some classrooms contain thirty-five or more students per teacher. Due to the high pupil-teacher ratio, pupil-teacher relationships seem to suffer within the classroom. Students encounter difficulty in obtaining the individualized help they often require from the teacher. Outside the classroom students and teachers experience excellent social interaction. This is accomplished through such activities as school dances, school clubs and walk-atons.

Since the introduction of the centralization program for the schools in Newfoundland, many students travel very long distances by bus to and from school. The busing of students tends to pose problems in creating a close social relationship among the students during after school hours. Since many students are bused from school as soon as the school day is out, there is very little opportunity for these students to participate in any after school activities or spend any time with schoolmates from other communities.

ENVIRONMENT

Students living in the larger urban centers of Newfoundland have easy access to many modern facilities and services. The majority of these students come from families where both

parents are employed in occupations within the city.

Many students in the rural communities of Newfoundland also come from families where both parents are employed in earning a living. Unlike in past decades, many of the students today living in the rural parts of Newfoundland have access to most of the social conveniences of the large urban centers in the Province. Such social conveniences include town water, sewage, medical services and modern shopping facilities. Students also have access to excellent recreational facilities such as skating, hockey, swimming and public libraries.

Newfoundland people today are living in a society where it is a common practice for both parents of a family to work for a living. Most parents, therefore, no longer have sufficient time to pay attention to the education of their children. As a result parent-teacher relationships are not as close as most teachers would prefer.

In summary, grade six history students are a group possessing characteristics which make them different from other classes in the school. Teachers should be aware of such characteristics and plan activities, lessons and instructional materials which will best serve the needs and interests of this particular class of learners.

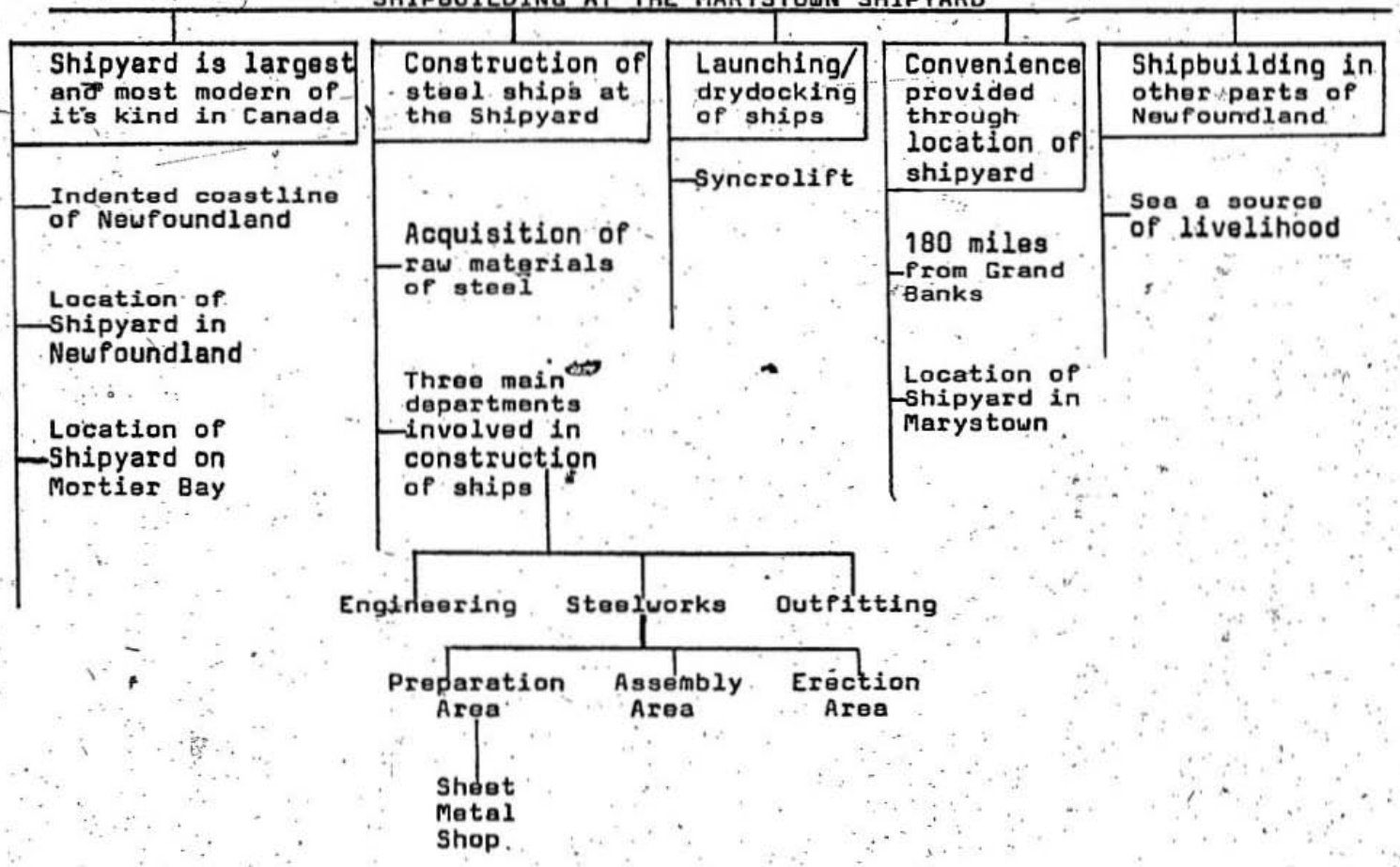
CHAPTER IV

TASK ANALYSIS

INTRODUCTION

The Task Analysis helps the developer organize the information which is to be included in the instructional package. The Task Analysis involves the breaking down of the main topic into a series of headings. From these headings a chart is constructed which enables the developer to make certain that all vital elements about the topic are included in the instructional package. The Task Analysis also serves to eliminate any non-essential information from being included in the instructional package.

TASK ANALYSIS - OVERALL VIEW



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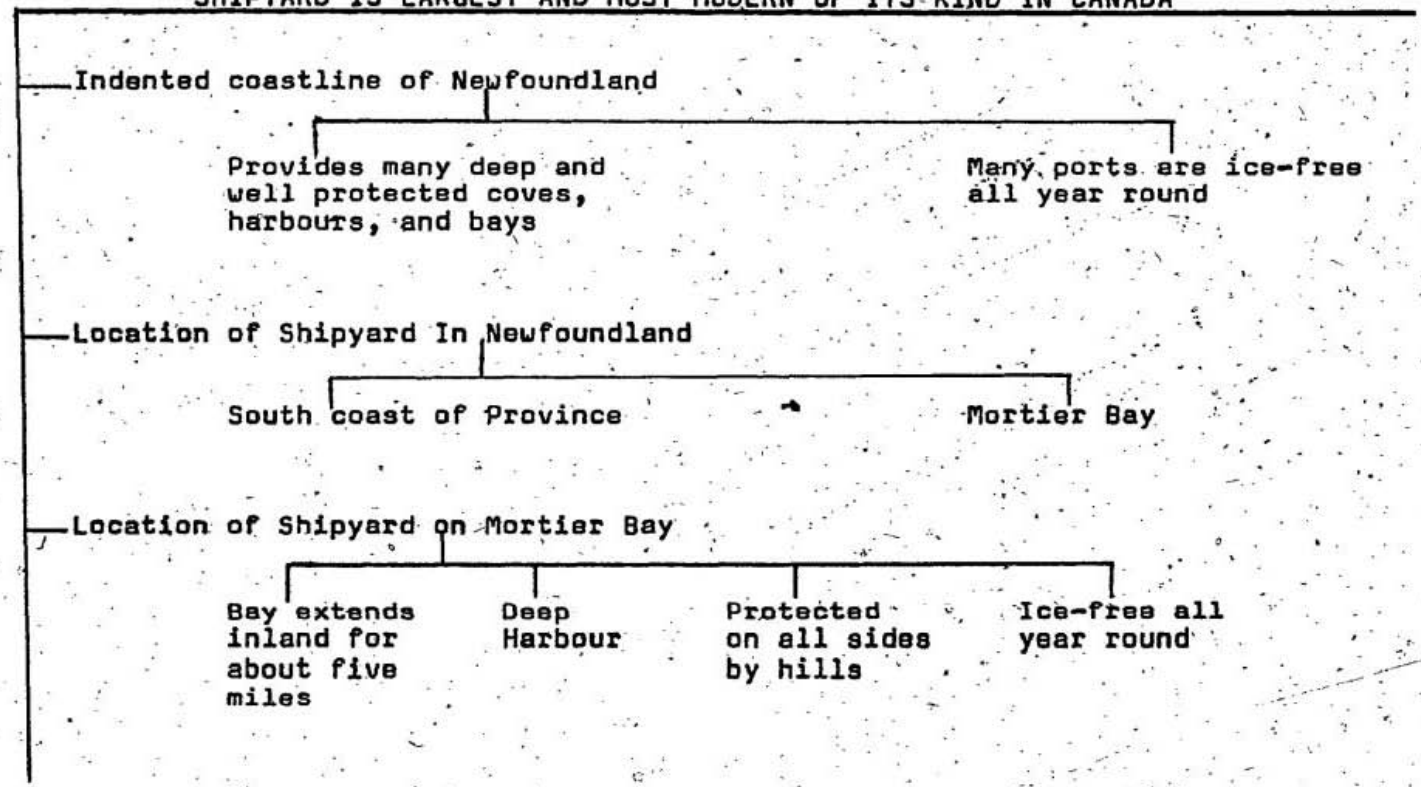
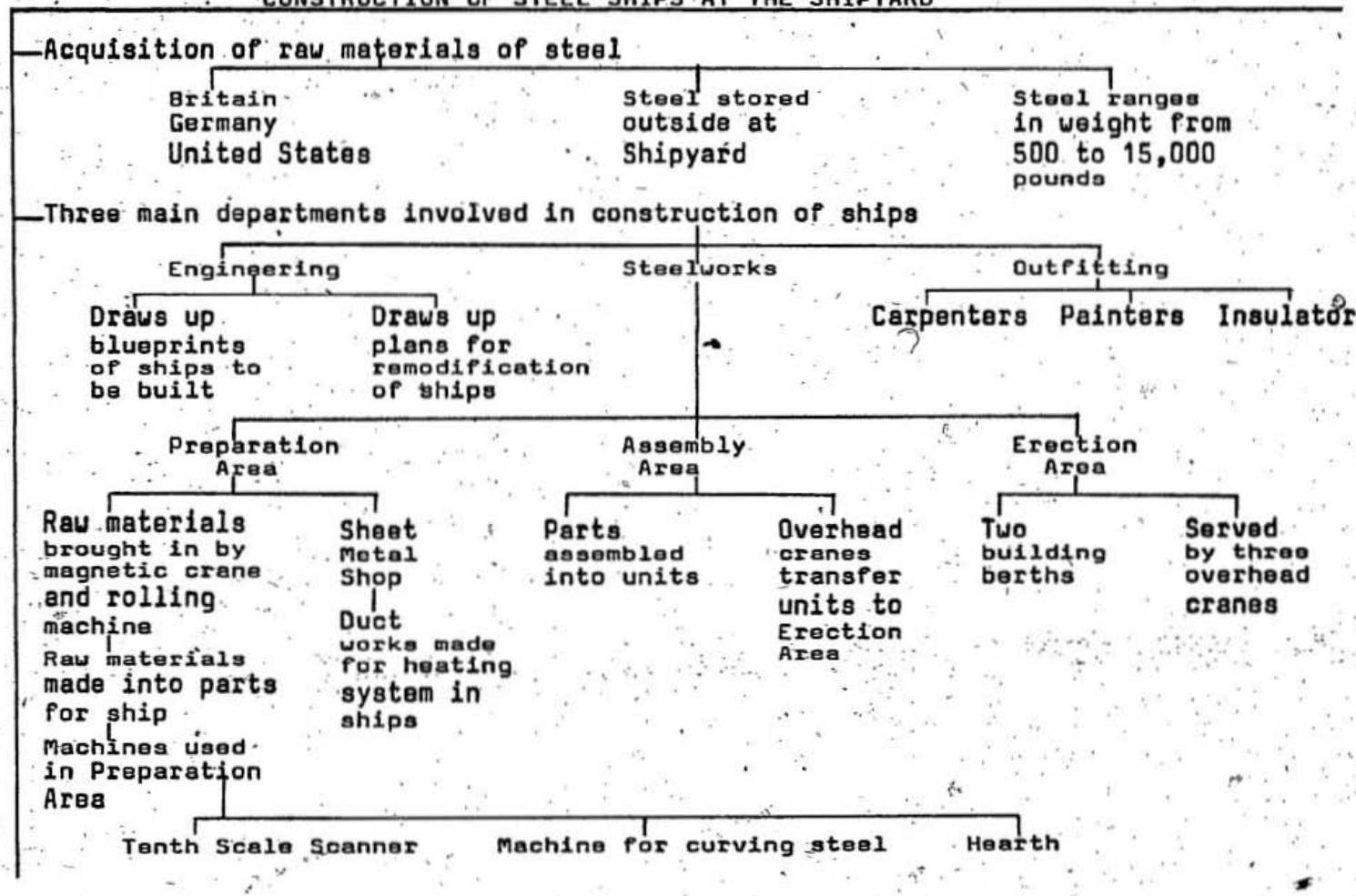
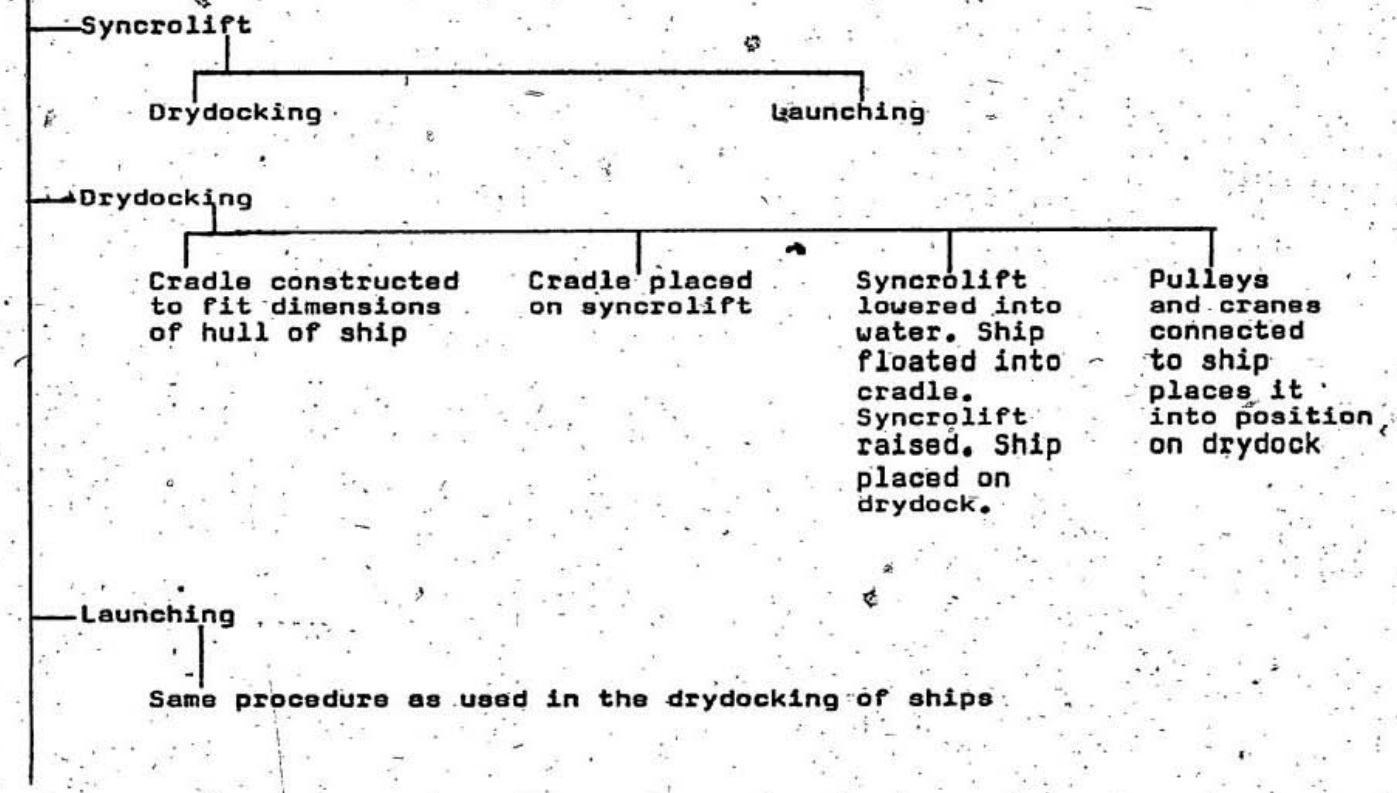


CONSTRUCTION OF STEEL SHIPS AT THE SHIPYARD



LAUNCHING AND DRYDOCKING OF SHIPS AT THE SHIPYARD



CONVENIENCE PROVIDED THROUGH LOCATION OF SHIPYARD

- Shipyard located only 180 miles from Grand Banks of Newfoundland
- On Main North Atlantic Shipping Lanes
- Location of Shipyard in Marystown
  - Provides easy access for crews of foreign ships to such services as medical facilities and shopping malls
  - Within easy travelling distance for workers from Marystown and surrounding areas

SHIPBUILDING IN OTHER PARTS OF NEWFOUNDLAND

- Many shipbuilding centers located throughout Newfoundland
- Sea is a major source of livelihood for many Newfoundland people.

ASSUMPTIONS AND ENTRY BEHAVIOR

1. Students will have acquired a basic knowledge as to the importance of the sea in the lives of the Newfoundland people.

2. Students will have acquired a basic knowledge as to the value of ships and boats in the lives of the Newfoundland people.

3. Students will be aware that many Newfoundland people have depended and still depend upon the building of sturdy ships and boats to provide them with the means of obtaining a living from the sea.

4. Students will be familiar with the Newfoundland place names mentioned in the unit.

5. Students will be aware that ships and boats can be built from various types of raw materials other than wood; for example from steel and aluminum.

BEHAVIORAL OBJECTIVES

1. Given a multiple-choice question, out of four possible answers the students will select one answer out of the four which correctly names the largest shipyard in Newfoundland.

2. Without help from any source, the student will list correctly two out of three reasons why the indented coastline of Newfoundland is considered an haven to Newfoundland fishermen.

3. Without help from any source, the student will list correctly two out of three reasons why Mortier Bay is an excellent bay for the location of a shipyard.

4. The student will list, in the correct sequence, the three main departments involved in the construction of a ship at the Marystown Shipyard.

5. In a short answer, consisting of ten to twenty words, the student will describe correctly the main function of the Engineering Department at the Marystown Shipyard.

6. The student will list, in the correct order, the three main areas which make up the Steelworks Department at the Marystown Shipyard.

7. The student will describe correctly in a fifty to sixty word paragraph, the type of work carried on in the Preparation Area of the Marystown Shipyard.

8. The student will describe correctly in a forty or fifty word paragraph the type of work carried on in the Assembly Area of the Marystown Shipyard.

9. The student will describe correctly in a twenty to thirty word paragraph the type of work carried on in the Erection Area of the Marystown Shipyard.

10. The student will list correctly three types of tradesmen involved in the Outfitting Department at the Marystown Shipyard.

11. The student, in a sentence consisting of five to ten words, will state correctly the main function of the Sheet Metal Shop at the Marystown Shipyard.

12. The student will list correctly two out of three conveniences provided by the location of the Marystown Shipyard within the port of Marystown itself.

13. The student will describe on paper and in the correct order the procedure whereby a ship is placed on drydock at the Marystown Shipyard.

14. The student, after being provided an outline map of Newfoundland, will mark in correctly on that map, upon instruction from the teacher, the names of the following shipbuilding centers located throughout Newfoundland: Marystown, Clarenville, Port Union, Grand Bank, Rocky Harbour, Old Perlican, Carbonear, Port Aux Choix.

CHAPTER V

RATIONALE FOR CHOICE OF MEDIA

The unit of study, Shipbuilding At The Marystown Shipyard, is a mediated unit of work developed for use with grade six students in the program of social studies. Before deciding to adopt the mediated technique for the development of a resource material, much time was spent in obtaining supportive evidence that a mediated resource package would provide the most beneficial method of instruction for grade six students on the subject of shipbuilding in Newfoundland.

The first and less substantial reason for developing a mediated package was based on the fact that students were already being exposed to one source of printed material, their textbook. The developer was of the opinion that a non-print material would provide variety for both students and teachers, thus helping to increase teaching effectiveness and increase retention and motivation among students.

A more concrete reason for developing a media package was derived from the examination of several research studies conducted on the effectiveness of the mediated technique of instruction. Wendt and Butts (1960) tested a series of 54 films in the grade nine classes in seven schools. In each school, one teacher taught both an experimental and control group. The experimental groups saw the films while the control groups did not. This study revealed that it took the control

groups one year to cover the same subject material that the experimental groups covered in one semester. A criterion test given in the subject at the end of the instruction showed no significant difference between the control and experimental classes. Lubin and Wilson (1956) used six black and white and six color pictures with a group of 40 children. These pictures were of handicapped children. The pictures were shown to an experimental group of 20 severely handicapped children and also to 20 normal children. Each child was asked to write a story about each picture. A numerical score was given for each story, the score based on the number of words in the story. The study revealed that the handicapped children scored significantly higher than the normal children, presumably because of the closer identification of the handicapped children with the children in the pictures. Deutsch (1972) conducted a study using a class of "general" grade nine english students who met with little success in the conventional classroom setting, and placed them into a media class. In this class the students were given instruction in various media techniques and in the operation of media equipment. In the conventional classroom setting these students encountered difficulty in grasping abstractions. This difficulty was further added to by their inability to adequately express themselves either verbally or in written form. In the media class emphasis was placed on the ability of the students to express their thoughts and ideas according to their capabilities. The students were told to select a topic on love, prejudice

or violence and to illustrate with pictures, music and poetry, their feelings towards this topic. The results showed that these students not only displayed a grasp of abstractions but far surpassed what was expected of them. In fact these students not only used poetry, music and photography which had been produced by professionals, but in many instances the students created their own. Another researcher, Chance (1961), used 200 transparencies and 800 overlays in teaching engineering geometry to freshmen engineering students, 104 of whom were divided between this method and the usual instruction with the chalkboard. The transparency group did significantly better at the end of the course then did the chalkboard group.

Aware that many research studies did support the mediated method of instruction, the developer was of the opinion that first hand information was needed to show that mediated resource packages were widely accepted and used in the social studies program in the Newfoundland Schools. In order to acquire this knowledge the developer, before beginning the development of the media package, conducted a survey to determine the attitudes of social studies teachers, in Newfoundland, towards the use of non-print materials as teaching aids in the classroom. If teacher attitudes were determined to reveal a positive orientation towards the use of non-print materials in the classroom, a valid reason would have been provided to develop a mediated unit of study on shipbuilding in Newfoundland.

A Semantic Differential Questionnaire (see appendix B) was sent to 42 schools, chosen at random, throughout

Newfoundland. Three elements were contained in the instrument: a concept the experimenter wished to evaluate, twenty sets of bi-polar adjectives describing how the subject felt about the concept, and a seven point ranking system to show the intensity of the subjects feeling towards a specific content. The questionnaire was designed to determine the attitudes of teachers towards the specific types of instructional media which would comprise the project, Shipbuilding At The Marystown Shipyard. The five categories emphasized on the questionnaire were: general media, slides, audio-tapes, overhead transparencies, and field trips.

From the 42 questionnaires sent out, 31 were returned. The total mean for each category was rated on a scale from 1 through 7, with 1 being highly negative in attitude, 3.5 being neutral in attitude and 7 being an highly positive attitude towards the use of non-print materials in the classroom.

FIGURE 1

RESULTS OF SEMANTIC DIFFERENTIAL QUESTIONNAIRE

General Media	Slides	Audio-tapes	Overhead Trans-parencies	Field Trips
Mean	Mean	Mean	Mean	Mean
5.02	4.66	4.35	6.09	4.06

The results of each category show that the attitude of social studies teachers in Newfoundland is positively oriented towards the use of non-print materials in the classroom. The results of this study led the developer to be optimistic that a non-print resource material on shipbuilding in Newfoundland would be a very valuable teaching aid in the grade six social studies program.

MATERIALS INCLUDED IN THE MEDIA PACKAGE

The mediated package, Shipbuilding At The Marystown Shipyard, consists of a slide/tape presentation, a series of overhead transparencies, and a manual for teachers.

SLIDE/TAPE PRESENTATION

This presentation looks at the facilities and services available at the Marystown Shipyard for the constructing and repairing of ships. The presentation provides information on such features as: the location of the shipyard, the acquisition of raw materials for building the ships, and the preparation of raw materials. The presentation takes the audience through a step by step view of the operations at the shipyard. All slides in the presentation are in colour.

AUDIO-TAPE

The cassette tape is equipped with both audible and inaudible signals for use with either manual or automatic slide projectors and cassette tape recorders. Information on this tape has been described in the slide/tape section of the paper.

OVERHEAD TRANSPARENCIES

The overhead transparencies are designed to complement the materials provided in the slide/tape presentation. The transparencies are:

1. Map of Newfoundland showing the major shipbuilding and boatbuilding centers in the Province.

2. Layout of the Marystown Shipyard.
3. Map of Mortier Bay.
4. Map of Newfoundland and Labrador showing the main North Atlantic Shipping Lanes.
5. Flow Chart showing the procedure in the construction of a ship at the Marystown Shipyard.

TEACHER'S MANUAL

The manual is designed to help teachers implement the unit into the classroom. Contents of the manual include: an introduction to the unit, instrumental content, intended learning outcomes, background information for teachers and suggested activities for use with the students.

The specific objectives of the media package are four-fold:

1. To supply teachers and students with additional information on shipbuilding in Newfoundland.
2. To supply information on shipbuilding in Newfoundland which will supplement the information already provided in the textbook, Shipbuilding In The Maritimes.
3. To supply information on shipbuilding in Newfoundland through a different type media which utilizes the sense of sound as well as the sense of sight in the education process.

4. To involve students and teachers in activities which will help create an interest in local projects of shipbuilding and boatbuilding within their immediate area and also throughout the whole of Newfoundland.

The mediated package is designed to enable teachers and students to use the materials with the least amount of difficulty.

CHAPTER VI

FORMATIVE EVALUATION

The formative evaluation of the instructional package was conducted over a two week period through consultation with a content specialist, learning specialist, media specialist and learners.

CONTENT SPECIALIST

The content specialist was Mr. H. Cluett of Garnish, Newfoundland. Mr. Cluett is employed as a draftsman with the Marystown Shipyard. The purpose of the content specialist was to evaluate the content of the instructional package to verify the accuracy of the information contained. Upon consultation with the content specialist, several points were raised concerning the accuracy of some of the information contained in the audio-tape of the slide-tape presentation. The audio-tape recording stated that the building where the ships are constructed is composed of two major sections: the preparation area and the assembly area. The content specialist stated that the building was composed of three major sections: the preparation area, assembly area, and erection area.

Another inaccuracy in the audio-tape which was noted by the content specialist relates to the type of raw materials used in the building of ships at the shipyard and the names

of the countries from where these materials are obtained. The audio-tape stated that the raw materials of iron and steel are imported from Belgium. The content specialist stated that the raw material is steel and is imported from such countries as the United States, Germany and Britain. The information provided by the content specialist was extremely beneficial and necessary if the instructional program was to be of any value to students.

RECOMMENDATIONS

The content specialist approved of the instructional package and was very pleased to know that such information would be made available for use with students in the schools. There were, however, two major changes recommended by the content specialist for the instructional unit. They were:

1. Corrections be made in the information on the audio-tape relating to the three areas which make up the construction building of the shipyard.
2. Corrections be made concerning the information on the audio-tape relating to the type of raw materials used at the shipyard and the names of the countries from where the raw material is imported.

DECISION FOR MODIFICATION

Change in any portion of the instructional package is unavoidable if the materials contain inaccurate information. Since the audio-tape did provide false information it was necessary and essential to correct the mistakes before the instructional package could be used in the classroom. Although correcting the mistakes meant a retaping of the audio-tape, upon the recommendations of the content specialist the correction was made.

LEARNING SPECIALIST

Mr. N. Croucher, a grade six history teacher at the Salt Pond Elementary School, Burin previewed the instructional package as a learning specialist. The purpose of the learning specialist was to determine if the materials contained in the package were suitable for students at the grade six level. The learning specialist highly approved of the package and judged the materials to be very well suited to grade six students.

RECOMMENDATIONS

The learning specialist found no changes that were necessary to be made in the instructional package.

MEDIA SPECIALIST

The media specialist was Dr. D. Carl, of the Department of Learning Resources at Memorial University. Dr. Carl is presently teaching graduate courses in the Learning Resources Program. The media specialist previewed the instructional package to examine the technical quality of the non-print materials in the package. After examination of the materials, a discussion was held between the media specialist and the developer. Several points of concern were brought up by the media specialist, such as the poor exposure quality of some of the slides and the distraction caused by the very high-pitch audible signal used on the audio-tape. Apart from the above points, the media specialist was very pleased with the instructional package.

RECOMMENDATIONS

Although the media specialist had high approval of the instructional package, there were several recommendations made for changes. They were:

1. Several slides in the slide-tape presentation were not of acceptable quality for use in the classroom. These slides were underexposed, resulting in students not being able to see clearly the content of the slides.
2. The high pitch volume of the audible signal used on the audio-tape was very distracting. These signals would not

only distract students, but would also prevent them from hearing the words on the tape each time the audible signal was produced.

DECISION FOR MODIFICATION

It is obvious that poor quality slides would be an hinderance, preventing learners from obtaining complete benefit from the instructional package. To alleviate the problem, the developer photographed these scenes again, and replaced the unsuitable slides with slides of much better quality.

To alleviate the problem caused by the high volume of the audible signal, the developer retaped both the narration track and audible signal track of the audio-tape.

LEARNERS

The complete unit was tested on six grade six students at the Salt Pond Elementary School who ranged from average to high achievers in the subject of history. The purpose of administering the package to these learners was to provide the developer with information as to the effectiveness of the instructional materials as a teaching aid.

PROCEDURE

Since all learners had all the required entry behavior before doing any part of the package, the complete package was selected to be tested. The developer administered the package. This was followed by a multiple-choice test. Following the test a discussion was held with the students and an attitude questionnaire relating to the technical qualities of the package was given to the students. All students stated that the package was easy to understand and very interesting. The learners, however, did disclose a negative attitude towards one aspect of the instructional package.

RECOMMENDATIONS

The learners were of the opinion that the slide-tape presentation went much too fast for viewing. They stated that the talking on the audio-tape went too fast, causing the slides to change too rapidly. This prevented the students from fully appreciating the value of the slide-tape presentation.

DECISION FOR MODIFICATION

Since the audio-tape had to be retaped, this would not be a difficult problem to overcome. The narrator when reading for the retaping of the audio-tape read much slower. This allowed for the slides to stay on the screen for a longer period of time.

CHAPTER VII

SUMMATIVE EVALUATION

The summative evaluation of the instructional package was conducted with three grade six social studies classes at three different schools located in various parts of Newfoundland. The three grade six classes totalled ninety-five students. A different teacher at each school taught the materials of the package to the students. The three schools involved were elementary schools, located at Salt Pond, at Bonavista, and at Upper Gullies. The schools were chosen in different areas of the province because a broader sample of students being exposed to the instructional package would provide a more valid indication of the effectiveness of the package as a teaching aid.

The developer of the instructional package refrained from official participation in the teaching of the unit in order to determine if teachers and students could use the unit effectively without help from the developer.

PROCEDURE

The three history teachers involved in the teaching of the instructional package were provided with the package one week prior to the introduction of the unit into the classroom. The purpose of this was to allow the teachers to become

familiar with the package so that if any questions should arise about any part of the package, the developer would have sufficient time to clarify the problem before the package was introduced into the classroom. No inservice instruction was given to the teachers before using the package. The reason for this was to determine if the package could be used effectively without help from the developer. No teacher encountered any problem.

Each teacher introduced the unit with specific written instructions provided by the developer (see appendix C). These instructions were the only comments required to be made by any teacher before the administering of the pretest. These instructions insured that the teaching of the package began the same with each of the classes. It also insured that no other teacher comments needed to be made before the administering of the pretest. This ruled out the possibility that comments from the teachers might affect the results of the pretest. In this way the results of the pretest would be more valid.

Pretest:

To determine the effectiveness of the instructional package on the achievement level of the students, a pretest-posttest method of evaluation was employed. Both pretest and posttest were comprised of fourteen multiple-choice questions (see appendix D). Each question consisted of a statement with a choice of four possible answers. One and

only one answer out of the four stated was the correct answer. The pretest and posttest were identical in format and content. The pretest was administered to the students before exposure to the instructional package. Upon completion of the pretest by the students, the test was collected and the results tabulated by the teachers. An answer key was provided by the developer for the scoring of the pretest and posttest (see appendix E). The purpose of the pretest was to determine the amount of knowledge the students already possessed on the shipbuilding industry at Marystown.

Posttest:

After the information contained in the package was presented to the students, the posttest was administered. Upon completion, this test was collected and the results tabulated by the teachers. The purpose of the posttest was to determine how much information the students had gained after exposure to the instructional package.

Attitude Questionnaires:

Apart from measuring the achievement level of the students after exposure to the instructional package, attitude questionnaires were administered to both teachers and students for completion (see appendix F). Questionnaires for teachers were different in content from those given to the students. The attitude questionnaires were designed to determine the attitudes of the teachers and the students towards the technical aspects of the instructional package.

Observer's Checklist:

An observer's checklist was also used in the evaluation of the instructional package (see appendix G). Another teacher at each school served as the observer. A teacher, rather than the developer, served as the observer to lessen the possibility of bias in the evaluation of the effectiveness of the package as a teaching aid. The responsibility of the observer was to be present at the teaching of the package to observe and tabulate such information as: the reaction of the students during the presentation of the materials, how well the materials held the attention of the students, and whether the materials were effective in stimulating class discussion. To counteract the effect of the observer being in the classroom, each observer attended three classes of history in these grades, one week prior to the presentation of the instructional package.

No time limit was placed on the amount of time each teacher was permitted to take in teaching the package. No teacher, however, completed the package in less than one week. It took approximately three months for the package to be piloted in all three schools.

RESULTS

Results of the pretest and posttest were tabulated. A difference between the pretest and the posttest was observed and noted to be significant at the .001 level of significance, under the analysis of the t-test (see appendix H). Comparison of the individual scores from pretest and posttest shows that one hundred percent of the students scored as high or higher on the posttest. These comparisons are illustrated on a bargraph (see appendix I).

In tabulating the results of the attitude questionnaires for students and teachers, frequency charts were used (see appendix J). The results as illustrated by this chart show that teachers and students thought very positively towards the technical aspects of the instructional package.

Results of the observer's checklist were also tabulated on a frequency chart (see appendix K). These results show that the program was very well accepted in the classroom. The students were noted to be very interested and stimulated by the information contained in the package. Teachers were observed to be very well acquainted with the materials and enjoyed teaching the unit.

LIMITATIONS

1. The unit, Shipbuilding At The Marystown Shipyard, has been developed to meet the needs of grade six history students only. No attempt has been made to accommodate students outside of this grade and subject area. The unit, however, could be easily adapted to meet the needs of students above and below the grade six level.

2. The unit is limited to the development of an instructional package centering around one shipyard in Newfoundland.

3. A significant reason for all students scoring as high or higher on the posttest may have resulted from the pre-test and posttest being identical in content and format.

4. The piloting of the instructional package was limited to instruction with three intact classes of grade six students.

IMPLEMENTATION

During this past school year, 1976-77, the instructional package, Shipbuilding At The Marystown Shipyard, has received extensive use at the Salt Pond Elementary School, Burin. Although the package has been designed for use with students at the grade six level, teachers at this school have used the package very effectively in grades five through eight.

The instructional package is readily accessible to teachers at the Salt Pond Elementary School since the developer of the package is employed as a teacher at the school. It is the desire of the developer to have the package made accessible to all teachers throughout the province of Newfoundland. Teachers, however, must first be made aware that such a package is in existence. Much too often resource materials become available but teachers have not been made aware of their existence.

One such system which has been recently developed to help alleviate this problem is known as Clearing House. Clearing House is a system developed by the Faculty of Education at Memorial University whereby information about instructional packages and the materials are distributed to teachers throughout Newfoundland. Such a system will unquestionably provide a beneficial service to the teachers of Newfoundland.

Another old and very reliable system whereby information is transmitted in the teaching profession is through the

process of teacher to teacher conversations. Whenever a teacher finds a particular teaching aid that is a good resource material, ideas and recommendations are exchanged orally regarding the suitability of such a material. That teacher passes the word to other teachers and suddenly a great demand has been created for the instructional material. The developer trusts that any teacher who uses this package and finds that it is an effective teaching resource, will transmit such information to other teachers so that other students may benefit from the instructional package, Shipbuilding At The Marystown Shipyard.

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APPENDIX A

SURVEY OF TEACHER ACCESS TO AUDIO-VISUAL EQUIPMENT IN NEWFOUNDLAND SCHOOLS INCLUDING LIST OF SCHOOLS SURVEYED.

SURVEY OF TEACHER ACCESS TO AUDIO-VISUAL EQUIPMENT IN NEWFOUNDLAND SCHOOLS.

1. Name of school (optional) _____.

2. Grades taught _____.

3. Do you have access to slide projector? Yes No

4. Do you have access to cassette tape recorder?

Yes No

5. Do you have access to overhead projector?

Yes No

6. Have you used media in your classroom this year?

Yes No

LIST OF SCHOOLS SURVEYED

1. Vinland Elementary, St. Anthony
2. Straits Elementary, Flowers Cove
3. Amalgamated Regional High, Deer Lake
4. Grant Collegiate, Springdale
5. Lincoln Road Elementary, Grand Falls
6. Elementary School, Buchans
7. Windsor Elementary, Windsor
8. Central High School, Change Islands
9. Elementary School, Lewisporte
10. Holy Cross Elementary, Eastport
11. Regional High School, Glovertown
12. St. Augustine Central High, Trinity, B. B.
13. Central Elementary, Bonavista
14. Elementary School, Clarenville
15. Memorial Elementary, Elliston
16. Central High, Musgravetown
17. St. Paul's Central High, Harbour Grace
18. Elementary School, Norman's Cove
19. St. Augustine's Elementary, Bell Island
20. Bishop Field Elementary, St. John's
21. Vanier Elementary, St. John's
22. Salt Pond Elementary, Burin
23. Partanna Academy, Grand Bank
24. John Burke High, Grand Bank
25. Elementary School, Harbour Breton

26. St. Mary's Elementary, Port Aux Basques
27. Central High, Stephenville
28. Loughlin Elementary, Corner Brook
29. St. Mary's Elementary, Cow Head
30. Holland's Central High, Norris Point
31. Goose Elementary, Goose Bay
32. Peacock Academy, Happy Valley
33. Notre Dame Academy, Labrador City
34. J. R. Smallwood Collegiate, Wabush
35. St. Andrews Elementary, Chamberlains
36. St. Peter's Elementary, Upper Gullies
37. Berney Memorial High, Burin
38. Marystown Central High, Marystown
39. Pearce Regional High, Burin
40. St. Joseph's Academy, Gander
41. Roncalli Central High, Port Aux Choix
42. Holy Spirit Elementary, Manuals

APPENDIX B

SEMANTIC DIFFERENTIAL QUESTIONNAIRE

SEMANTIC DIFFERENTIAL

Please rate the following concepts as to how you perceive or feel about them at the moment. Place an "X" somewhere along each of the seven-point scale anchored by the bi-polar adjective pairs. For example:

Concept: Library

important unimportant

very quite slightly neutral slightly quite very

The more important you feel this concept is closer to the word "important" you would place your "X". The more unimportant you feel the concept is closer to the word "unimportant" you place your "X".

If it is hard to decide if it is important or unimportant or you feel the adjective pair is irrelevant to the particular concept, place "X" in the "neutral" place.

1. Concept: Use of Media in the Classroom

successful	___	___	___	___	___	___	___	unsuccessful
valuable	___	___	___	___	___	___	___	worthless
fun	___	___	___	___	___	___	___	work
dull	___	___	___	___	___	___	___	bright
important	___	___	___	___	___	___	___	unimportant
necessary	___	___	___	___	___	___	___	unnecessary
relaxed	___	___	___	___	___	___	___	tense
sociable	___	___	___	___	___	___	___	unsociable
positive	___	___	___	___	___	___	___	negative
stale	___	___	___	___	___	___	___	fresh
accept	___	___	___	___	___	___	___	reject
fair	___	___	___	___	___	___	___	unfair
sweet	___	___	___	___	___	___	___	sour
interesting	___	___	___	___	___	___	___	boring
right	___	___	___	___	___	___	___	wrong
rugged	___	___	___	___	___	___	___	delicate
clear	___	___	___	___	___	___	___	hazy
pleasant	___	___	___	___	___	___	___	unpleasant
ferocious	___	___	___	___	___	___	___	peaceful
good	___	___	___	___	___	___	___	bad

2. Concept: Use of Slides in the Classroom

successful	___	___	___	___	___	___	___	unsuccessful
valuable	___	___	___	___	___	___	___	worthless
fun	___	___	___	___	___	___	___	work
dull	___	___	___	___	___	___	___	bright
important	___	___	___	___	___	___	___	unimportant
necessary	___	___	___	___	___	___	___	unnecessary
relaxed	___	___	___	___	___	___	___	tense
sociable	___	___	___	___	___	___	___	unsociable
positive	___	___	___	___	___	___	___	negative
stale	___	___	___	___	___	___	___	fresh
accept	___	___	___	___	___	___	___	reject
fair	___	___	___	___	___	___	___	unfair
sweet	___	___	___	___	___	___	___	sour
interesting	___	___	___	___	___	___	___	boring
right	___	___	___	___	___	___	___	wrong
rugged	___	___	___	___	___	___	___	delicate
clear	___	___	___	___	___	___	___	hazy
pleasant	___	___	___	___	___	___	___	unpleasant
ferocious	___	___	___	___	___	___	___	peaceful
good	___	___	___	___	___	___	___	bad

3. Concept: Use of Audio - Tapes in the Classroom

successful	___	___	___	___	___	___	___	unsuccessful
valuable	___	___	___	___	___	___	___	worthless
fun	___	___	___	___	___	___	___	work
dull	___	___	___	___	___	___	___	bright
important	___	___	___	___	___	___	___	unimportant
necessary	___	___	___	___	___	___	___	unnecessary
relaxed	___	___	___	___	___	___	___	tense
sociable	___	___	___	___	___	___	___	unsociable
positive	___	___	___	___	___	___	___	negative
stale	___	___	___	___	___	___	___	fresh
accept	___	___	___	___	___	___	___	reject
fair	___	___	___	___	___	___	___	unfair
sweet	___	___	___	___	___	___	___	sour
interesting	___	___	___	___	___	___	___	boring
right	___	___	___	___	___	___	___	wrong
rugged	___	___	___	___	___	___	___	delicate
clear	___	___	___	___	___	___	___	hazy
pleasant	___	___	___	___	___	___	___	unpleasant
ferocious	___	___	___	___	___	___	___	peaceful
good	___	___	___	___	___	___	___	bad

4. Concept: Use of Overhead Transparencies in the Classroom

successful	___	___	___	___	___	___	___	unsuccessful
valuable	___	___	___	___	___	___	___	worthless
fun	___	___	___	___	___	___	___	work
dull	___	___	___	___	___	___	___	bright
important	___	___	___	___	___	___	___	unimportant
necessary	___	___	___	___	___	___	___	unnecessary
relaxed	___	___	___	___	___	___	___	tense
sociable	___	___	___	___	___	___	___	unsociable
positive	___	___	___	___	___	___	___	negative
stale	___	___	___	___	___	___	___	fresh
accept	___	___	___	___	___	___	___	reject
fair	___	___	___	___	___	___	___	unfair
sweet	___	___	___	___	___	___	___	sour
interesting	___	___	___	___	___	___	___	boring
right	___	___	___	___	___	___	___	wrong
rugged	___	___	___	___	___	___	___	delicate
clear	___	___	___	___	___	___	___	hazy
pleasant	___	___	___	___	___	___	___	unpleasant
ferocious	___	___	___	___	___	___	___	peaceful
good	___	___	___	___	___	___	___	bad

5. Concept: Field Trips

successful	___	___	___	___	___	___	___	unsuccessful
valuable	___	___	___	___	___	___	___	worthless
fun	___	___	___	___	___	___	___	work
dull	___	___	___	___	___	___	___	bright
important	___	___	___	___	___	___	___	unimportant
necessary	___	___	___	___	___	___	___	unnecessary
relaxed	___	___	___	___	___	___	___	tense
sociable	___	___	___	___	___	___	___	unsociable
positive	___	___	___	___	___	___	___	negative
stale	___	___	___	___	___	___	___	fresh
accept	___	___	___	___	___	___	___	reject
fair	___	___	___	___	___	___	___	unfair
sweet	___	___	___	___	___	___	___	sour
interesting	___	___	___	___	___	___	___	boring
right	___	___	___	___	___	___	___	wrong
rugged	___	___	___	___	___	___	___	delicate
clear	___	___	___	___	___	___	___	hazy
pleasant	___	___	___	___	___	___	___	unpleasant
ferocious	___	___	___	___	___	___	___	peaceful
good	___	___	___	___	___	___	___	bad

APPENDIX C

INSTRUCTIONS FOR STUDENTS

INSTRUCTIONS FOR STUDENTS

This Information Is To Be Read To The Class Before Beginning Unit.

Students, the topic we are about to begin, deals with the shipbuilding industry at the Marystown Shipyard. Maybe some of you are familiar with this industry.. To begin this unit of work I am going to give you a multiple-choice test. The purpose of this test is to determine the amount of knowledge you already know about the Marystown Shipyard. This will, in turn, help me to decide what I should or should not teach on the subject of shipbuilding at the Marystown Shipyard.

The grade you obtain on this test will be in no way held against you, however, I want you to answer all questions to the best of your ability.

APPENDIX D

PRETEST-POSTTEST

MULTIPLE-CHOICE TEST

Instructions:

Each question in this test has four possible answers. Read each question carefully and choose only ONE answer, the one that you consider to be correct. Put a circle around the answer you choose.

Example:

The capital of Newfoundland is __.

a. Marystown
b. Grand Falls
(c.) St. John's
d. Gander

1. The town of Marystown is located on the __ coast of Newfoundland.

a. north
b. south
c. east
d. west

2. The Marystown Shipyard is located on the shores of __ Bay.

a. Trinity
b. White
c. Mortier
d. Bonavista

3. The Marystown Shipyard specializes in the construction of __ ships.

   a. wooden
   b. steel
   c. aluminum
   d. fiberglass

4. The final stage in the construction of a ship at the Marystown Shipyard takes place in the section of the construction building known as the __ Area.

   a. Preparation
   b. Assembly
   c. Sheet Metal Shop
   d. Erection

5. The duct work system for a ship being constructed at the Marystown Shipyard, is prepared in the section of the shipyard known as the __.

   a. Preparation Area
   b. Assembly Area
   c. Sheet Metal Shop
   d. Erection Area

6. Before raw materials of steel enter the Preparation Area at the Marystown Shipyard, they must pass through a rolling machine which sandblasts the steel, sprays it with a rust resistant chemical and __.

   a. cuts the steel into small pieces
   b. paints the steel
   c. washes the dirt from the steel
   d. rolls the steel into small bundles

7. Preparing the parts for the ship that is to be constructed at the Marystown Shipyard, is done in the __.

   a. Preparation Area
   b. Assembly Area
   c. Sheet Metal Shop
   d. Erection Area

8. One of the chief reasons which makes the Marystown Shipyard ideally located is that __.

   a. the port is ice-free for six months of the year.
   b. the port is close to the main north atlantic shipping lines.
   c. the port can be reached easily from all parts of Newfoundland
   d. the raw materials needed to build the ships can be obtained easily from nearby communities

9. To move around the heavy materials of steel inside the Preparation Area of the Marystown Shipyard a/an __ is used.

   a. overhead crane
   b. magnetic crane
   c. tractor
   d. motorized pulley

10. The blueprints needed for the building of a ship at the Marystown Shipyard are drawn up in the __ Department of the shipyard.

   a. Steel Works
   b. Outfitting
   c. Security
   d. Engineering

11. One of the purposes of the syncrolift at the Marystown Shipyard is to __ the ship.

   a. paint
   b. repair
   c. launch
   d. refuel

12. The largest shipbuilding center in the province of Newfoundland is located at __.

    a. Port Union
    b. Roddickton
    c. Marystown
    d. Grand Bank

13. __ is the location of another shipbuilding center in Newfoundland.

    a. Corner Brook
    b. Bonavista
    c. Clarenville
    d. Deer Lake

14. The name given to a plan drawn up of a ship to be built is called a/an __.

    a. design
    b. portrait
    c. blueprint
    d. model

APPENDIX E

SCORE KEY FOR PRETEST-POSTTEST

SCORE KEY FOR PRETEST-POSTTEST

1. B
2. C
3. B
4. D
5. C
6. B
7. A
8. B
9. B
10. D
11. C
12. C
13. C
14. C

APPENDIX F

STUDENT AND TEACHER ATTITUDE QUESTIONNAIRES

STUDENT ATTITUDE QUESTIONNAIRE

SECTION A:

a. Title of the unit is _____.

b. Name of student is _____.

c. Age of student is _____.

d. Name of teacher is _____.

e. Name of school is _____.

f. Today's date is _____.

SECTION B:

Instructions

The following are a list of statements about events that took place in class during the teaching of this unit of work. Circle ONE of the letters to the right of the statement which will show how you feel about these class events. Any additional comments you may wish to make can be done in the space provided.

Example:

Suppose you are asked to state how you feel towards a certain project you worked on this past school year:

I enjoyed doing the project.	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
	a	b	c	d	e	_____

If you feel that the project was boring and of no interest to you, then you would circle the letter a which

means not at all.

If you feel that only certain portions or part of the project was interesting, then you would circle the letter b which would mean not much.

If you thought the project was interesting but not really exciting, then you would circle the letter c meaning much.

If you were extremely excited and interested in the project, then you would circle the letter d meaning very much.

If you feel that one of the statements does not apply to the situation, you would circle the letter e meaning not applicable.

If you wish to make additional comments, a space is provided to the right of the statement under the heading comments.

	Not At All	Not Much	Much	Very Much	Not Applic-able	Comments
1. I enjoyed working with the other class members during this unit of work.	a	b	c	d	e	_____
2. I enjoyed working with the teacher during this unit of work.	a	b	c	d	e	_____

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
3. I enjoyed working at the reference materials eg. books, filmstrips, overhead transparencies etc. during this unit of work.	a	b	c	d	e	_____
4. I enjoyed class activities during this unit of work	a	b	c	d	e	_____
5. I enjoyed the field trips during this unit of work.	a	b	c	d	e	_____
6. I enjoyed the arrangement of the class into groups during this unit of work	a	b	c	d	e	_____

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
7. I understood the materials taught during this unit of work.	a	b	c	d	e	_____
8. I enjoyed materials taught during this unit of work.	a	b	c	d	e	_____
9. I understood the purpose for using the materials during this unit of study.	a	b	c	d	e	_____
10. I understood the activities that occurred during this unit of work.	a	b	c	d	e	_____
11. I enjoyed the activities that occurred during this unit of work.	a	b	c	d	e	_____

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
12. The materials were appropriate to what was being taught.	a	b	c	d	e	_____
13. The activities were appropriate to what was being taught.	a	b	c	d	e	_____

Are there any improvements that you would suggest for this unit? ___ If so, what?

_____

_____

_____

_____

_____

_____

TEACHER ATTITUDE QUESTIONNAIRE

SECTION A:

a. Title of this unit is _____.

b. Name of the teacher is _____.

c. Name of the school is _____.

d. Grade level of the students is _____.

e. Today's date is _____.

SECTION B:

Instructions

The following are a list of statements about events that took place in class during the teaching of this unit of work. Circle ONE of the letters to the right of the statement indicating how you feel towards these class events. Additional space is provided if you should wish to make additional comments.

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
1. I enjoyed working with the class on this unit of work.	a	b	c	d	e	_____

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
2. I enjoyed working with the materials available for this unit of work.	a	b	c	d	e	_____
3. I understood the materials in the teaching of this unit of work.	a	b.	c	d	e	_____
4. I enjoyed activities that took place during this unit of work.	a	b	c	d	e	_____
5. I enjoyed the grouping of the students during this unit of work.	a	b	c	d	e	_____
6. I enjoyed the location of the classes during this unit of work.	a	b	c	d	e	_____

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
7. The students enjoyed the lessons taught during this unit of work.	a	b	c	d	e	_____
8. The students enjoyed the activities during this unit of work.	a	b	c	d	e	_____
9. The students understood the activities during this unit of work.	a	b	c	d	e	_____
10. The students understand the lessons taught during this unit of work.	a	b	c	d	e	_____

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
11. The materials in the unit was appropriate to what was being studied.	a	b	c	d	e	_____
12. The activities conducted during the unit was appropriate to what was being studied.	a	b	c	d	e	_____

Are there any improvements you would suggest should be made in this unit? ____ If so, what?

_____

_____

_____

_____

_____

_____

APPENDIX G

OBSERVER'S CHECKLIST

CLASSROOM EVALUATION: OBSERVER'S CHECKLIST

SECTION A:

a. Length of lesson period is _____.

b. Place of observed lesson in the teaching of the unit is _____.

_____ introduction _____ mid-point _____ end

c. Name of observer is _____.

d. Name of teacher is _____.

e. Name of school is _____.

f. Grade level is _____.

g. Date of today's observed lesson is _____.

Unusual circumstances affecting the lesson.

_____

_____

_____

_____

SECTION B:

Instructions To The Observer

The statements below represents different aspects relating to the learning situation during an observed lesson period.

Circle the letter to the right of the statement which best expresses the observer's response to that particular

statement. A space is provided for additional comments.

PART I: OBSERVATION OF STUDENTS

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
1. The students enjoyed working together.	a	b	c	d	e	_____
2. The students enjoyed working with the teacher.	a	b	c	d	e	_____
3. The students enjoyed the activities carried on in this unit.	a	b	c	d	e	_____
4. The students enjoyed working in groups.	a	b	c	d	e	_____
5. The students understood why they were placed in groups.	a	b	c	d	e	_____
6. The students understood each others responses	a	b	c	d	e	_____

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
7. The students enjoyed the materials being taught.	a	b	c	d	e	_____
8. The students understood the materials being taught.	a	b	c	d	e	_____
9. The students enjoyed the location for the lesson.	a	b	c	d	e	_____
10. The students understood the reason for the location of the lesson.	a	b	c	d	e	_____
11. The materials were appropriate to the grade level.	a	b	c	d	e	_____

		Not At All	Not Much	Much	Very Much	Not Applicable	Comments
12.	The activities were appropriate for the grade level.	a	b	c	d	e	_____
13.	The grouping of the students was appropriate for the activities that occurred during the lesson.	a	b	c	d	e	_____

PART II: OBSERVATION OF THE TEACHER

1.	The teacher enjoyed working with the students.	a	b	c	d	e	_____
2.	The teacher enjoyed working with the materials.	a	b	c	d	e	_____
3.	The teacher understood the materials.	a	b	c	d	e	_____
4.	The teacher enjoyed the location of the lesson	a	b	c	d	e	_____

	Not At All	Not Much	Much	Very Much	Not Applicable	Comments
5. The teacher understood the needs of the students.	a	b	c	d	e	_____
6. The teacher enjoyed the activities that took place during the lesson.	a	b	c	d	e	_____
7. The teacher understood the activities that took place during the lesson.	a	b	c	d	e	_____
8. The activities were relevant to the topic being studied.	a	b	c	d	e	_____
9. The teacher offered encouragement to the students.	a	b	c	d	e	_____

After observing today's lesson, what improvements can be made?

_____

_____

_____

_____

_____

APPENDIX H

SCORES OBTAINED BY STUDENTS ON PRETEST-POSTTEST

PRETEST - POSTTEST RESULTS

STUDENTS #	PRETEST (max. 14) SCORES	POSTTEST (max. 14) SCORES
1	4	12
2	8	14
3	3	9
4	5	11
5	3	11
6	2	10
7	2	9
8	4	9
9	5	10
10	3	11
11	4	12
12	3	11
13	4	10
14	2	11
15	2	10
16	2	9
17	2	10
18	3	8
19	4	12
20	1	7
21	1	11
22	1	8
23	2	8
24	1	8
25	5	11
26	5	10
27	7	13
28	4	10
29	8	13
30	6	12

STUDENTS #	PRETEST (max. 14) SCORES	POSTTEST (max. 14) SCORES
31	9	14
32	5	12
33	7	13
34	5	13
35	8	13
36	2	7
37	2	10
38	2	10
39	2	8
40	3	9
41	4	10
42	4	11
43	1	9
44	3	10
45	5	12
46	1	9
47	5	13
48	3	10
49	2	9
50	2	10
51	3	10
52	2	8
53	1	7
54	1	5
55	2	10
56	4	9
57	6	12
58	6	13
59	4	10
60	3	10

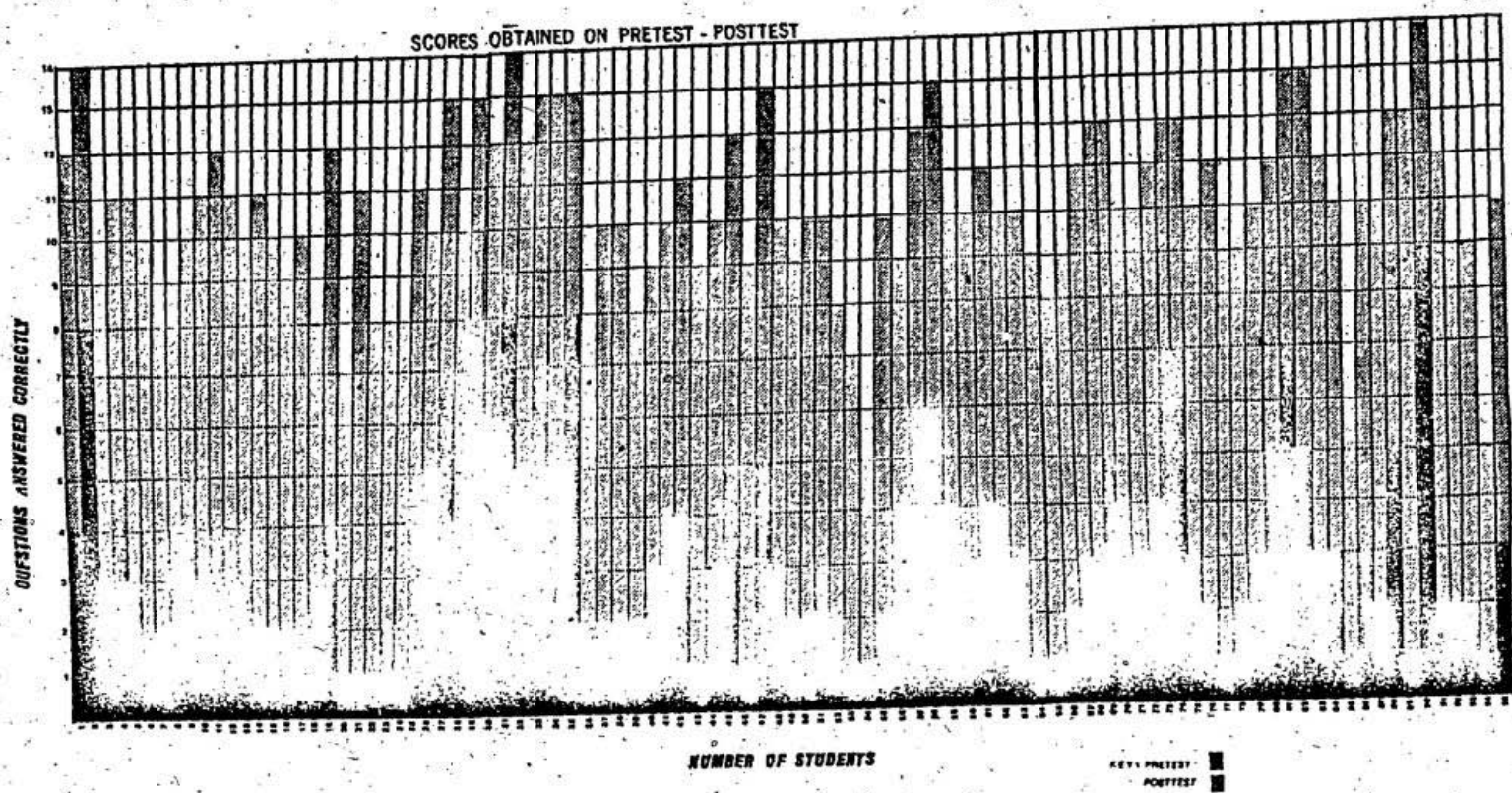
STUDENTS #	PRETEST (max. 14) SCORES	POSTTEST (max. 14) SCORES
61	4	11
62	4	10
63	3	10
64	1	9
65	1	8
66	2	9
67	3	11
68	3	12
69	5	12
70	4	10
71	3	10
72	4	11
73	7	12
74	7	12
75	3	10
76	2	11
77	1	9
78	2	9
79	3	10
80	5	11
81	7	13
82	5	13
83	3	11
84	3	10
85	1	6
86	3	10
87	2	10
88	5	12
89	1	10
90	9	14

STUDENTS #	PRETEST (max. 14) SCORES	POSTTEST (max. 14) SCORES
91	2	11
92	2	9
93	2	9
94	1	5
95	3	10

$\overline{X}_1 = 3.46$ $\overline{X}_2 = 11.33$

APPENDIX I

BARGRAPH DISPLAYING RESULTS OF STUDENT SCORES ON PRETEST AND POSTTEST


SCORES OBTAINED ON PRETEST - POSTTEST
QUESTIONS ANSWERED CORRECTLY
NUMBER OF STUDENTS
KEY: PRETEST
POSTTEST

APPENDIX J

FREQUENCY CHARTS FOR STUDENT AND TEACHER ATTITUDE QUESTIONNAIRES

RESULTS OF STUDENT ATTITUDE QUESTIONNARE

QUESTION	NOT AT ALL A	NOT MUCH B	MUCH C	VERY MUCH D	NOT APPLICABLE E
1	[illegible]	[illegible]	[illegible]	[illegible]	
2		[illegible]	[illegible]	[illegible]	[illegible]
3		[illegible]	[illegible]	[illegible]	
4		[illegible]	[illegible]	[illegible]	
5	[illegible]			[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9		[illegible]	[illegible]	[illegible]	
10	[illegible]	[illegible]	[illegible]	[illegible]	
11	[illegible]	[illegible]	[illegible]	[illegible]	
12		[illegible]	[illegible]	[illegible]	
13	[illegible]	[illegible]	[illegible]	[illegible]	

RESULTS OF TEACHER ATTITUDE QUESTIONNARE

QUESTION	NOT AT ALL	NOT MUCH	MUCH	VERY MUCH	NOT APPLICABLE
	A	B	C	D	E
1				III	
2				III	
3				III	
4			II	I	
5				III	
6				III	
7				III	
8			III		
9			II	I	
10				III	
11				III	
12				III	

APPENDIX K

FREQUENCY CHART FOR OBSERVER'S CHECKLIST

RESULTS OF OBSERVER'S CHECKLIST
Part I: Observation Of Students

QUESTION	NOT AT ALL	NOT MUCH	MUCH	VERY MUCH	NOT APPLICABLE
	A	B	C	D	E
1				III	
2			II	I	
3			II	I	
4				II	I
5			II		I
6			I		II
7				III	
8			I	II	
9				III	
10				III	
11				III	
12				III	
13					

Part II: Observation Of Teachers

QUESTION	NOT AT ALL	NOT MUCH	MUCH	VERY MUCH	NOT APPLICABLE
	A	B	C	D	E
1				III	
2				III	
3				III	
4			I	II	
5				III	
6			II	I	
7				III	
8				II	
9				III	

TEACHER'S MANUAL

TABLE OF CONTENTS

INTRODUCTION

This unit of work on shipbuilding in Newfoundland has been developed specifically as a supplementary material to the existing grade six history textbook, Shipbuilding In The Maritimes. The unit, however, is applicable for use with students at higher and lower grade levels. The teaching of the materials in this unit can be completed within a week. This will vary of course, depending upon the needs of a particular class and teacher.

The unit, Shipbuilding At The Marystown Shipyard has been designed to arouse student interest in the area of shipbuilding and boatbuilding in Newfoundland. Exposure to this unit of information should help students understand and appreciate more fully the importance of such a skill as shipbuilding and boatbuilding in the lives of the Newfoundland people.

This unit is designed for use by the teacher with the least amount of difficulty. The intent of the unit and the role of the teacher should not be to use the unit as an isolated unit of information, but as a supplementary aid in the teaching of a unit of work on shipbuilding and boatbuilding in Newfoundland.

INSTRUMENTAL CONTENT

Slide/Tape:

The sea has been one of the chief sources of livelihood for the Newfoundland people for hundreds of years. Skill in shipbuilding and boatbuilding, therefore, has been a part of the Newfoundlanders Heritage for many centuries. To treat such a topic adequately would demand a more extensive and indepth study of shipbuidling and boatbuilding in Newfoundland then is covered in this unit of study.

Because of the vast amount of information which can be accumulated on this topic and because of the short amount of time available to spend on the topic within the classroom, this slide/tape presentation deals with one shipbuilding center only, in Newfoundland. This center is the Marystown Shipyard, located on the Burin Peninsula, on the south coast of Newfoundland.

The Marystown Shipyard was chosen for the study since it is the largest shipyard in this province, and the most modern in the production of steel ships in the whole of Canada.

The slide/tape presentation, Shipbuilding At The Marystown Shipyard looks at the facilities and services available at the shipyard for the construcing and repairing of ships. The slide/tape presentation provides information on

such things as the location of the shipyard, the acquisition of raw materials for building the ships, preparation of the raw materials, assembling of units, erection of a ship, and the process whereby ships are launched and dry-docked at the shipyard. All of the slides are in color. The audio-tape is equipped with audible and in-audible beeps for use with either manual or automatic slide projector and cassette tape recorder.

TRANSPARENCIES

The overhead transparencies are designed to complement the material provided in the slide/tape presentation. The transparencies are:

1. Map of Newfoundland showing the major shipbuilding and boatbuilding centers in the province. This transparency is intended to promote an interest in the students in discovering for themselves the types of vessels constructed at the other shipyards and how the various shipyards throughout the island compare in relation to the facilities and services that are available. Moreover, the transparency is designed to prompt the student into searching out and exploring any types of boatbuilding or shipbuilding projects which might be carried on by the local inhabitants of their community.

2. Layout of the Marystown Shipyard. This transparency is intended to help

students understand more clearly the design of the Marystown Shipyard for the constructing and repairing of ships.

3. Map of Mortier Bay. This transparency is designed to show why this bay provides such an ideal location for the building of a shipyard.

4. Map of Newfoundland and Labrador showing the main North Atlantic Shipping Lines. This transparency is designed to show how the location of the shipyard is of extreme importance to ships using these shipping lanes.

5. Flowchart showing the procedure in the building of a ship at the Marystown Shipyard. This transparency is designed to allow students to see more clearly the sequence of events in the construction of a ship at the Marystown Shipyard. The transparency shows the location and the role played by each department of the shipyard in the building of a ship.

TEACHER'S MANUAL

The manual is designed to help teachers implement the unit into the classroom.

INTENDED LEARNING OUTCOMES

The two major general objectives for this unit are: 1. to help students acquire a knowledge, understanding and appreciation of shipbuilding and

boatbuilding in Newfoundland. 2. to involve the students in activities which will help create an interest in any local projects of shipbuilding or boatbuilding within their own community.

To achieve the first general objective the unit deals with the following aspects of shipbuilding at the Marystown Shipyard:

- Mortier Bay, an ideal location for the shipyard.
- Acquisition of raw materials.
- Preparation of raw materials.
- Stages in the construction of a ship.
- Repairing of ships.
- Method employed for launching and dry-docking ships at the shipyard.

To achieve the second general objective the unit provides for:

- Field trips to shipbuilding or boat-building centers.
- Visitations to the class by people who are or have been involved in the building of ships or boats.
- Assigning research projects to the students relating to shipbuilding and boatbuilding in Newfoundland.
- Field trips to museums exhibiting collections on ships or boats eg: Fishermen's Museum, Grand Bank.

In addition to these basic learning outcomes, the unit promotes the use of the following types of skills:

- Discussion.
- Co-operation.
- Sequencing of events.
- Reporting.
- Asking thoughtful questions.
- Noting important ideas.

BACKGROUND FOR TEACHER

General information on shipbuilding throughout the Maritime Provinces is provided through the use of the textbook, Shipbuilding In The Maritimes. This text lays the groundwork for the introduction of the unit, Shipbuilding At The Marystown Shipyard.

Enough information is provided in this unit to enable the teacher to discuss the shipbuilding industry at the Marystown Shipyard with the least amount of difficulty and without any inservice training in the unit.

For teachers wishing to explore the topic of shipbuilding and boatbuilding in more detail, the following books, magazines and articles are valuable:

- Marystown Shipyard: Facilities & Services. Publication of the Marystown Shipyard.
- Decks Awash. Publication of Extension Services, Memorial University, Newfoundland.
- History of Shipbuilding In Newfoundland. Author, publisher and date unknown. available at the Library of College of Fisheries And Navigation, St. John's,

Newfoundland.

- Hudson, L.. Steel Shipping in Newfoundland. The Southwester, Yarmouth, Nova Scotia, Feb. 1975.
- Farbrother, R.. Ships. Paul Hamlyn Ltd., London, 1963.
- Kay, F. G.. It's made like this: Ships. John Baker Publications Ltd., London, 1966.
- Grzywaczewski, Z.. Modern Fishing vessals. National Science Foundation, Washington, 1964.
- Klingel, G. C.. Boatbuilding with steel. International Marine Pub. Co., Maine, 1973.
- Nicolson, I.. Small steel craft: Design, Construction and maintenance. Adlard Coles Ltd., London, 1971.
- Rabl, S. S.. Boatbuilding in your own backyard. Cornell Maritime Press, Cambridge, 1958.
- Walton, T.. Steel ships: Their construction and maintenance. Charles Grifeen & Co. Ltd., London, 1964.

SUGGESTED ACTIVITIES

The aim of the teacher's manual is not to dictate to the teacher how to implement the materials into the classroom. The teacher in the classroom is better aware of the needs of the students then is the developer of the unit. The teacher, therefore, should plan to use the unit when and where it will be of utmost benefit to the students.

As an aid to the teacher in implementing the unit into the classroom, the developer of the unit offers the following list of suggested activities:

- Class discussions whereby students are encouraged to relate to the class, experiences they may have encountered involving ships or boats. The aim of the discussion should be to stimulate an interest within the class towards the building of ships and boats within the province. Models of ships or boats would aid in this discussion.
- Divide the class into groups. Assign each group a project to research information on a particular type of ship or boat. Have each group report their findings to the class.
- Instruct students to draw a map of Newfoundland, marking in on it all shipbuilding and boatbuilding centers they are able to find located in the province.
- Divide the class into groups. Appoint a chairman for each group. Assign each group the responsibility of collecting materials for the compiling of a scrapbook relating to shipbuilding and boatbuilding in Newfoundland.
- Instruct the class to make a list of the things they think would likely happen if the Marystown Shipyard should decide to close down operations.
- Arrange field trips for students to

visit a shipbuilding or boatbuilding center in or near their locality. If possible provide students with audip-visual equipment eg: 35mm. cameras and cassette tape recorders.

- Arrange field trips for students to visit museems displaying exhibits on ships or boats.
- Provide for class visitations from people who are building or have built ships or boats.

APPENDIX M

ACCOMPANYING SCRIPT FOR SLIDES

(7) The indented coastline of Newfoundland is well noted for its deep and well protected coves, harbours and bays. (8) Mortier Bay, located on the south coast of Newfoundland is one such bay. (9) This bay extends inland for about five miles, an expansive inlet sheltered on all sides by hills, and ice-free year round. (10) Located about one mile inland on Mortier Bay is the Marystown Shipyard. (11) Although numerous shipbuilding and boatbuilding centers are located throughout Newfoundland, (12) the shipyard at Marystown is the largest and the only shipyard constructing steel ships within this province.

(13) Construction of the Marystown Shipyard began in 1965 and the yard began operating in 1966. (14) Today the shipyard provides year round employment for about 300 workers from Marystown and surrounding areas of the Burin Peninsula.

(15) Three main departments are involved in the construction of ships at the Marystown Shipyard. These include (16) the engineering department, (17) the steelworks department, (18) and the outfitting department.

(19) Before construction of a ship can begin at the shipyard, blueprints of the ship to be built must be designed

by the shipyard's engineers. (20) This building houses the blueprinting section of the shipyard. Here the engineers design the blueprints of the ship to be built. Once the original blueprint has been made, (21) extra copies can be obtained by running the original through this machine. (22) Besides housing the blueprinting section, this building also houses the offices of the shipyard.

(23) This is the building where the ship is constructed. The interior of the building is divided into three sections: (24) the preparation area, (25) the assembly area, (26) and the erection area.

(27) In the preparation area the raw materials of steel, which have been imported from such countries as Britain, Germany and the United States are made into parts needed in the construction of a ship. (28) Although most parts for the ship are made at the shipyard, some parts such as the propeller and engine are imported already assembled.

(29) Upon arrival at the shipyard, the raw materials of steel are stored outside in the yard. These (30) raw materials may range anywhere from 500 to 15,000 pounds in weight. Because of the enormous weight of these steel materials, a huge (31) magnetic crane is

used to move the materials from the outside into the preparation area. The crane picks up the steel and transports it to a (32) rolling machine which carries the steel into the preparation area. While passing through this rolling machine, (33) the steel is sandblasted removing all rust from it, then it is sprayed with a rust resistant chemical and finally it is painted and comes (34) out of the rolling machine looking like this. To move around the steel materials in the preparation area, another (35) magnetic crane similar to the one outside is used.

(36) In the preparation area many different types of machines are available for producing the parts necessary in the construction of a ship. (37) This machine is called the tenth scale scanner. It operates on the principal that an electric eye located inside the scanner (38) is very sensitive to a black line drawing placed inside the machine. The movement of the electric eye along the black lines of the drawing controls the movement of (39) blow torches located on the outside of the machine. As the electric eye moves along the lines of the drawing, the torches move also on a track (40) cutting out from the sheet of steel the blueprint design. The part (41) cut from the sheet of steel is 10 times the size of the drawing shown on the blueprint.

(42) This machine is used to put a curve or bend on a sheet of steel. The sheet of steel is placed between the rollers of the machine, pressure is exerted on the roller (43) and the steel is bent to the required shape.

(44) Here you see a hearth. Pieces of steel are placed here to be sufficiently heated (45) and then bent to the desired shape.

(46) This machine is used for bending angle-iron used (47) in the framing of the ship. These are just a few (48) of the machines used in the preparation section of the shipyard.

The (49) sheet metal shop is another section of the preparation area. Here the (50) duct works for ship's heating system are made. This section also houses many different types of machines (51) needed in the production of parts for the ship.

Once the parts for the ship have been produced, they are then transported to the (52) assembly area. In this area the parts are assembled into (53) units. As each unit is prepared, (54) overhead cranes are hooked into the unit and transfer the unit to the (55) erection area where the units are joined together to form the ship. The erection area has

two building berths which can accommodate vessels up to 250 feet in length. (56) Both assembly and erection areas are served by three overhead cranes, one of a 5 ton capacity and 2, each of 25 ton capacity.

(57) Once the ship has been built, the outfitting department begins its operations on the ship. The outfitting department includes such workers as painters, carpenters, insulators and many other tradesmen necessary to make the ship suitable for the sea. Once completed (58) the ship is ready for launching. The launching and dry-docking of ships at the Marystown Shipyard is done by the use of a syncrolift (59). This is a portion of the wharf which can be lowered into and raised out of the water (60) through the syncronized use of 20 motors and pulleys. Before a ship in need of repairs can be lifted from the water by the use of the syncrolift, a cradle (61) must be constructed which can fit the dimensions of the ship's hull. This cradle is built on wheels which run on a (62) track extending from the repair berth up to the construction building. The cradle when constructed is placed on the lift (63) then lowered into the water. The ship is floated into the cradle, (64) the syncrolift is raised and the ship is placed unto the drydock. Pulleys and (65) cranes connected to the ship places it (66) into position on the repair berth.

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(67) The shipyard at Marystown is considered one of the most modern of its kind in Canada. Only (68) 180 miles from the Grank Banks of Newfoundland, Marystown and the shipyard are within easy reach of the main North Atlantic Shipping Lanes. The location of the shipyard in Marystown itself, is very advantageous for crews of foreign ships, in that it offers easy access to such things as (69) shopping malls and (70) medical services.

(71) The sea has been a major source of livelihood for many Newfoundlanders for hundreds of years. (72) Boatbuilding and shipbuilding, therefore, has become an important part of the Island's way of life. (73) Boatbuilding and shipbuilding centers can be found throughout all parts of the province. (74) Because Newfoundland has been and will continue to be a fishing province, boat and ship building will continue to be of extreme importance (75) to all those who depend on the sea for their livelihood. (76)