

A Resource Unit for the Elementary School: An Introduction
to Archaeology with Special Reference to Phoenicia

A Project

by

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ABSTRACT

The research unit on archaeology is written for sixth grade pupils in an English speaking school in Lebanon and presumes the use of an American type social science curriculum. The purpose of the unit is to introduce the children to the study of archaeology through the examination of its structure and basic concepts. The reason for including archaeology in their elementary school social science program is to take advantage of the unusual opportunities Lebanon offers to become acquainted with archaeological sites. It is hoped that the students will gain a general understanding of archaeology in appreciation of the role archaeology has played in unravelling the study of man on earth and perhaps, a feeling of empathy with the people who once inhabited Lebanon and their descendants.

The project is divided into three parts. Part I deals with unit teaching. The first chapter is a brief discussion on the nature, purpose and types of units. Chapter two examines the various parts of the research unit and makes a few suggestions about unit teaching. For the benefit of a teacher who might be using the research unit the final chapter concerns the general characteristics of sixth grade pupils and the social science curriculum followed by sixth grade pupils at one school in Lebanon using the American social science program, the American Community School. This research unit on archaeology could easily be made a part of the sixth grade program at the American Community School and was prepared with this particular social science program in mind.

Part II consists of the research unit on archaeology. It contains the introduction, statement of objectives (concepts, values and skills to be developed), initiating learning experience, content with appropriate developmental activities related to the several sections, concluding activities, continuing activities and evaluation.

The content of the unit is a discussion on the structure of archaeology and its underlying concepts. It also discusses the civilization of Phoenicia as seen through historical and archaeological evidence. The content subject matter is given in great detail because of the scarcity of appropriate material easily available for sixth grade teachers and because it would be impractical for most of these teachers to have to spend the length of time necessary to acquire a general background in archaeology and to do the research needed to compile the material necessary. In addition to subject matter each section contains the specific concepts the teacher should lead the pupils to develop and the learning experiences which will help them grasp the concepts. The divisions of the content are: introduction to the discipline of archaeology; the principles of stratification; the science of excavation (particularly area excavation); recording; care of small finds; and, Phoenicia as seen through historical and archaeological evidence. Supplementary books for teachers and pupils on archaeology and the civilization of Phoenicia are listed in the content section.

Part III contains the bibliography used in preparing the entire project.

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PART I

INTRODUCTION

This resource unit is written for teachers teaching at the sixth grade level in an English speaking school in Lebanon - the American Community School. It presumes that the school uses an American type social science curriculum emphasizing intellectual development without neglecting the social and emotional growth of its pupils.

The unit is designed to take advantage of the fact that these pupils are living, perhaps temporarily, in one of the lands called "the cradle of civilization" where archaeological sites are numerous. It seems logical to take advantage of this unusual environment by introducing archaeology as a part of the elementary school social science curriculum. It fits into the background experiences of the children living here because almost all of them have visited sites in Lebanon but few know anything about archaeology. The study of archaeology can provide a valuable background knowledge for the children so that, even if the subject matter of archaeology itself is never again used by them, having learned its basic concepts should illuminate any future study they might do in the field of ancient history and, by enlarging their perspective, should add a new dimension to their view of ancient man. Studying the discipline of archaeology should also enable them to see clearly the domains of archaeology and history because a part of the unit, on Phoenicia, will show how archaeology and history have combined to furnish the knowledge we possess about the Phoenicians. A unit on archaeology can become a part of the sixth grade curriculum because it is in this grade that ancient history is studied in the most detail in the elementary school; the unit also meets a need expressed by teachers at the American Community School for richer subject material based on the various social sciences at this grade level.

There are three ultimate goals towards which the unit is directed. The first goal is to broaden the pupils' horizons and give them a greater awareness of man as a result of their inquiry into one of man's past cultures - an important contributor to the development of western civilization. Second is the hope that, through the examination of ancient man's buildings and artifacts unearthed by archaeologists, pupils will see the study of the past not as a dull, dry chronicle about remote people having little connection with them but rather as the story of their ancestors, the people to whom they can trace one of the roots of their civilization, people who were once as alive and vibrant as they are and who are separated from them in the twentieth century mainly by the distance of time. The third goal is the possibility of developing in at least a few pupils the life-long interest in the study of man through archaeology which might lead them to career or part time activities in this field. Kathleen Kenyon¹ points out that a great many famous archaeologists had their interest formed during their school years and that archaeology has always been dependent on voluntary assistance from people having other careers but who have devoted part of their time to following their archaeological interests and who have made outstanding contributions to the field.

An eclectic philosophy of education is reflected in the content of this unit. It is subject-matter oriented but learning is achieved mainly through pupil activities in an effort to combine a highly intellectual subject matter with the demonstrated effectiveness of activity learning.

¹Kenyon, Kathleen, Beginning in Archaeology, Frederick Praeger, New York, 1962, p.55

The purpose of teaching the social sciences (as such) in the elementary school should be to give American students an overview of the history of western man from whom their heritage comes, to furnish them with a basic knowledge of American civilization, and to introduce them to other civilizations past and present. If this information is taught in the context of the social sciences giving the pupils a general knowledge of the basic concepts and methodology of the social sciences, then they will have a solid foundation on which to build their more mature study of man through the various disciplines comprising the social sciences.

Is it possible and desirable to teach elementary school children disciplines as complex as the social sciences? Judging from the successful rewriting of the science and mathematical curricula following the scientific advances of the 1950s and the realization of the national need for more and better educated scientists and technologists, the answer definitely indicates both the possibility and desirability of introducing young children to the various scientific and humanistic disciplines directly and continuing their study in a logical, cumulative sequence. In fact, the current interest in beginning the social sciences as such in the elementary school stems from the success achieved with the "new" mathematics and science curricula. A far greater intellectual content is seen in these programs and mathematics and the natural sciences are probed in depth from the earliest grades; but the content is not taught in abstract fashion. Content is taught through new processes using the children's concrete and sensory experiences and through an understanding of the structures of the disciplines involved. Some

subject matter formerly reserved for high school students is now considered possible in the lower grades because it is reduced to generalizations the children can grasp intuitively and is based on the realization that almost all disciplines have very simple underlying concepts which children can comprehend if these concepts are put into their terms of reference, their ways of seeing the world and explaining it to themselves. Bruner² even advances the hypothesis that "any subject can be taught effectively in some intellectually honest form to any child in any stage of development".

The success of the "new" science and mathematics programs has given rise to some apprehension that the greater intellectual content of the science programs might result in a serious imbalance of knowledge among students well-trained in science but lacking the concepts and values taught by immersion in the humanities³. Citizens steeped in science but weak in the humanities may lack the ideals of using their knowledge for the benefit of mankind and may not be able to pursue in their own country the ideal of "building a great society - not just a strong one, not just a rich one, but a great society"⁴. The humanities help give men their sense of values and

²Bruner, Jerome, The Process of Education, Harvard University Press, Cambridge, 1962, p.33

³Goodland, Dr. John, lecture given at the Fourth Plenary Session, Sixteenth Conference

⁴Gardiner, John, "The Administration: A Sense of What Should Be", Time, January 20, 1967

their ideals; through the humanities, we learn "what man has done, and, thus what man is"⁵. Knowledge of the social sciences must be strengthened for the same reason that science education was improved - national need. The United States faces critical social, political and economic problems in addition to the responsibilities of being a world power; it needs social scientists who are as well-educated as possible and a citizenry who understand the problems, who can look to the social sciences for solutions and who can evaluate proposed solutions because they have a sufficient background in the social sciences or humanities.

It is desirable to teach the social sciences from the earliest grades but this must be done at the level of the children's understanding. In the opinion of Bruner⁶ and others⁷, the best way to teach a complicated discipline to children is through its structure - through understandings and generalizations based on the key ideas of the discipline and the relationship existing between these ideas. In an actual social science curriculum, such as the Greater Cleveland Social Studies Program⁸, factual content and classroom materials are built around the main ideas, methods and skills of the social science disciplines. The object of the program is to give pupils a broadening knowledge of the concepts and methods of the disciplines and to ensure that

⁵Commager, Henry Steele, "Why History", American Education, June 1965 (reprint)

⁶Bruner, Jerome, op. cit. pps. 25 and 65

⁷Walsh, Huber M., "Elementary School Social Studies: Content Plus", Childhood Education, November 1966 p.124

⁸English, Raymond, "Cleveland Says Good-by to Hit or Miss Methods", Grade Teacher, October 1966, p.118

their social science learning takes place in a logical sequential and cumulative order. "Instruction in key ideas, according to authorities, can promote deeper comprehension, result in better transfer of knowledge and facilitate subsequent learning (and) prepare the learner for independent study⁹.

It is not enough just to expose children to the concepts of the social sciences at the appropriate level of understanding. Children will not learn well unless these concepts are presented to them in an interesting and stimulating fashion and, if the social sciences are found to be boring in school, they will never have an interest in them during their adult years. Learning by doing, learning through a wide variety of media, learning through oral discussion, learning through discovery, and individual research help to make the social sciences a lively interesting study. Opportunities for creative expression can also play an important role in reinforcing the learning and helping to make it permanent in addition to their own intrinsic value.

The unit on archaeology represents an attempt to show the structure of archaeology resting on the concept that the story of ancient man lies buried in the earth and that the earth, which is like a book with strata instead of pages, can be made to reveal this story through scientific methods of excavation. This concept should be easily comprehensible to sixth grade pupils

⁹Walsh, Huber M., op. cit. p.124

and represents the fundamental basis of archaeology around which the rest of the discipline spirals. The use of the unit method to teach the structure of archaeology will enable pupils to investigate the rest of the discipline to a greater or lesser degree depending on their own levels of ability. The use of the unit method also permits activity learning and learning through a wide variety of materials which I feel is essential to enable children to grasp such complex material.

CHAPTER I THE NATURE, PURPOSE AND TYPES OF UNITS

Before attempting to use the unit method of teaching in order to introduce children to the structure of archaeology and the civilization of Phoenicia, the teacher needs to have a thorough understanding of the nature of a unit, the purpose of units, and the different types of units. This section is intended to serve as a comprehensive guide for the teacher using this resource unit to develop a teaching unit for her own class.

What is a unit? - The nature of units:

A unit is defined¹⁰ as an "organization of various activities, experiences, and types of learning around a central problem or purpose, developed cooperatively by a group of pupils under teacher leadership; it involves planning, execution of plans, and evaluation of results". Units are characterized by the use of materials from a number of fields, a variety of methods of inquiry, oral and written expression, opportunities for creativity, activity learning, and cooperative planning and work. Units can be written for any subject or group of subjects and can be directed towards learning content or providing practice in methods of inquiry such as problem solving.

The concept of unit teaching followed the influence of the Gestaltist psychology and partly reflects Gestalt principles of learning. For example, Gestaltists believe that the mind has a tendency to organize knowledge and see it as a whole, that learning takes place when the learner gains insight into the area under study, that learning is more meaningful when goals are known before the learning begins. Gestaltists advocate core learning. From

¹⁰Hill, Wilhelmina, Unit Planning and Teaching in Elementary Social Studies, United States Department of Health, Education and Welfare, 1965, p.1

these positions, the basic concepts of unit learning were organized. For example, units are comprehensive organizations of knowledge with goals, or concepts and skills, to be attained stated clearly before the unit work begins and the unit strives to develop insight into the area under study by giving the pupils a wide range of learning activities.

However, unit teaching reflects a number of other basic concepts about the nature of the learning process and teaching for meaningful and permanent learning which are generally accepted findings of research into educational psychology.

The purpose of units - educational psychology and unit teaching

1. The learning process - Research in education psychology¹¹ has shown that learning takes place best when it is goal-directed, when the individual differences in the needs and abilities of each student are taken into consideration, when students are well-motivated to learn and are challenged within the limits of their abilities, when some of the learning takes place through their own activities and when their environment encourages them to respond to the learning situation.

The unit method of teaching consciously reflects those factors which increases the effectiveness of the learning processes¹².

- a. Goals are clearly stated at the beginning of the unit and material and activities are directed towards those goals.

¹¹Blair, Glenn M., R. Stewart Jones and Ray H. Simpson, Educational Psychology, Macmillan Company, 1962, chapters 5, 6, 7, 8

¹²Hanna, Lavonne A., Gladys L. Potter and Neva Hagaman, Unit Teaching in the Elementary School, Holt, Rhinehart and Winston, 1966, pps.51-53

- b. Needs of the children are taken into consideration as the unit progresses - units offer many opportunities for a teacher to encourage the emotional and social development of the pupils without calling undue attention to her efforts and without detracting from the intellectual learning at hand. For example, a legitimate unit activity might be tailored to meet the needs of some children to accomplish a particular development task or to develop a certain skill by showing them how much more efficient their learning would be if they behaved differently or had the skill needed. A need for success can be met by assigning tasks at which the student will succeed. A need for social acceptance can be met by the important contributions each child can make, through his own work and special abilities, to the knowledge of the whole class. Units are flexible and can, therefore, be manipulated in many ways to serve the individual needs of the children in the process of reaching the unit's general objectives.
- c. Children learn according to their perceptions and need a favorable environment for learning. The unit method deliberately gives them ample opportunity to explore and discover in a free atmosphere, with a wide choice of learning materials and in a stimulating environment under the gentle guidance of the teacher.
- d. Units recognize the fact that children learn at different rates of speed and in differing levels of depth by providing enough materials and learning activities to meet individual differences in abilities -

slow children can learn superficial but accurate concepts and facts while brighter children can be challenged by more difficult and enriching material.

- e. Children can be motivated by unit teaching because they share to a large degree in determining the details of the area to be covered and in planning the work to be done - they meet challenges tailored to their abilities and have ample opportunity to follow their own interests in the area of study.
- f. Activity learning, learning by discovery, learning to solve problems, doing research, taking field trips and organizing information in order to express themselves orally or in written work are the main ways in which the children participate in the learning processes of the unit work.

2. Teaching for meaning¹³ - If learning is to have any value for the individual student, it must have meaning for him and not just for his teacher or classmates. Meaningful material is more likely to be well-organized material such as that put into the unit form, where an area of learning is presented as an organized whole rather than in fragmented bits. Learning by doing and learning through a wide variety of informative sources will usually lead each student to have insight and real comprehension of the area under study although

¹³Blair, Glenn M., R. Stewart Jones and Ray H. Simpson, op. cit. pps. 235-244

each student will understand it to the extent or limit of his own intellectual abilities. Knowledge presented in an interesting manner captures students' imagination and increases its meaning for them; the contrast between the liveliness of unit learning activities and the dullness of rote learning through a single textbook is probably reflected by the contrast in the degree of comprehension of material resulting from each system.

The fact of individual differences in intellectual ability affects not only the learning process itself but also the problem of teaching for meaning as well. Because of the range of difficulty in the material covered by a unit, it is far easier to find material comprehensible to each student. Units also allow a teacher to encourage bright students to probe the subject material for depth of meaning while slower students can comprehend the material in a more superficial way. All types of students are given many opportunities to use whatever creative abilities they might have and this makes students more personally involved with the subject and more anxious to understand it. However, unit organization and interesting activities will not lead to understanding if the material is totally unrelated to the students' background and past experiences and its vocabulary far beyond theirs. Expansion of background knowledge, experiences and vocabulary has to be done gradually or the students will simply fail to comprehend the unit at all.

3. Teaching for permanence¹⁴ - Another important goal in teaching is to ensure permanence of learning. Learning tends to become permanent when children learn concepts with which they can associate facts rather than the isolated facts themselves. It is impossible to learn enough facts about a subject for all future use and facts are often forgotten quickly; but if concepts have had meaning for the students and have been reinforced through the unit activities, students ought to remember the basic concepts permanently. Then they will be able to add depth to the concepts with future learning at a more mature level and will have enough background knowledge and research experience to be able to look up detailed information whenever it is needed. Unit activities helping to make concepts a permanent part of a student's intellectual makeup include learning by doing, discovery, research, problem solving, experimentation, application of previously learned concepts to new situations and field trips.

B. Kinds of units

Units can be divided according to their objectives and their functions. Some units are designed to be used as a vehicle for teaching methods of inquiry such as problem-solving; the advocates of this approach view the acquisition of information as "the means by which the process (of inquiry or of problem solving) is furthered and completed"¹⁵. Other units have

¹⁴ibid. pps.244-276

¹⁵Dunfee, Maxine and Helen Sagl, Social Studies through Problem Solving, Holt, Rhinehart and Winston, 1966, p.317

intellectual content, either in the form of facts or concepts, as the objectives of the unit with methods of inquiry, such as problem solving, used as a tool for the efficient understanding of the intellectual content. The following unit on archaeology emphasizes content, in the form of concepts and the structure of the discipline, because it is designed to be part of a social science curriculum directed towards intellectual development, and because of the nature of the complex discipline of archaeology and the purpose of teaching it requires this orientation.

Units are divided¹⁶ according to their functions into three groups; resource units, teaching units and descriptive units.

Resource units are written for teachers. They are collections of curriculum materials related to an area or topic which are intended to serve as a "teaching file" or resource to provide a teacher with information, ideas about significant learnings, suggested appropriate pupil activities and instructional materials. Resource units are not intended to be taught as presented to the teacher but are intended to provide the teacher with a wealth of knowledge from which to draw in order to prepare a unit for use with her own class. These units contain far more material than a teacher might normally use because they should give her all the information and sources she might need when working on the unit with her class, in order to guide pupils with choices within the material that allow them to follow their own personal interests and levels of skill in depth. A resource unit

¹⁶Hill, Wilhelmina, op. cit. pps.4-5

may become part of a course of study and be used by one or many teachers in a school system, or be published, or be used separately as a piece of curriculum material in perhaps only one classroom. Normally, a resource unit is not written for a particular group of children but rather for any children of appropriate age and grade level in a particular culture.

However, this unit is directed towards sixth grade, English speaking children, following an American based social science curriculum permitting activity learning, and living in Lebanon which limits its applicability in a non-American country to the few schools meeting these criteria.

Teaching units are prepared for a specific group of children with their special concerns, interests and abilities in mind. Teaching units can take their information from resource units but need to remain open to other source material so that the particular children's interests and questions can be added as the unit progresses. In preparing a teaching unit, the teacher organizes an overview of the unit information to be taught, skills to be developed and probable learning activities; then she divides these by weeks and days to show what the children might do in a week and during each day of the week.

Descriptive units are those written to share the experiences of one teacher and class during unit work with other teachers and supervisors; descriptive units often appear in teacher training materials. This type of unit is written after the class has completed the unit and is really the story of their experiences; such units can be valuable guides to other teachers and can supplement resource units or individual teaching units.

CHAPTER II THE NATURE AND PURPOSE OF THIS SOCIAL SCIENCE RESOURCE UNIT

Units can play an important role in elementary school education in any subject or group of subjects making up the curriculum but they should not dominate teaching. Even if a teacher uses units very often in science or social studies and occasionally in other fields, she does not base all her teaching on units and should never have more than one unit in progress at the same time. Therefore, during any week, the class might be learning one subject through units and all other subjects in the curriculum through more traditional forms of teaching. The other subjects, such as language, arts, mathematics, and fine arts, might be brought into a unit from time to time but their subject matter as such is nearly always taught outside the units. The teacher might make her weekly lesson plan by allocating periods during the day for the various subjects the class studies and leaving the required large block of time, perhaps two hours in the afternoon several times in the week, for whatever unit activities the class might be pursuing. The unit activities would only require more time when the class is preparing culminating events or taking field trips.

When preparing a resource unit for use in social studies, or in any other subject, it is best to follow an outline of the type suggested by Hanna¹⁷ so that the unit will be clear and easy for teachers to use. Hanna divides the resource unit organization into a five point outline - an introduction, statements of anticipated outcomes or objectives, content or subject matter,

¹⁷Hanna, Lavonne A., Gladys L. Potter, and Neva Hagaman, op. cit. p.437

activities which might be used to introduce, develop and conclude the unit and all the source material the teacher might want to use. Hanna also says that units sometimes contain extensive appendices with patterns for guiding construction, directions for specific activities, descriptions of special evaluative techniques and any informational material the teacher might have trouble finding. This is the general outline followed in this archaeology unit with some modifications due to the decision that its content should show the structure of the discipline and also due to the scarcity of material on the topic, suitable for teaching children.

The introduction to a resource unit usually consists of a few statements giving an overview of the unit as a whole, its scope, emphasis and possibilities, how and why the unit was selected, and the approximate age and grade for which it was written. A statement can also be included telling why the topic is important for children at their particular stage of development, how it meets their personal and social needs and how it can contribute to their intellectual growth. It can also be worthwhile to mention the relationship between the proposed unit and the rest of the curriculum, where it fits into the curriculum, what may proceed this unit and what may follow it in the social sciences.

Objectives of the unit are the specific purposes for which the unit was developed and must be clearly stated if the unit learning is to be goal-directed.

- a. concepts - the primary purpose of this unit on archaeology is to contribute to the pupils' intellectual growth by providing them with a fundamental comprehension of the structure of archaeology

and an understanding of how history and archaeology have combined to provide us with our present knowledge of Phoenicia. The intellectual objectives of units in general are usually stated in the form of concepts and important factual information to be learned.

- b. skills - units are often concerned with the development of such skills as efficient use of maps, graphs and globes, reference books and other written resource materials; ability to locate books in a library; an increase in concentration, persistence in the face of difficult tasks, and care in following directions; better use of research methods, including logical thinking and good evaluation and organization of material; and a greater fluency and better style in written and oral expression. Development of these skills during unit activities will also give pupils a great deal of practice in problem solving and other methods of inquiry; it is here that any emphasis on "learning to learn" should be put because it is a tool or a skill to be developed. Units are good ways to develop any skill without resorting to tedious drills; the teacher can put the children into a situation where certain skills are needed and, in their desire to complete the task well, they will be strongly motivated to develop the skill. The skills are seen to be important because the children realize they cannot reach their goals without them; the units also reinforce the skills immediately by permitting them to be used to serve the child's purposes. Units can help correct deficiencies in basic skills, such as reading and mathematics; for example, children can sometimes be encouraged to read or work with a mathematical concept because of their interest in the unit

topic.

Intuitive thinking and creativity are types of skills the teacher can have at the back of her mind during the unit so that she can be alert to the many opportunities units offer to practice these often neglected skills. Intuitive thinking and creativity can be used, too, as a means of enlivening subject matter and making learning activities more interesting and stimulating.

- c. values - units are concerned with the development of values because it is essential for all human beings to have a sense of values, a belief about the purpose of life and a possession of some ideals; concepts and skills alone will leave man groping in a moral vacuum to make sense out of his existence. Some values can grow from an understanding of the concepts of the unit and might include: an appreciation of the dignity of man; the realization that ancient man was the forefather of modern man and deserves our respect for his accomplishments, as well as our criticism for practices we cannot accept; the acceptance of the fact that knowing what man has done in the past can help us know what he is capable of doing; and the appreciative understanding of the role played by the Lebanese coast in antiquity and the cultural heritage given us by one of its civilizations.

Other values can grow from working on the learning activities and can include: an acceptance of responsibility by each pupil as an individual or a member of a group; the development of a favorable attitude towards a democratically governed classroom; an exhibition of a greater respect for others, regardless of race, religion or social background;

and an opportunity to show more self-confidence in accepting success or failure. Interests should be widened as a result of the unit and aesthetic values can sometimes be possible goals, depending on the unit topic. An increase of interest in ancient man and in aesthetic appreciation are intended to be goals of the following unit.

Content in a social science resource unit can follow a number of patterns depending on the topic of the unit. The organization used in this unit will be based on the structure of the discipline of archaeology rather than on the more common methods of organizing content. The content will be divided into: a short introduction to the discipline of archaeology; the concept of stratification; excavation, and area excavation in particular; recording of finds; care of small finds such as pottery, coins and mosaics, and Phoenicia as seen through archaeological and historical evidence.

The content will be organized in chapters preceded by concepts to be developed and succeeded by appropriate learning activities for each chapter. A far larger amount of subject matter material will be included in each chapter than would normally be the case because of the complexity of the topic and the lack of information, on a sixth grade level, for teachers to use. In addition, many teachers in the English-speaking schools here in Lebanon on a short time basis and their knowledge of archaeology, Phoenician civilization and resource materials available in Beirut often tends to be scanty.

Learning activities will begin with brief initiating activities with which the teacher can introduce the subject to the class. Developmental activities will be those following each content chapter and will be directed towards a thorough learning of the main points of each chapter. Culminating activities

will consist mainly of suggested visits to sites or museums or an exhibit.

Initiating activities are in three phases - creating interest, adding children's special interests to the area to be investigated, and planning the investigation. The purpose of initiating activities is to stimulate the children's curiosity and interest in learning about the proposed topic, to raise questions the children want answered and to find out how much they already know about the area. The initiating experiences should stimulate a lively discussion among the children who should be encouraged to link the proposed new experiences with past learning. The teacher should draw many ideas about the topic from the pupils to make their enquiry more meaningful and to lead them to want to learn about the topic as a whole, rather than merely to answer their questions.

The most commonly used initiating experiences include an arranged environment ("a museum in the class"), community experiences or an important event known to most of the children. Stories, films and field trips are also used occasionally to serve as a springboard into the unit learning.

It is very important that the teacher plan the first part of the initiating activities thoroughly and organize it step by step until the point where the children's interest is so awakened that they will begin to make suggestions. Failure to do so will probably result in the pupils having only a fleeting interest in the topic or in disorganized responses and total confusion. It is very easy for the children to get completely off the track as far as the material they should cover is concerned and they need guidance from the teacher to remain within this area. Otherwise, a teacher with a unit laboriously planned on archaeology is apt to find her class busily planning an investi-

gation into the Phoenicians.

This high degree of organization, however, only pertains to the first part of the initiating activities and to the organization of the classroom environment. As soon as the class begins to respond, the teacher's plans need to be flexible enough so she can add their questions and interests to the material she had originally planned to teach. It is because the children's interests might lie slightly outside the scope of the envisioned teaching unit that the teacher needs to have a resource unit at hand which is broad enough in scope to help her organize enough material to supplement the unit to cover the children's interests as well. In short, the initiating activities are designed so that the teacher can guide the children to be interested in learning what she already knows but should be flexible enough to allow her to include things she does not know or facets she had not planned to cover but which the children want to learn.

During the initiating activities, the teacher should often reiterate that the class will plan and work together to carry out their inquiry and have the children respond in the form of "we could" rather than "I could". This will have the class prepared for the final step of the introductory activities which is the formulation of tentative plans concerning goals and ways to investigate the learning area. Cooperative planning at all stages helps children learn to work together and shows them that by working as a group each of them will learn more than if they had worked alone because by working as a group they all benefit from their classmates' individual interests and research efforts. It also encourages the children's enthusiasm as they stimulate each other to suggest a wide variety of goals and activities and enables the teacher

to guide them subtly so that their plans will lead to the acquisition of the concepts and skills for which the unit was designed. Cooperative planning is usually a chain reaction process; it facilitates future planning, stimulates creative and critical thinking, encourages sound methods of research or problem solving. It also helps superior pupils find enrichment work in more difficult or related areas and allows slow pupils to see that they can make substantial contributions to the class knowledge. Finally, cooperative planning in a unit demonstrates to the children, in a concrete way, how good planning ensures more efficient work.

Before closing the planning session, the first committees should be formed. Hanna¹⁸ advocates forming three types of committees - the administrative whose job is to take care of the bulletin boards, library resources, invite and welcome visitors, the research which seeks specific information or works on a section of the unit requiring research in depth, the skills committee formed to teach a skill (such as using library card catalogues) or to correct specific deficiencies (difficulties taking notes etc.). In most cases, it might be better to have all three committees formed on a temporary basis as needs arise so that all children have a chance to do many different types of activities with committee memberships changing frequently. During the developmental activities, the whole class would probably form the research committee but small committees might be formed to do research in specific areas. More rigid committee membership would probably be needed when preparing

¹⁸ibid. p.384

for the culminating activities.

When committees are being organized for the first time, it might be helpful for the teacher to suggest that the children make up a list of the general duties of committee members and chairmen. Such lists¹⁹ could include as chairmen's duties ensuring that all committee members understand clearly the problem or task at hand, encouraging free discussion and impartial evaluation of all ideas, making sure that democratic methods of making decisions are followed and being responsible for the group's carrying out its assigned tasks; and as committee members' duties might be included doing a fair share of the work, carrying out tasks promptly and to the best of their abilities and cooperating with the majority wishes once decisions are made.

Developmental activities are the heart of the unit because unit learning is mainly through doing and discovering rather than through classroom lecturing. It is through developmental activities that most of the concepts and factual knowledge of the unit are learned. The value of these activities in the learning process is that they make the knowledge gained a part of the learner because they involve him in personal rather than in impersonal learning and lead him to have insight into the area under study because he discovers by his own actions something he has never known before²⁰. In addition, activities

¹⁹ ibid. p.385-386

²⁰ Bruner, Jerome, "The Act of Discovery", Readings for Social Studies in Elementary Social Studies, edited by John Jarolimek and Huber N. Walsh, Macmillan Company, New York, 1965, p.208

of this type play an important role in reinforcing knowledge and may help the pupils to remember what they have learned.

Developmental activities can be any type of experience or method of inquiry open to young students which will lead to a greater comprehension of the subject. These activities should be chosen primarily to facilitate learning the unit subject matter but units can have a greater impact on the children and a more lasting effect if the teacher can raise their interest to a high level by encouraging experimentation and creativity in planning and carrying out developmental activities.

One of the advantages of the unit teaching method is that it gives the pupils more opportunity for creativity than most other teaching methods do and it is during the developmental activities that most of these opportunities can occur if the teacher is alert to them. What is creativity? It is a spark of imagination; insight; an unusual way of organizing material to enliven and enrich it, to make it more interesting and instructive for others; a liveliness; perceptive or sensory qualities; using resources or environment to transform it to one's own and other's benefit; and, finally, talent. Creative activities include painting, mural work, construction projects, crafts such as making pottery, diaramas, music, dramatics (especially plays written by the class), writing stories, essays or poems, preparing articles for class newspapers or books, and even reading great - and enjoyable - literature for its style and content.

Children usually respond very well to opportunities for creativity.

Children are intrinsically creative because they look at the world with wonder

and fresh eyes and are not afraid to experiment providing adult pressure to conform has not been too great in early years. But sixth-grade children are at the age when conformity is slowly becoming the rule and pre-adolescent children are usually given very few chances to feel free to use their imaginations and to create without the fear of appearing ridiculous. They have such a need at this age for creativity that the teacher should make every effort to find opportunities wherever possible in the developmental activities. The more creativity and creating are encouraged in a child, the greater forces they will be during his whole life. Creativity enriches life to such a degree that it is well worth trying to encourage children to keep their sense of wonder and inquiring, imaginative spirits so that they can become adults who, as Frank Lloyd Wright once said, "see inside and come out with something fresh, something vital to whatever they happen to be doing"²¹.

As important as creative activities are in themselves, their place in the unit rests only on their role in reinforcing and enlivening material learned, giving it a deeper meaning and a new dimension. The unit does not exist to provide creative experiences but carefully chosen creative activities can be invaluable in illuminating newly acquired knowledge and in making learning more interesting. Therefore, creative activities should be included only if they meet the following criteria:²² if they are related to or an outgrowth of the

²¹Frank Lloyd Wright quoted in "Creative Teaching", Grade Teacher, October 1963, p.13

²²Dunfee, Maxine and Helen Sagl, op. cit. p.222-224

area of learning, have a clearly defined purpose, make a significant contribution to the area of learning and have meaning for the children. If creative activities do not meet these criteria, they should not be included in the unit because they detract from the unit's purpose.

Culminating activities are the third step in the learning activities. Culminating experiences are directed towards sorting, scrutinizing, organizing and summarizing the information acquired in the developmental activities; they are intended to be a unifying experience to try again to ensure that learning has had enough depth and meaningfulness to make it permanent. Culminating activities can be important in helping children see relationships and unite their various learning experiences; they also give them a chance to use their knowledge concretely soon after learning it.

The justification for culminating experiences comes from our common experience of really understanding something well when we try to explain it to someone else and also comes from an experiment mentioned by Bruner²³. R. B. Zajonc did the experiment with two groups, one of which was told to find some information to transmit it to others while the second group was told to find the information merely for the sake of knowing it themselves. The first group's organization was far better, knowledge was more thorough and was more differentiated than the second group's. But Bruner adds the caution that information can sometimes be so over organized that it is lost for general use;

²³ Bruner, Jerome "The Act of Discovery", op. cit. p.209

the teacher planning culminating activities might keep this in mind.

Examples of culminating experiences might be field trips, original dramatizations, writing a book, preparing a scrapbook, summary, log or diary, putting on an exhibit for the rest of the school and parents, or giving an assembly or fair. Whatever activities are chosen should not be over-elaborate and should have a real value as far as the unit learning itself is concerned. Several criteria might be followed in choosing culminating activities:-
Does the experience draw upon many skills and knowledges acquired during the unit? Does it give opportunities for the children to summarize important ideas? Does it grow naturally out of the area of learning? Does it give many opportunities for sharing and working together? Does it open new areas of learning?

Continuing activities are a fourth step in learning activities mentioned by Hill²⁴ but neglected by most other writers. After all the effort put into learning about the unit topic, interest in it should not be allowed to drop once the unit ends. Continuing activities is a means of encouraging children to keep up their interest in the unit topic and to continue their reading, collecting and other activities to some degree in their spare time. A bulletin board can be put aside as a place where children can post new information related to past units. Continuing activities can show the children that learning is not confined to school and that learning should not stop just because it has stopped in school.

²⁴Hill, Wilhelmina, op. cit. p.50

Evaluation is the final step of a unit and a very important one for both teacher and pupils. Pupils evaluate the success of the unit and judge the work they did. This can usually be done through informal classroom discussion and should actually take place periodically throughout the unit. When teachers make their evaluation they do it to see how far each pupil progressed towards the understandings and other objectives of the unit, i.e. if each child had the opportunity and encouragement he needed to bring out his personal abilities and to do his work well, if there were any problems of behaviour or of children having difficulties working independently or with a group, and the skills and deficiencies revealed by the unit work. It is often very helpful for a teacher to jot down comments in each child's personal folder while the unit is in progress to help her with her final evaluation. Sometimes evaluation is made formally by the teacher with the assistance of tests on the material covered.

The complexity of the material covered in the archaeology unit will probably result in a sizable variation in knowledge acquired because of differences in ability and interest so evaluation will undoubtedly be done more fairly by informal methods rather than by testing. The teacher can make a judgment on the pupils' learning and quality of work based on discussions of subject matter and work and on the students' handling of material during the developmental and culminating activities.

Resource materials suitable for teachers and for varying levels of abilities of students are usually included at the end of the unit. Whenever possible, it is best to group books for the teacher into professional and background materials, and for students according to the level of difficulty (advanced, grade level, under grade level).

Resource materials can include any number of people or things from which information pertaining to the unit may be drawn. The usual resource materials include books (textbooks, reference works, fiction, biography, non-fiction, folklore), poetry, recordings, films and filmstrips, art reproductions, government and industrial publications, and persons in the community who might be invited to talk to the class. From time to time, field trips to museums, art galleries or other places in the community might also be included in the list, depending on the unit topic.

CHAPTER III GENERAL CHARACTERISTICS OF THE SIXTH GRADE PUPILS
AND THEIR NORMAL SOCIAL SCIENCE PROGRAM

Resource units are generally written to be used with any group of children of the appropriate grade level. This unit on archaeology has had to be written for English-speaking children living in Beirut and following the American social studies curriculum. Therefore, it is necessary to conclude this discussion of unit teaching not only with some comments on the intellectual and emotional development of eleven year olds but also with statements showing how this unit can be fitted into the sixth grade social studies curriculum at the American Community School.

Physical growth in middle childhood proceeds at an even pace but much more slowly than in early childhood or adolescence. Children from six to twelve are very able physically and their muscles are well controlled. They are also highly active and are invariably interested in hazardous activities, especially boys who want to prove themselves. They are willing to work hard to acquire physical skills and emphasize excellence of performance especially when they are at about the age of eleven. The implications of their physical development on their school activities is that, while emotional problems relating to differences in growth might be absent at this age, their physical development leads them to be emotionally more responsive to learning by doing and discovery than to learning by the lecture method. In fact, it might be very difficult to keep them sitting still for long periods. They also need outlets for their physical energy and need to prove themselves; this is where creativity and experimentation can be so important.

Socially, children of about eleven tend to like organized games and membership in clubs and groups is important to them; corollary with this, team work and a desire to have fixed rules in work and play is likely to be shown. It is a period where warm friendships are important but where shyness can become more noticeable. On the other hand, competition is much stronger for many children to a point where Kilpatrick calls the years from 9 - 11 years of "competitive socialization"²⁵. Children of this age still need and benefit from praise of adults and peers but they are slightly less dependent on praise as a reward and have more mature reasons for working well, such as the standards they set for themselves. Unit activities of cooperative planning and work independently and in groups help to fill children's social needs and the chance every child has to make an important contribution to the class's work can help make shy and slow children feel a part of the group by winning praise and acceptance from their classmates. It is also a time when children with dominating types of personalities need to be guided to become considerate, kind and effective leaders.

Intellectually, eleven year olds have an avid interest in learning factual information about a wide variety of subjects and a steadily growing capacity for thought and reasoning. They often display a far more accurate knowledge than do adults about such things as geography, science, the workings of automobiles and other machines, and in the present era, rocketry and space science. They

²⁵Strang, Ruth, An Introduction to Child Study, Macmillan Company, New York, 1954, p.488

are lively, alert and curious and anxious to learn as much as possible about their material environment. A special interest in a hobby often begins to manifest itself at this age; collections are a favorite occupation and many hobbies and special interests remain into adult years as favorite uses of leisure time. However, students need adult guidance when they begin hobbies and collections to keep their collections from being a jumble of useless objects and give them a broader perspective for finding possible fields of interest.

Intelligence can grow rapidly at this time if children are encouraged to intellectual activities; but intellectual growth is, of course, somewhat bounded by heredity although its actual limits can never be set. At any rate, this is a period of rapid intellectual growth which only begins to taper off about the age of twenty. Thus, a factual, subject centered social studies program, based on the structures of the disciplines, and intent on giving pupils a wide general background does not seem to be out of line with the observed intellectual growth and activities of eleven year olds. However, because of their physical needs and because of the complexity of the social sciences in relation to their level of intellectual development, such a program must stress activity learning and learning through discovery and manipulation. These considerations are taken into account in the archaeology unit.

Very often, the hobbies and leisure time activities of children and adolescents give evidence of a certain staidness, conformity and lack of imaginative use of their environment. Their sense of wonder and desire to explore is beginning to leave them and their activities often show an increasing

involvement in the patterns of present urban civilizations as they watch television too long, go to the movies too often and spend too much time as spectators watching more talented athletes engage in sports. There is a great variation, of course, in their lack of ingenuity, but, in general, children and adolescents need to be stimulated to take more from their environment, to have wider interests, to use imagination in planning their activities for leisure time, and to express themselves freely and creatively. If creativeness is not encouraged by the schools in pre-adolescence, children will lose this habit completely as pressure for conformity increases and their lives as adults will not be as rich as they might have been for creativity is hard to develop at a later age.

Good work during the pre-adolescent period also shows a growing lack of creativity as written expression becomes more stilted and lacks the enthusiasm with which the children often speak when they are very interested in something. Art work is also less spontaneous and more concerned with skill than with originality. Children need guidance to help them observe form, color, rhythm, artistic productions having charm because they are original and despite their primitive simplicity, and the good in their own effort which they often tend to judge too harshly. The unit activities may make a contribution to this aspect of creativity because the children will have an ample opportunity to see the artifacts and architecture of an ancient culture, to see a different concept of beauty and to become aware of the beauty in simple things such as pottery and coins.

The sense of values of eleven year olds is beginning to show signs of maturity. There is a great growth of spiritual and moral values which makes

this period a good time to encourage a deeper respect of persons and to teach that people, not material things, are the deepest concerns of society. In the unit, they will study archaeology, not as a discipline concerned with the study of things, but as a discipline gathering evidence for the study of man.

Because the unit is designed for use in an English speaking school in Lebanon using an American based social sciences curriculum permitting activity learning, it has been written after consultations with teachers at the American Community School and is organized in such a way that it could fit into the sixth grade curriculum, the grade of most eleven year olds, at the American Community School, although the unit could theoretically be used in any other school in Lebanon which might have a similar curriculum.

The eleven year olds at the American Community School have been following a spiral curriculum in the social sciences. Their first introduction to the ancient world came in the fourth grade where they spent about one month learning about Greece and Rome, mainly through stories and myths; they also did a brief unit on Lebanon including a look at its ancient past. In the fifth grade, a part of the curriculum is again devoted to taking advantage of being in Lebanon and one or two units are done on some different aspect of the area; for example, a unit is usually done on Palmyra.

In the sixth grade, the ancient world is studied in detail and in chronological order. In the United States, almost all the study of the ancient world

done in the elementary school takes place in the sixth grade. The textbook²⁶ which is the basis for the sixth grade social sciences at the American Community School begins with Stone Age man and covers the Phoenicians, the Greeks and the Romans in detail and finally ends with the Middle Ages in Europe. In the first chapter, some mention is made of the ways in which information about the past is collected and a page deals with archaeology. The teachers at the American Community School have expressed a need for much more knowledge about this subject than is offered in the textbook and turn to many other sources to supplement the text.

²⁶Fraser, Dorothy M. and Alice Magenis, Discovering Our World's History, American Book Company, New York, 1964

PART II

CHAPTER I INTRODUCTION TO THE RESOURCE UNIT ON ARCHAEOLOGY

Introduction

This resource unit is written for teachers in the sixth grade of an English speaking school in Lebanon and pre-supposes the use of an American based social science curriculum. The pupil age is estimated to be about eleven.

The unit is intended to furnish an introduction to the discipline of archaeology through a study of the basic principles on which the structure of archaeology rests. The subject of archaeology was selected for this unit because it is related to the background experiences of the children living in Lebanon since almost all of them have visited archaeological sites in the area and because they study ancient history, including Phoenicia, in the sixth grade. It is hoped that an introduction to the study of archaeology will furnish the children with a broad general background about one of the social sciences, archaeology, and a foundation on which they can build their more mature studies of man through the other social sciences. It is also hoped that the study of archaeology will make their future study of ancient civilizations more meaningful.

The content section of the unit is divided into two points of emphasis. The first part is related to the structure of archaeology and the second part shows how history and archaeology have contributed to our knowledge of the Phoenicians. The content is longer than usual because of the scarcity of material available on this subject for teachers to use with an elementary school class.

CHAPTER II OBJECTIVES OF THE UNIT - CONCEPTS, SKILLS
AND VALUES TO BE DEVELOPED

Concepts -

1. Archaeology is an organized body of knowledge directed towards the study of man through his material remains left in the earth; it is concerned with man, not with collecting things.
2. Archaeology is vitally important to the study of early man because written records did not exist until recent centuries and the only clues available to shed light on man's story on earth are buried in the ground.
3. The earth is the archaeologist's "source book" with layers of occupation substituted for pages. Layers of occupation were laid down by man as he pursued his normal activities and by nature when man deserted a site he had once occupied. Man can rarely live on a site without leaving traces of his occupation.
4. Layers are grouped together to form strata related to a particular culture; the stratification of a site reveals the history of the site. Layers are dated by material, such as coins and pottery, found in them.
5. Excavation is a destructive process and should only be undertaken in a scientific manner to gain knowledge of a people once occupying a site; the knowledge gained must then be made available by publishing it.
6. Area excavation is one method of scientific excavation of a site. In this method, the site is divided into squares and are excavated in systematic order while leaving strips of untouched earth (called baulks) to serve as a permanent record of how the site looked before excavation.
7. Excavations are a waste of time and an unnecessary act of destruction unless they are recorded precisely. Recording is done by survey,

diagramming the excavation plan and showing all the strata and small finds discovered.

8. Small finds are artifacts which are important for dating purposes and because they reveal a great deal about the people who made and used them.
9. Archaeologists have unearthed many clues to the Phoenician civilization and can give some answers to the questions: how did the Phoenicians live and meet their basic needs; what sort of society did they have; what type of work did they do; what did they believe; what contacts did they have with other cultures; what use did they make of their leisure time; what reactions did they have as a group to the important events of their era?

Skills to be developed

The skills the unit seeks to develop include:

1. greater facility in working independently and as a member of a group
2. better use of reference materials and maps, development of more critical judging of sources of information
3. more confidence in writing original articles using their factual learning
4. growth of ability to report to the class in an interesting and clear manner
5. ability to ask intelligent and original questions of a speaker or authority on a subject

Values to be developed

1. The study of archaeology should lead to an enlarging of the pupils' horizons and an increase in their awareness of man.
2. The unit is an attempt to help pupils see the study of the past not as a dull chronicle of remote people but rather as the story of their ancestors - people who were once as alive and vibrant as they are.
3. The pupils' interests in the study of ancient man through archaeology should increase as a result of the unit.
4. The unit can help pupils realize that language is an essential tool of communication but that people can communicate in other ways - through art, music, sculpture, architecture, artifacts - and that these material forms of communication are the tools an archaeologist uses to gain knowledge of the past culture when written or oral language is unavailable.
5. A study of the artifacts made by ancient man may awaken the pupils to different standards of beauty and may broaden their aesthetic appreciation.
6. Working together as a group should show each pupil the importance of class cooperation and respect for classmates and their ideas.

CHAPTER III INITIATING LEARNING EXPERIENCES TO INTEREST
PUPILS IN STUDYING ARCHAEOLOGY

Environment -

The classroom environment should be arranged so as to stimulate children's curiosity in the idea of finding out about ancient man by digging in the ground.

A bulletin board could consist of pictures showing an excavated site below the level of a modern city where people are carrying on twentieth century activities, a good picture of this could be found in the DAILY STAR of February 27, 1966 and perhaps others could be requested from the Department of Antiquities showing the sites being uncovered in Beirut. Other pictures might show Baalbek, Byblos, Tyre and the Temple of Eshmoun at Sidon as well as pictures of various objects found in Lebanon; such pictures could be requested from the Department of Antiquities or from the files of the DAILY STAR and L'ORIENT.

An exhibition of artifacts found in Lebanon - pottery, coins, figurines, glass objects or whatever else the teacher might be able to borrow temporarily - could be set up in a corner of the classroom. It might be possible to arrange for someone from the American University Museum to bring a few things to show the class and explain briefly the importance of being able to find such things in the earth.

Reading material dealing with archaeology and the biographies of famous archaeologists can be organized into a library corner. The American Community Elementary and High School libraries have a few books on archaeology; a list of some books currently available is found at the end of the unit. Other books might be found at various book stores specializing in American and English publications. Some books should be on the children's level but others containing a great many pictures could be adult books.

Learning activities

1. A brief talk by someone from the American University Museum explaining the importance of looking into the earth to find clues about man's past because man lived for thousands of years before writing was developed and these ancient men left no clues other than material remains.
2. A visit to the excavation sites in Beirut near Place des Cannons, Souk Ayass and St. George Cathedral - the class could discuss a map of Roman Beirut (found in Beirut, Ville Romaine, by R. Mouterde and J. Lafferty [Beirut, Publication de la Direction des Antiquités, Villes Libanaises, Imprimerie Catholique, 1952] available at American University Library or from the National Museum) to see the probable plan of the city at that time and to help them realize that people can indeed build on top of an ancient site and go about their business day after day without ever really knowing what lies under their feet. The article, "You May be Sleeping on a Phoenician Temple", in the DAILY STAR of February 27, 1966 may be read to them and discussed.
3. Artifacts from the twentieth century, for example plastic cups, a light bulb or small metal lamp, something aluminum, a transistor radio, a model rocket or plane, a piece of jewelry, tin cans, a milk bottle, a piece of building cement, or any other unbreakable, long enduring objects, can be put on a table. The class can be invited to gather around the table and discuss the objects; they can be asked if these objects are

representative of their civilization and, if not, why not. Then, either individually or in small groups, the class can write a short essay on what they would know about a civilization if they had found these objects and nothing else. They could also each be given coins, which contain writing, and asked what the coins can reveal - the name of the country minting them, the fact that writing was known there. The portrait on the coin must have been a great hero, and any other objects on the coin should indicate what the country considered important and valuable. The coin is of metal or alloys which indicate possession of this technology; it is very regular and might have been mass-produced by machines, etc. Conclusions reached are discussed.

4. Visit the beach under Khaldé excavation and dig for pieces of pottery; take strainer sieves and "pan" for coins which have collected in pools of water underneath the excavation - many people have found a variety of coins there. Make a small classroom collection of the things found and label them - ask an archaeologist visitor to the class to help you identify them.

Once the children's curiosity and enthusiasm are aroused, the teacher can suggest that they find out about the study of these artifacts, how they are uncovered and how we can learn, through them, about ancient man such as the Phoenicians.

CHAPTER IV

CONTENT OF THE UNIT

A. THE STRUCTURE OF ARCHAEOLOGY

B. PHOENICIA AS SEEN THROUGH ARCHAEO-
LOGICAL AND HISTORICAL EVIDENCE

A. THE STRUCTURE OF ARCHAEOLOGY

1. INTRODUCTION TO ARCHAEOLOGY

a) The Purpose of Archaeology

The nature of archaeology has often been clouded by the emphasis placed on the discovery of famous art treasures and the romantic adventures archaeologists are supposed to face while searching for fabulous treasures buried in remote tombs. There is a great deal of romance in archaeology in the excitement of discovery and the wonder of a previously unknown city or civilization unearthed by an excavation. Fabulous treasures have also been dug up on many occasions and archaeology was for years a treasure hunt rather than a serious inquiry. It is to plunderers as well as to scientific excavators that museums owe almost all of their collections because wholesale removal of treasures preceded the scientifically organized excavation.

Neither is archaeology a science except in the strictest definition of the word; it is an organized body of knowledge but its aim is not to formulate general truths or laws. Archaeology is a systematic study using scientific methods of inquiry to unearth and examine material things but the knowledge gained by this inquiry is not used to understand the nature of the things examined but rather to shed light on the history of man.

There are many scientific aspects to archaeology because archaeology applies scientific techniques as much as possible, especially in field archaeology (excavating). Sites are excavated according to carefully devised scientific methods of gathering evidence; the sites are systematically

divided into sections for clearing. Digging shows a strict regard for accuracy in an effort to avoid disrupting evidence. Observation and careful recording of finds in relationship with their environment are basic to the process of excavating and interpretations are based on the evidence revealed. Scientific advances have refined archaeological techniques too; for example, carbon dating is a by-product of American atomic research which showed that all organic materials lose a measureable amount of carbon 14 over the years. Chemical advances have also been important in helping preserve and restore written materials and artifacts which would have otherwise crumbled. Despite the importance of science in archaeology, archaeology is not a science because its ultimate aim is not the study of the nature of material things but the study of man's past cultures. Science in archaeology is a means not a goal.

If archaeology is to be considered a science at all, it must be grouped as one of the social sciences although it does not try to arrive at general laws regarding man's social behaviour. Archaeology is based on the concept that man's past activities have left many permanent marks in the earth and that by studying these marks systematically it is possible to have clues to man's past history and cultures. It is, therefore, a study of man through the things man has made and the changes he has caused on the surface of the earth. The purpose of this study, according to Sir Leonard Wooley²⁷ is "to illustrate and to discover the course of human civilization". In order to do this, archaeologists make

²⁷Wooley, Sir Leonard, Digging up the Past, Penguin Books, Pelican Division, Middlesex, England, 1960, p.17

their interpretations not only on the basis of the actual evidence they uncover but also take into consideration knowledge derived from all the social sciences, philosophy and the arts about the nature and behaviour of man²⁸.

When an archaeologist digs, he digs not just for things but for things which will teach him about people. The material remains which he finds may or may not have value in themselves but they can often offer valuable clues to the people who made them, their ideas, their way of life and their culture. The purpose of an archaeological excavation is to gather evidence about the people who once lived on the site; this evidence is then interpreted to shed more light on the continuous story of man on earth. The archaeologist is interested in the answers to such questions as - how did the people live and meet their basic needs; what sort of society did they have; what type of work did they do; what did they believe; what contacts did they have with other cultures both earlier and contemporary ones; what use did they make of their leisure time; and what reactions did they have, as a group, to the great events of their time? Therefore, the archaeologist is not interested in structures and artifacts per se but in the clues which such things can give to the minds of the people who made them. Sir Mortimer Wheeler²⁹ wrote "the archaeological excavator is not digging up things, he is digging up people

²⁸Wheeler, Sir Mortimer, Archaeology from the Earth, Penguin Books, Pelican Division, Middlesex, England, 1954, p.16

²⁹ibid. p.17

the ultimate appeal across the ages whether the time interval be 500 or 500,000 years, it is from mind to intelligent mind, from man to sentient man".

However, the scientifically examined material remains do not reveal completely any group of people because a culture is a combination of material and spiritual aspects. Personality, mind and ideas can only partly be grasped through a study of material things but these are the things which are most important about man. In addition, judging any culture entirely by its material remains can be very misleading. Many of the greatest ideas, religions and ideologies and some of the greatest civilizations have left little tangible evidence, while lesser civilizations are over-represented. Contrasting the glories of Athens with the meanness of Sparta, Thucydides made the accurate prophecy³⁰ "If Lacedaemon (Sparta) were some day to be devastated, and if there remained only the sanctuaries and the foundations of public buildings, posterity in the distant future would have difficulty in believing that its power corresponded to its renown".

Archaeologists try to balance their interpretation of a culture by combining the material remains they have found with any written references available. However, for the greater part of man's existence on earth, there are no written records at all and man's material remains furnish the only clues we have to his existence. For example, no deciphered written records have yet

³⁰Dinsmoor, William Bell, The Architecture of Ancient Greece, P.T. Batsford Ltd., London, 1950, p.149

been found of the wonderful Minoan and Mycenaen civilizations, but archaeologists have managed to trace their histories and cultures through excavations. On the other hand, there is hardly any archaeological evidence of the Phoenicians in Phoenicia itself but through excavations elsewhere and information supplied by written sources it is possible to recreate in general terms the history and daily life during this period.

Despite the probability of some imbalance in its view of a civilization, archaeology and the evidence it takes from the ground, plays a vital role in the study of ancient man because only from the earth can information be found about pre-historic man. By pre-historic man is meant not only Stone Age man but all people living before the advent of writing. Writing is a recent convention. It appeared about 5,000 years ago in Egypt and Mesopotamia, but most of Europe remained pre-historic until the spread of the Roman civilization (first century A.D. in Britain) and America was pre-historic for the most part when Columbus landed. Even when writing appeared in a culture, it was usually reserved for affairs of state, for religious matters, commercial transactions or to chronicle the exploits of kings. Very little information has come to us from written sources about the daily life and occupations of the common people - even in such early literate societies as classical Greece and Rome. Therefore, archaeology is important to supplement written records until comparatively modern times. In addition, many written records have only been discovered during excavation.

Man left a permanent record of some of his activities in the earth because he constantly disturbed the earth's surface as he followed his daily pursuits.

The earth, then, can become the archaeologist's "book", revealing in its layers - or "pages" - what man has done to it over the ages. Man left this record behind him in a variety of ways. He dug holes for his tent poles and foundations for buildings; laid floors of beaten earth, crushed limestone or mosaics, plowed the earth to grow his food; lost small items in the dirt; threw away his rubbish; and buried his dead with artifacts they might need in the next life. His villages and cities were frequently destroyed by natural disasters or by the violence of his fellow men and the remains of these cities and villages can still be found buried under earth and ashes. All of these human activities disturbed the surface of the earth permanently and left signs of this alteration because the earth can never be put back into its virgin state; even when holes are filled in, the fill is distinguishable from the surrounding untouched soil. Discovering and interpreting these clues and the structures and artifacts which man has made is the work of the archaeologist who uses this knowledge in cooperation with the historian to tell the story of ancient man.

b) Fields of specialization in archaeology

Archaeology is far too broad a subject for anyone to avoid specialization. An archaeologist, whether career or part-time, usually confines his interest to some particular field such as an aspect of pre-history, an important civilization (for example, Greece, Rome, Egypt, Indus River Valley, pre-classical Mediterranean, Palestinian etc.) or the history of a certain area through many ages. There is a degree of specialization reflected too in the type of full-time job a career archaeologist holds; he is usually connected with a museum, teaches or does research at a university, or, in some countries, is a civil servant in a national archaeological department.

Field work is the aspect of archaeology which has the greatest appeal to the general public but an archaeologist usually devotes only part of his time to excavating. Excavations are extremely expensive and often difficult to finance; then climatic problems may make it impossible to continue excavating all year round even if financing presents no difficulty. Finally, the archaeologist cannot devote every day to excavating even if there were no practical problems involved because he must spend much of his time doing research, organizing excavation findings, making reports and publishing his findings. Excavations are usually short term or are undertaken for a few months every year for a period of years. There are a few instances where excavation has been carried on almost continuously for a number of years but, even in these cases, field work has an eventual termination in sight and is not considered a permanent full-time post.

Concepts to be developed about archaeology

1. Archaeology is the study of man through his material remains; these remains are taken from the earth and examined in a scientific manner and interpreted in the light of knowledge derived from the humanities about the nature and behavior of man.
2. Archaeology is not primarily concerned with the material remains discovered, but with the clues these things can give to a greater understanding of man and his past civilizations.
3. Archaeology is vitally important to the study of early man because written records did not exist until fairly recent times. The earth is the only source of information available about many civilizations but many aspects of a civilization cannot be revealed by its material remains. Although written records properly belong in the domain of the historian, archaeologists need to take written records into account, whenever possible, when making their interpretations in order to understand a culture beyond the limits imposed by its material remains.
4. Archaeology and history cooperate with each other to supply information about ancient man and his various civilizations.

Learning activities leading to an understanding of archaeology

Learning activities are directed towards an understanding of the basic idea that archaeology is the study of man through the permanent marks and material remains ancient man has left in the earth. The activities should also lead to a comprehension of the scope of archaeology through readings about famous archaeologists and well-known discoveries.

1. to understand the concept that man's activities have left permanent marks in the earth -
 - a. the class can discuss ways in which man has changed his environment and the marks such activities have made on the earth's surface. They could also discuss what a future archaeologist could determine about twentieth century Beirut if little remained standing - large port, airport, lack of factories, and fields would point to commercial activities on a large scale; the presence of many banks might be deduced if a number of underground vaults were found; deep foundations for buildings would indicate that buildings had been multi-storied; streets were paved so cars were used instead of draught animals; some buildings could be identified from their plans as having been mosques, churches, private houses or apartments, offices or public buildings, schools, theatres, warehouses etc.
 - b. the class can visit a site where these permanent marks or remains are evident - downtown Beirut and Khaldé are convenient for short trips.

2. to understand the scope of archaeology -

children can be given or can volunteer for reading assignments from the various source books available in the classroom or elsewhere.

Perhaps committees could be organized to do research on famous archaeologists or famous discoveries or the role of science in archaeology etc.

2. THE PRINCIPLES OF STRATIFICATION

a) Subject matter

The analogy has been made that the earth is like a history book with layers substituted for pages. In order that the book be properly read and that the relative sequence (or order in time) be established for the material remains found, the "book" has to be read page by page or strata by strata. This means that each strata has to "be brought to our eyes reasonably intact and in proper sequence"³¹. Simply digging an area at random or clearing away en masse (as Schliemann did at Troy and Mycenae) may result in the discovery of treasures but it destroys the "book" and renders it as meaningless as would be an actual book read through haphazardly torn out pages. Careless excavation makes the identification and dating of finds nearly impossible because the finds are torn out of their context; this was the result of Schliemann's excavation methods. In contrast, scientific methods of excavation³² involve precise digging and careful examination of finds in their proper strata in order to identify remains and date in sequence the various levels of occupation. The concept of layers of occupation is the essence of the principle of stratification; the history of a site is determined by its stratification.

³¹Wheeler, Sir Mortimer, op. cit. p.59

³²One of the earliest scientific excavators was Thomas Jefferson who excavated some Indian burial mounds in Virginia in 1784 and recorded his careful study of the different layers.

In the archaeological sense, a layer of occupation is a horizontal line put on the earth, above virgin soil or bedrock as a result of man's occupation of a site or as a result of natural forces following man's occupation and departure from the site. Accumulations of such horizontal lines or layers are called strata and excavations are undertaken for the purpose of studying the stratification of a site in order to determine its history. Stratification on a site is examined to determine the relative sequence, or dates if possible, of the various man-made or naturally formed layers.

"People who have not worked on excavations do not realize how very varied are the different layers which make up the soil on a site where there has been lengthy human occupation. Each surface that was walked on for any length of time, each layer of debris, each tip line in a bank, shows up as a distinct line in the soil if it is looked at in the side of a cutting."³³ In the West, there are not many layers of occupation on a site but in Eastern countries, where man has lived for thousands of years, the layers of occupation are so numerous that they create an artificial mound (or "tell" in Arabic) sometimes a hundred feet high.

There are many ways in which layers are laid down. Early pre-historic man often lived in caves or slight huts which left behind little structural evidence but, even here, occupation levels can be found which consist of layers of rubbish or food remains, a beaten earth floor or a circle of rocks making

³³Kenyon, Kathleen, op. cit. p.69

up the lower courses of hut walls. Another layer might have resulted when man dug into the ground for refuse pits, to farm, to make holes for his tent poles or to bury his dead. The typical layer results from structures built on the site. It was laid down when man dug foundation holes to support his walls and pressed down a floor of limestone, beaten earth or mosaics which he compressed further into the ground as he walked. He added to this layer ashes from his hearth or bits of rubbish such as pottery sherds (pieces), ornaments or coins which he lost in cracks on the floor and pushed into the earth as he walked over them. Layers of ash were formed when cities or villages were burnt by invaders; layers showing widespread destruction also resulted from strong earthquakes.

Layers are created by natural forces when deserted sites are covered by windblown sand or humus; the sand or humus lies on top of the man-made layers. When buildings in a part of a city are allowed to crumble, during a period of economic depression, destruction layers are formed from the partly dissolved mud-bricks (which are adobe) or stones that fall from the walls and cover the floor layer. (Stones from the walls rarely remain long on an abandoned site because they are usually reused in a later structure; evidence of this can be seen all over Lebanon. Stone foundations below ground level often remain in place but, even if they are removed, the trench in which they were laid can be identified and linked with the appropriate floor level.)

Beirut is a perfect example of a site with many layers of occupation. Stone Age men must have lived here at one time because their tools are so common

in Ras Beirut. Because of its natural site, Beirut was occupied by many other people in the centuries following the Stone Ages. We know it was a Phoenician city minting its own coins. It was also a Hellenistic city ruled by the Seleucid kings and, after that, a Roman city. At present, Beirut gives the impression of being a city created by the twentieth century but underneath its modern concrete buildings lie the remains of its past occupations. We know that frequently excavators digging deep foundations for new buildings, especially in the center of Beirut, come across Roman ruins or sarcophagi or other relics of earlier periods. Beirut also contains, in its modern level, structures earlier than the twentieth century; for example, part of the Roman wall stands near the port and many old Turkish-period buildings still exist. A city can be built on the ruins of older cities but structures from the older cities can be found on the same level as the later ones. This leads to the problem of placing layers in the right sequence.

As indicated by the example of Beirut, layers of occupation are not neat horizontal lines. Therefore, the fact that layer A in a site is three feet about sea level and layer B is three and a half feet does not mean that layer A, closer to virgin soil though it is, is the earlier of the two. The structure representing layer A might be a later structure with a deep foundation or might have been built in a hollow while the structure on layer B might have been constructed on a slight rise. Sir Mortimer Wheeler³⁴ attacks such arbitrary measurements being used as a means of relating strata and says:

³⁴Wheeler, Sir Mortimer, op. cit. p.70

"To appreciate its utter absurdity [dating from arbitrary measurements such as sea level or depth from the surface], we need only to recall that, except at the earliest level of a site an ancient city of the East is never level. Very rarely is a city completely destroyed and completely rebuilt at one moment and at one horizon. Normally, a house is reconstructed or replaced as it decays, or at the whim of its owner. The town as a whole is constantly in a state of differential destruction and construction. Individual building-sites rise above their neighbors; the town itself rises and assumes the contour of a hill; buildings on its slopes are contemporary with buildings on its summit. A doorway or a potsherd may be found at one spot ten feet below a doorway or a potsherd of precisely the same date at another spot."

The science of excavation is directed towards the interpretation of the various strata in a site in order to deduce its history. Therefore, the occupation levels must be isolated, correlated with contemporary layers and placed in the correct strata along with the structures and artifacts belonging to each layer. The strata must be put into relative sequential order and dated as closely as possible.

Changes of color, consistency and texture of the soil indicate the different layers but these indications are sometimes so subtle that they are very difficult to detect and interpret. Evidently, experience under good supervision is the only way in which a beginner can learn to recognize the indications of changes in layers.

Miss Kenyon gives a few examples of such changes³⁵ a pits and trenches from which foundation stones have been removed show up as breaks in the color of the soil, as an increase in softness of soil or as an inclusion of rubble or debris

³⁵ Kenyon, Kathleen, op. cit. p.86

into the earth; post holes of wooden structures are indicated by softer, darker patches in the soil. Floors or streets are fairly obvious in a section because the earth is so tightly compressed; in addition, the floor might have been made of a different material such as limestone or mosaics. The lower courses of walls were usually made of stone no matter what the upper parts of the building might have been; these stones or their foundations are all that is needed to delineate a structure's floorplan. Floor levels are linked to their appropriate walls by noting carefully the exact point at which the floor touches a wall above the foundation trench. Walls of mud-bricks (adobe bricks) are sometimes easily isolated and sometimes very difficult to distinguish from the dirt surrounding them. However, there are slight changes in texture and the feel of the soil as well as differences in sound as the pick or shovel strikes mud brick in contrast to the sound of plain earth filling. Sometimes, though, it is necessary to examine areas with a magnifying glass in varying intensities of light or to tap with a small pick or to carefully scrape a dampened surface before the mud bricks can be identified.

Layers are correlated as being contemporary, being part of the same structure, or the same occupation strata, being separated by a short or long period of time, and accumulating in a broken or unbroken line of succession. A great deal of actual experience is needed on a site before the science - or art - of interpreting and relating strata can be learned because there are no invariable rules to guide a beginner³⁶.

³⁶Wheeler, Sir Mortimer, op. cit. p:62

Some layers are important and are integral parts of the stratification or history of a site. Other marks in the earth appear to be real layers but are actually separated segments of a whole layer or are inconsequential disturbances of the soil (for example, earth dumped in to fill a refuse pit might at first seem to be a layer). Some layers are linked to buildings and to actual inhabitation while others, such as ash layers or sand, are linked to the destruction or abandonment of the site. It does not follow that a narrow layer is unimportant while a thicker one is important. Wheeler gives the extreme example³⁷ of a site in England, where four or five inches of brown soil when analyzed in a laboratory indicated an occupation gap of about a thousand years - long enough for the once inhabited site to have become a wood.

Once a layer of occupation is discovered, if a floor is found (and if finances permit), efforts are made to link the floor with its appropriate walls and to relate the floor layer with the other layers existing because of the structure. The strata of occupation revolving around a particular structure could include layers representing (a) foundation trenches, (b) walls, (c) dirt or other material used to even the site off before the floor was laid, (d) the floor, (e) occupation debris on top of the floor (such as lost or discarded objects that belonged to the inhabitants), (f) other rooms of the structure, (g) debris resulting from the structure's decay or destruction (dissolved mud from the walls or rubble from the stone courses), (h) perhaps the structure's relationship to something outside it (for example, a road running along its outside wall).

³⁷ibid. p. 63

As the archaeologist digs, he disturbs the soil and often totally destroys occupation layers in order to reach earlier layers. Even if a layer is not removed, once it is disturbed by the act of excavation, it can never be restored to the state in which it was laid down. Records of all layers are kept in writing but some record is needed on the site itself in case of a necessity to reinterpret strata because of later discoveries or for some future reference. For this reason, points of reference are left at intervals throughout the site so that a small but complete record remains of the site before digging began. These reference points are strips of untouched earth, called baulks or keys. They are marked off when an excavation site is delineated, before digging begins, and are usually several feet wide with a depth from the surface of the site to the lowest point of digging.

Occasionally, layers can be dated from external sources; for example, the layer of lava overlying Pompei, can be given a date from historical sources. This is a rare occurrence. The only way in which layers can usually be dated is by archaeologists' being able to assign approximate dates to objects found in the layers. Even structures can rarely be dated by themselves unless they have an inscription or are of an unusual and recognizable construction. It is necessary to correlate structures with their appropriate layers and examine their floors and the occupation debris on the floors for clues from which the structure can be given a date.

It seems strange that enough material for dating can be found in the ruins of a structure; but floor layers can be expected to yield a substantial amount of datable material, at least enough to give a very approximate date and to help establish the relative sequence of the various floor levels. Datable material

archaeologists might expect to find on a floor include bones of domesticated animals, grain seeds, olive presses, stone or metal tools or weapons, imported items, dyeing vats, votive figures, statues, jewelry, glass beads or vessels, carved ivories, seals, lamps and mosaics. The most important and frequently found datable objects are coins and pottery both of which were in widespread use and are nearly indestructible (pieces of broken pottery can be identified and dated almost as easily as the whole vessel could be). Sometimes these articles were dropped accidentally or thrown away in a rubbish pit, or put under the floor of a temple or in a hole in a house wall, or were left behind as the family fled a burning house or invaded city.

As soon as an object is found, the place where it was found must be recorded precisely. The general area of the site where the discovery was made is noted and three dimensional measurements are taken to show its exact position in the excavation trench. These measurements are taken with great care because of their importance in dating occupation levels. The goal of the recording process is to enable archaeologists in the future to replace any object, at least on paper, in the exact spot where it had originally been found, in case there is a need to review or change the original interpretation of the stratification of the site.

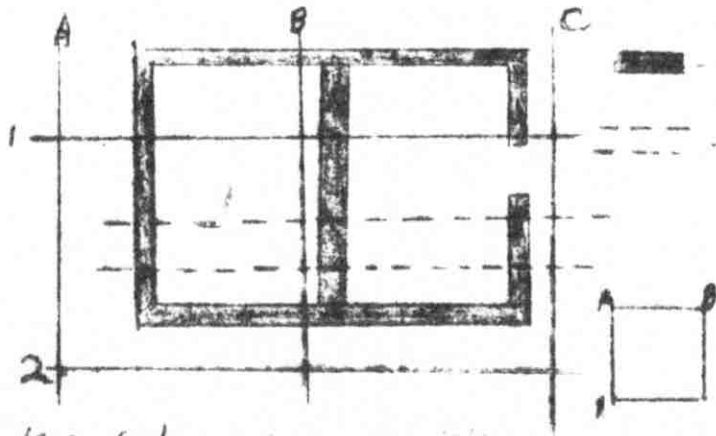
Layers are numbered from the top down as they are discovered. Cultures, which are organized from the interpretation of the stratification, are numbered from the earliest to the latest. Therefore, layer number one would be at the surface of an excavation while culture number one would be the earliest culture

identified and would be represented by the strata next to virgin soil at the bottom of the excavation. If it is not possible to explore a site to virgin soil (as at Tyre where the lower strata are under water), cultures are sometimes labelled in the same descending order as are layers. This is the usual numbering system but it is not always followed.

Illustration of layers and stratification in section:

a) A section is analogous to seeing the inside of a cake through the sides revealed when a piece is cut. The section shown below reveals the side of a trench which cuts across parallel lines made by the walls of a structure. Class can discuss pictures they have seen of things in section and could cut a slice out of a roll of cardboard or a block of wood to examine their insides through the section made.

What is a section?



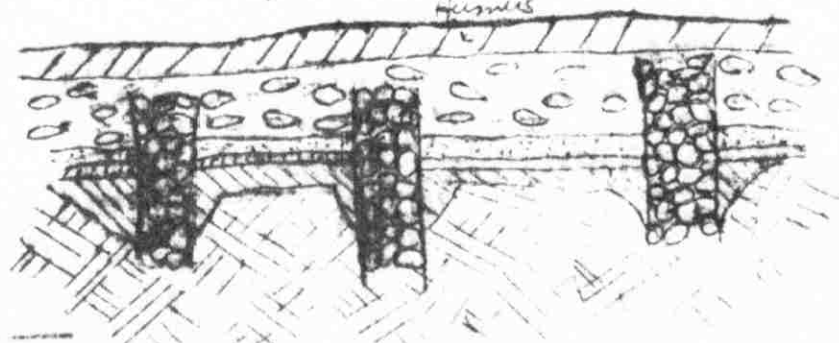
house walls

a type of excavation trench which will reveal a cross section of strata along the sides of the trench

the square of an area excavation - explained in the following section

Digging can be on a large scale and can go into walls but not cut them (except to remove the layer) or a small scale (exploratory) when walls might just be cut across to reveal them in section and record them. The section is seen on the side of the square being cleared or on the side of the exploratory trench.

Layers in section - all layers are related to one structure - taken from ³⁸ Beginning in Archaeology of cities p 70



- Foundation trenches
- Floors
- walls
- occupation debris
- destruction debris
- virgin soil

b) Concepts to be developed about stratification

1. The earth is the archaeologist's source book where layers of occupation are substituted for pages. Man has left many material clues on every site he has inhabited but these clues must be studied in chronological order in the same way as the pages of a book are read from the first page to the last.
2. Stratification is the concept that layers of occupation can be studied in order to reveal the story of man during the periods he lived on a particular site. The stratification of a site is the source material for writing the history of the site.
3. Layers of occupation were laid down by man as he pursued his various activities and by nature when man had deserted a site he had once occupied. Man can rarely live on a site without leaving behind some traces of his occupation.
4. Beirut is one example of a site containing many layers of occupation. The tells in the Bekaa valley are an example of a phenomenon existing in eastern countries where centuries of inhabitation and use of mud-bricks for building have resulted in layers of occupation many feet high.
5. Archaeologists have many ways of telling when they have reached a layer of occupation: among these are changes in color, texture and consistency of soil and the change in sound made by a shovel as it digs through the soil. Sometimes changes are very difficult to detect.
6. Each layer must be related to the other layers on the site laid down by the same group of people. Related layers are collected to form a stratum or group of layers marking one period of occupation of one culture that

that existed on the site. Some layers are important and others are not; thickness of a layer is not an indication of importance.

7. Layers are dated from material, such as coins or pottery, found in them - usually on the floors of structures. A great deal of datable material is generally found on any layer, if a careful search is made; but, sometimes, the material found is difficult to date, especially when the site was inhabited by very early men. It is sometimes difficult, too, to assign the material to its proper layer because layers are not neat horizontal lines. Layers cannot be dated from arbitrary measures such as sea level or distance below the earth's surface.
8. Layers are numbered as they are found - from the top down - so that layer number one is the first one found below the surface. Cultures or periods of occupation are numbered after the stratification has been studied and all the evidence from the excavation has been thoroughly examined; therefore, cultures are numbered from the earliest to the latest - or from the bottom of the site at bedrock to the top - in the order in which the various people actually lived on the site. This system is not always practical but is generally followed.

c) Learning activities related to the principles of stratification

Initiating activities should have laid a foundation for the understanding of stratification. Some of the activities could be reviewed and the class could discuss what they have learned but might not have understood. If pictures are available showing stratification, the teacher can give them to the students and suggest that the students try to find other pictures in the archaeology books on the shelves or by looking up references to archaeology in magazines such as National Geographic and Life. The teacher can base some learning activities on the points the children have failed to grasp.

To understand how stratification takes place:

1. put dirt and sand in a large shallow basin or on a sand table having provision for the draining off of water; the children can build a small "mud-brick village". Every day sprinkle water (a rainstorm) over the village - notice how the houses begin to melt. Repair a few of the houses, adding small stones to the lower parts of the wall if desired, but let the others dissolve from neglect. When the level of the ground where the dissolved houses stood has been raised slightly, build a few more mud houses on the same site. The village can be in varying stages of decay and renewal all the time so the children can understand why levels of occupation are not neat horizontal lines and can see visually how the levels were laid down.
2. If possible, visit an unexcavated tell in the Bekaa which has a modern village clinging to its sides - the Council of Tourism might be willing to arrange such a visit - and the children could feel and see how a tell has grown while they climb to its top.

3. THE SCIENCE OF EXCAVATION

a) Subject matter

The excavation techniques described in this section are general techniques and are discussed in theory with no attempt made to show how an archaeologist would handle the many technical problems that always arise during an actual excavation. This approach was taken because the section is intended to serve as an introduction to the principles and techniques of excavation and any deeper study would be so complex it would probably be beyond the comprehension of most eleven year olds. In order to facilitate the learning, a class project is suggested involving the excavation of a plasticene tell drawn to the scale of a realistic site.

Excavation is not the wholesale removal of earth. Too often, excavators themselves have destroyed or rendered meaningless whatever evidence could have been found on a site because of their haphazard methods of excavation or their careless recording. Excavation is a destructive process. The act of excavation removes from the earth the evidence deposited there in certain patterns over long periods of time. Once the earth is dug into, it can never be put back into its original, untouched state. A responsible archaeologist, with a respect for scientific knowledge, will always use a carefully devised scientific method of excavating and will record his findings accurately and fully. He will also leave sections of untouched earth at intervals across the site to serve as keys or baulks containing a permanent record of the earth as it was in its untouched state before excavation began.

The only method of excavation to be discussed in any detail in this project will be area excavation. This method was chosen because it is considered by

many archaeologists to be the most accurate way of clearing a site and because it facilitates recording finds; it can also be used on almost any type of site. It should be pointed out that many of the sites in Lebanon have been and are being excavated by different methods or by a variation of the area method.

One reason for this is that some archaeologists prefer to use their own scientific methods and another reason is that some sites are more easily cleared by different methods (for example, cave sites or burial mounds).

All scientifically devised excavation techniques concentrate on clearing the site in segments, not all at once. Area excavation involves the division of a site into squares (called grids) which are then excavated in systematic order leaving baulks of untouched earth at a number of points. Individual squares are cleared alternately or several squares are combined and cleared together. Excavation proceeds vertically in one square until the first layer is reached. Then, the entire square (or group of squares) is cleared to that layer. The excavators dig no further in that area and clear nearby squares to the same layer. They will try to find as much of the layer as they can and to relate all its parts. Since layers are not neat horizontal lines across the earth, they cannot guess how deep they will have to dig to clear all the first layer and can only declare the various parts contemporary or not by datable material and obviously related structures found in the different segments. When the remains of structural foundations are discovered, attempts are made to follow the probable building lines and find the rest of the structure. The areas designated to serve as baulks are left untouched unless some important structure seems to be partly under them, then as much of the baulks as necessary would be cleared to reach this structure. All discoveries are promptly photographed or

drawn and the exact position in which they were found is recorded.

Evidence of man's past activities is not limited to structural remains. Many important clues are buried in the dirt above the layers and this dirt is cleared away in order to reach the layers. Therefore, it is important that dirt be dug out and removed in small quantities at a time and that it be examined thoroughly to avoid losing "small finds" which are often the only way of dating a layer. ["Small finds" are such things as pottery, jewelry, coins, votive statues, inscribed pottery sherds (ostraca) or tablets.] It is usually only necessary to break up large clumps of dirt with a shovel or trowel but sometimes, if valuable but small objects are expected to be found in quantity (e.g. in certain burial sites), it is important to go over the dirt by hand, fingering it, or even to sieve it all. Any student who has seen the objects still left in the refuse from Khaldé, which is dumped on the beach there, can easily understand why such care must be taken. Those objects were removed after the dirt had been examined.

Excavations can be small, exploratory diggings or large scale clearances of an entire site. Exploratory diggings are directed towards determining if a site had ever been occupied and, if so, how many layers there are representing the various periods of occupation. An examination of the layers is made through one or more small pits dug to bedrock or virgin soil and from this the general framework of the site's history can be deduced. Large-scale clearances are directed towards horizontal as well as vertical excavation. The intention is to unearth a substantial portion of each layer and to preserve, as far as possible, all the important remains. Baalbek is one example of a large excavation where the ruins of one period, the Roman, have been cleared and

restored while the Hellenistic and earlier layers lying under the Roman will not be excavated. (The earlier layers have been found through exploratory trenches but clearing them would involve the destruction of the far more valuable Roman remains.) Byblos is an example of a different type of large-scale excavation. At Byblos, excavation was carried through to the Stone Age (the Neolithic Age) and, instead of preserving one entire layer, parts of the various layers were retained in the form of important and representative structures. The projected size of an excavation is usually determined by the amount of financing available and by the suspected degree of importance of the site.

If an excavation is intended to be more than merely exploratory, it should be completed vertically and horizontally³⁹. To complete a site vertically means that it should be explored to bedrock or virgin soil in several places. Horizontal completion means that, when foundations are discovered, excavation continues horizontally at that layer until the entire building or cluster of buildings has been unearthed. When a tell or town-site is cleared, horizontal completion does not demand the clearance of the entire site; this is often financially impossible and unnecessary for obtaining sufficient knowledge of a site. A tell or town-site should be excavated horizontally to the extent that the meaningful and worthwhile knowledge gained by the excavation justifies the destruction of the site caused by the excavation procedures.

³⁹Kenyon, Kathleen, op. cit., p.91

The first step in planning an excavation is deciding where to begin digging. In a small site the decision is obvious but in a large town-site or tell it is more difficult. Part of the decision is based on an educated guess resulting from a careful study of the particular town-site or tell and on the automatic rejection of several areas which should rarely be the first places cleared.

Contrary to popular opinion perhaps, the acropolis or the spot suspected of being the place for temples or public buildings is usually one of the last areas to be cleared because it is too important. It is generally true that a spot considered sacred in earliest times is traditionally revered as sacred continuously and therefore usually contains temple remains in several layers. Public buildings may also tend to have been erected in a certain area or along a main street leading to the town gates so their remains may be on top of one another. Since these buildings are the most important in a site and since they are unique and irreplaceable, the archaeologists cannot afford to make any mistakes in excavating these usually superimposed structures. It is far easier to avoid mistakes if enough other parts of the city have been cleared so that its history has been determined. Then the archaeologists have an idea of what to expect when they begin the acropolis, temple area, palaces or other public buildings.

Excavating public buildings or temple areas first can also lead to serious confusion over chronology resulting in a distorted view of the town or tell's history. The same temple, for example, could have been used with slight modifications during several periods of occupation or the town could have been so poor it used the ruins of an earlier temple or it could have been so wealthy that the temple was enlarged or rebuilt several times. Public buildings might have been

constructed during one period and during a period of poverty or adversity might not have been needed at all. They also might have been altered often by a wealthy proud town and allowed to crumble during a difficult period. Temples and public buildings reflect the vicissitudes of the town or tell site but they do not give an accurate picture of its history. The objective of any excavation is primarily the determination of the site's history in order to understand better how its people lived at various periods. Therefore, it is advisable to excavate other sections of the area to learn its history and to have a basic idea of how people lived and, after that, to clear the temple and public structures. The temples and public buildings are the most important material remains in themselves and may contain treasures but the goal of archaeology is learning about people and the preserving of precious structures and artifacts is a secondary goal. In other words, the temples and great buildings are important for the information they can give about the people who built and used them but this information is too fragmentary unless it can be put into the framework of the history of the site.

Another area which is usually skipped over by archaeologists beginning a digging is the crest of a tell. Tells become smaller at the top as different occupation levels are laid down; people tend to build on the flatter top instead of clinging to the increasing slope of the sides. Therefore, the top would contain the greatest number of occupation levels; it would be necessary to dig through a number of recent and medieval layers before reaching the earlier, more interesting ones. A better place to begin then might be on the slopes, especially if the tell is fifty or a hundred feet high as some tells can be.

On some town or tell sites it is possible to locate evidences of town walls. This is a good place to begin excavation because the walls and gates can give a

good general outline of the town's history. The walls and gates can be dated to indicate periods of occupation of the site; the size of the towns at different times can often be deduced; periods of wealth and importance or poverty and obscurity can be noted from the condition of different phases of the walls; periods of peace or strife are seen from the way the walls were maintained at various times. The gateways are especially important clues to the site's history and can also indicate the location of main streets where important public buildings might be located or perhaps show the direction from which most of the town's commerce and visitors came.

Once the decision is made to excavate in a certain area, it is necessary to organize the clearance of the area by whatever scientific method will be used. In this exercise the area method has been chosen.

The area method consists of dividing the place to be cleared into squares or grids which will be excavated in a systematic order with baulks left at certain intervals. In order to proceed with this method, measurements are taken of the place to be excavated and the grids and baulks are marked with stakes and strings. When this is finished, digging commences.

In order to make this process more easily understood, a plasticene tell is suggested as a class project. The class can make the measurements to scale and dig into the plasticene to find the outline of the walls of a cardboard temple buried in the layers.

b) Concepts to be developed regarding the science of excavation

1. Excavation is a destructive process and should only be undertaken in a scientific manner to gain knowledge which will then be published. It is a destructive process because it destroys the evidence accumulated over the centuries by people living on the site. Excavation is properly undertaken in order to search for remains which might give us a clue to how people used to live. Only the different layers (together with their related artifacts) in the state in which they were laid down by the inhabitants can give us these clues. But in clearing the site we disturb the layers and the clues; these layers can never be put back into their untouched state again. Therefore, it is an unnecessary act of destruction to excavate without using a careful scientific method and recording all findings.
2. Excavations can be various sizes partly determined by the availability of financing and the suspected degree of importance of the site in question:
 - a) if the excavation will be a small exploratory one, one or more deep trenches are dug to bedrock or virgin soil so that the general outline of the site's history can be surmised.
 - b) Baalbek is one example of a large scale excavation. All the structures built on top of the Roman ruins (for example, the Byzantine basilica) were removed. Although some earlier remains have been located under the Roman ruins, the Roman structures will not be removed because they are far more important than anything that might lie under them and are unique

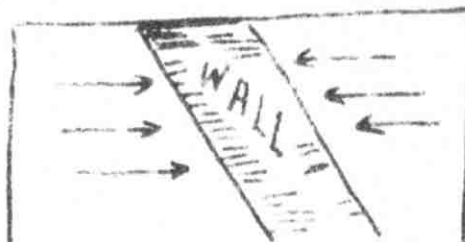
masterpieces of Roman architecture. Thus vertical excavation at Baalbek has stopped, for the most part, at the Roman level.

c) Byblos is another type of large scale excavation. Byblos was excavated to bedrock and any important structures found in each layer could be removed and reassembled elsewhere to allow digging at lower layers. Therefore, structures or foundations from eras dating back to the Stone Ages can be found scattered over the site.

3. There are many ways to clear a site. Area excavation is one that many archaeologists consider the most satisfactory but others prefer to use different methods which will not be mentioned here. Area excavation can be used on tells, town-sites, masonry buildings such as forts and villas and on almost any other type of site.
4. Area excavation consists of dividing a site into squares (called grids) and excavating them in a systematic order while leaving strips of untouched earth (called baulks or keys) to serve as references and records of how the earth looked before excavation began.
5. When archaeologists begin to dig in a square, they dig down until they hit evidence of a layer of occupation. When that happens, the whole square (or unit of squares) is cleared to about the same depth in order to expose as much as possible of the first layer. Everything in the first layer is carefully photographed and recorded. Then work in this square (or unit of squares) stops and nearby squares are cleared to the same layer. If foundations or walls are discovered, the archaeologists will try to find the foundations of the entire building by digging in the adjacent squares in the direction the building seems to run. They never dig on top of a wall to

follow the building line because this might wreck the wall; they dig from the side of the square until they intersect the wall at right angles at many points in the direction of the arrows.

This protects the wall and the place where the wall and floor join which



is so important to trying to date the structure.

6. Evidence can be found not only in a place from which the covering dirt has been removed but also in the dirt itself. Small finds such as coins, pottery or pieces of pottery, small votive statues for a temple offering, jewelry, carved seals for sealing documents and small inscribed clay tablets or parts of tablets can easily be lost if the earth being removed is not examined carefully. These are the artifacts which help date structures so earth can only be dug up in small quantities to ensure that nothing important is lost and that all finds can be accurately recorded. It is usually sufficient to break up large clumps of earth and to keep the amount of dirt removed at one time very small but sometimes all the earth has to be sieved or gone over with the fingers.

The excavation-site staff

The staff at an excavation usually consists of:

Director - an experienced archaeologist

Assistants - young archaeologists and an administrator in charge of food, housing, medical care, pay etc. Sometimes assistants specialize in taking care of pottery or small finds if a great quantity are uncovered. Assistants also act as recorders and, on a large excavation, some might spend all their time recording layers and finds in writing. At least one assistant who is a draftsman is needed at any excavation; draftsmen record strata in sectional drawings and make drawings of all small finds.

Specialists - may spend all their time on the site or might be called in when needed. Specialists include an architect, surveyor, photographer and perhaps a chemist if many small finds are expected - perhaps at a burial site - and the probability is high that a great deal of emergency treatment will be needed.

Supervisors - are in charge of small areas of the excavation site and supervise digging.

Foremen - are in charge of the laboring crews, each foreman supervises a small section of the part of the site being cleared.

Laborers - include diggers and basket men who carry the excavated dirt away in baskets.

LEARNING ACTIVITIES

PROJECT TO SHOW THE TECHNIQUES OF AREA EXCAVATION FOR A LARGE SCALE EXCAVATION

STEP I: Arranging layers to form a tell

explain meaning of "tell" again

take blocks of plasticene of several different colors, pull them with the fingers into a flat rectangle

make a model in cardboard of the foundations of a temple, cover it with plastic and slip it between any two layers of plasticene

arrange all the layers of plasticene one on top of the other to simulate the layers of a tell

the mass of plasticene should measure about 11-12" by 7-8"
explain to the class again that the object of excavation is the study of the different layers on a site and show them how clearly the composition of the plasticene layers can be seen from the sides - this is the same view an archaeologist would have from his trenches.

A tell is an artificial mound resulting from human habitation on a site over a long period of time.

colors suggested are brown to indicate humus or soil covering, black to show destruction of layer by fire, white to show floors resulting from one layer of occupation, beige to show a second occupation layer.

suggested outlines for temples are below

explain to the class that layers are never straight horizontal lines in reality - with this model tell it is difficult to make anything other than straight lines.

make the analogy of a layer of cake - when a cake is cut, its composition is seen. Ask if the class can suggest anything else which can be viewed in the same way by cutting or "showing in section" - e.g. tree rings

STEP II: Delineating the site for scientific excavation

is it certain that the site
has been occupied?

in this case, yes, because a tell is a result of occupation and because historical and traditional evidence shows that this "tell" once held an important town - if it were not sure that the site had been occupied, two exploratory trenches could be dug across the length and width of the site to look for occupation evidence and to see how deep to dig for the first layer. Exploratory trenches can confuse setting up grids and are avoided as much as possible. Pieces of pottery and artifacts seen on the surface of a site are good indication of inhabitation.

if occupation is certain, the decision is made about the part of the site which will be cleared as a first stage.

in this case the plasticene model represents the area to be cleared.

make a rough outline of the precise area to be cleared - the area should measure 10" by 6" - the scale will be 1" = 2.50 yards.

to enable students to understand the process better and to work out the measurements before putting them on the "tell", a similar outline should be made on paper and an outline 20" by 12" drawn on the blackboard. The scale on the paper will also be 1" = 2.50 yards but it will be 1" = 1.25 yards on the blackboard.

mark all outlines to show north, south, east and west.

STEP III: Indicating datum points

mark two datum points 2" from the upper corner of the delineated site (4" on the blackboard) - use orange.

datum points are two permanent marks made outside the area to be cleared - all measurements made on the site will be in relation to the datum points.

chalk on the blackboard,
orange pencil on the paper
and thin nails on the plas-
ticane. (with scale of
1" = 2.50 or 1" = 1.25 the
datum points would be 5 yards
from the site on the paper,
blackboard and plasticene
gall)

connect the datum points with a
dotted line or with orange
thread. This is the datum
line, the line formed to
connect the two datum points.

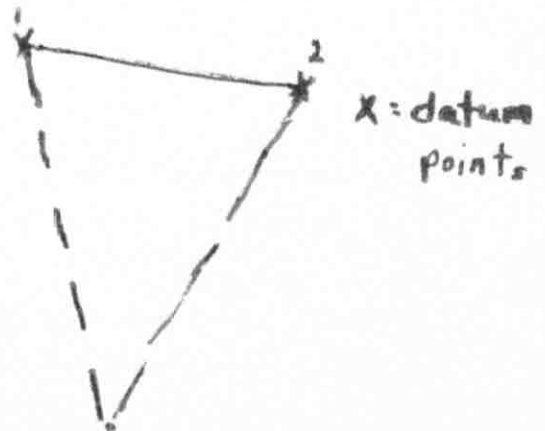
explain to the class that the
datum points are the basis
of all measurements -
longitudinal, latitudinal
and depth. Measuring is done
by triangulation i.e. by
forming with string a triangle
having two angles at the datum
points and the third angle at
the spot being measured.

(The datum points control the
placement of the horizontal
and vertical lines making up
the grid and, for convenience
sake, the height above sea level
of the surface of the tell is
determined by the datum points
which are arbitrarily given the
height of 100. Then anything
found 5 yards below the datum
point level is at a depth of
100 minus 5 or 95 which is
the depth recorded.)

On an actual site, the datum points
would be iron markers set in concrete
and would never be removed from their
places. In this way, it is only
necessary to leave two marks instead
of many which might have to be removed
as excavation proceeds.

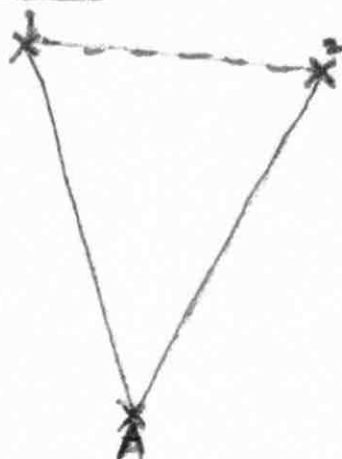
a similar line would be made with
string on a site.

point out the use of geometry - every
measurement is not made directly but
from other non-permanent markers which
have been measured from the datum
points.



STEP IV: Marking the first semi-permanent point.

tie white thread to the datum point
nails in a continuous piece - in
the middle of the thread, put
a third nail so that an isos-
celes triangle can be formed
with the three nails as angles
and the thread as sides - the
sides of the triangle should
be 2" going from the datum
point to the angle of the upper
corner of the outlined site
(4" on the blackboard). In
this exercise the corner and the
angle to be marked A should
coincide but on a real site the
area to be cleared would only
be roughly delineated before the
grid was set up and point A would
be the first step in setting up
the grid.



X: datum points
X: semi-permanent
marker A and
upper corner of
site to be cleared

In this project only one semi-
permanent marker will be made in
order to keep the diagrams and
tell simplified.

Normally there are four, two along
the length and two along the width
of the entire site to be cleared.
Since they are along the edges of the
site, they might have to be removed
because neat lines delineating the
site do not mean that all important
remains are within those lines - the
site may have to be expanded.

Mark point A with blue or with
a labelled straight pin first
on the blackboard, then on
paper and then on the plasti-
cene.

STEP Y: Drawing horizontal and vertical lines

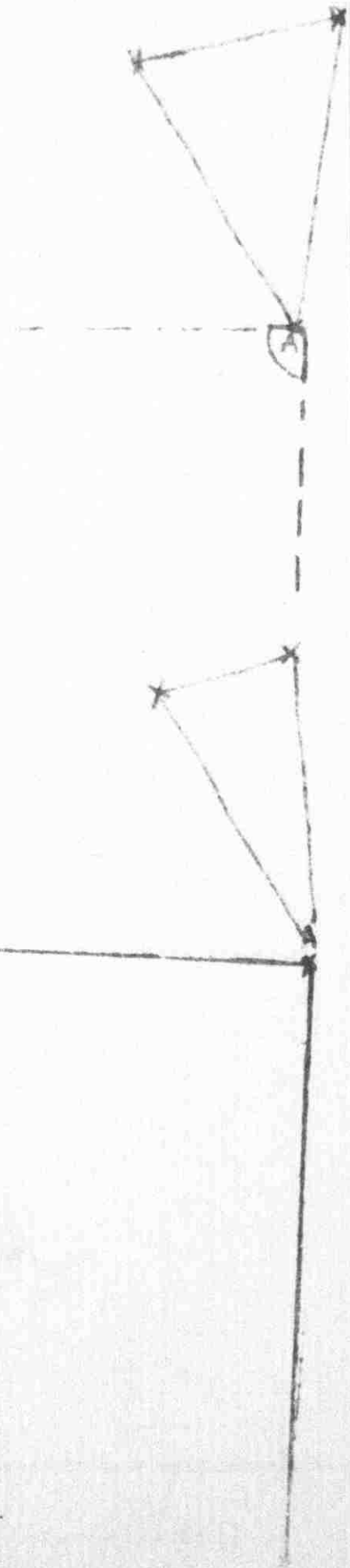
using a cardboard corner forming a right angle, draw a right angle at point A. Continue the lines of the right angle to show a horizontal and a vertical line forming a right angle at A. The horizontal line on the blackboard should be 20" long, on the paper and plasticene it should be 10" long. The vertical line on the blackboard would be 12" and 6" on the paper and tell. mark off 4" intervals along these lines on the blackboard and 2" on the paper and plasticene. Connect the horizontal and vertical points forming squares 6" on each side on the blackboard and 4" on each side on the paper and tell.

Label the vertical lines with letters and draw them with yellow chalk, pencil or thread. Label the horizontal lines with numbers and draw them with red. Make sure all lines intersect at right angles.

Use red and blue threads on the "tell".

(Marking on the tell can be with lettered or numbered pieces of cardboard pierced with a straight pin - the thread can be tied to the same pin).

the squares are drawn to scale on the blackboard, paper and plasticene - on an actual site these



measurements would result in squares with sides of 5 yards. Explain to the class the relationship between the scale and actual measurements.

this forms the grid - the squares are excavated in systematic order or in a group of four with provision made for baulks.

STEP VI: Making provision for baulks

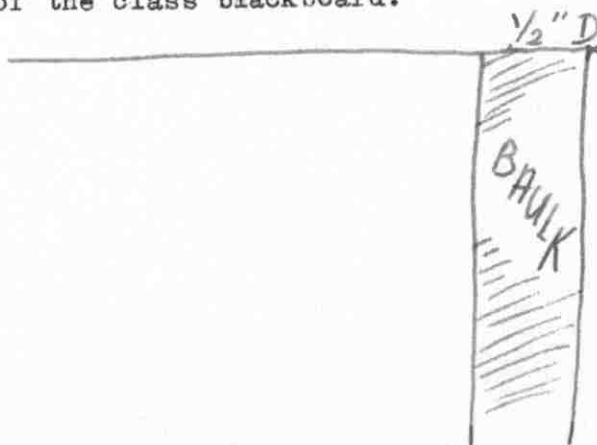
explain to the class the reason why baulks are necessary

mark off the baulks $\frac{1}{2}$ " to the west of line D and $\frac{1}{2}$ " south of line 2 - this would leave a baulk of 1 1/4 yards on an actual site. use heavy black lines on the paper and black thread on the "tell"-colored chalk on the blackboard - and draw the lines marking the baulks.

STEP VII: Excavating begins

with a small pointed instrument members of the class can take turns clearing out the squares 1 A, 1 B, 1 C, 2 A, 2 B and 2 C. The first squares excavated are excavated as a group.

to provide a permanent record of the site before excavation took place - this record of how the layers looked before being disturbed by excavation will show archaeologists in the future how the layers were originally laid down in case there are changes to be made in the first interpretations of the stratification. have the class calculate the same size baulks to the larger scale of the class blackboard.

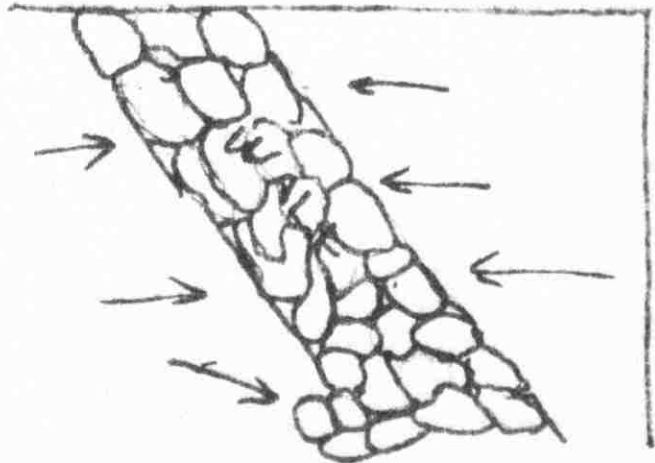


When the first occupation level has been reached, the squares are cleared to that level. Then digging stops in them and shifts to alternate squares nearby.

If a building foundation is discovered, efforts are made to find the corner of the building so its direction can be seen and size approximated. Finding remains of a structure would determine which squares would be excavated next.

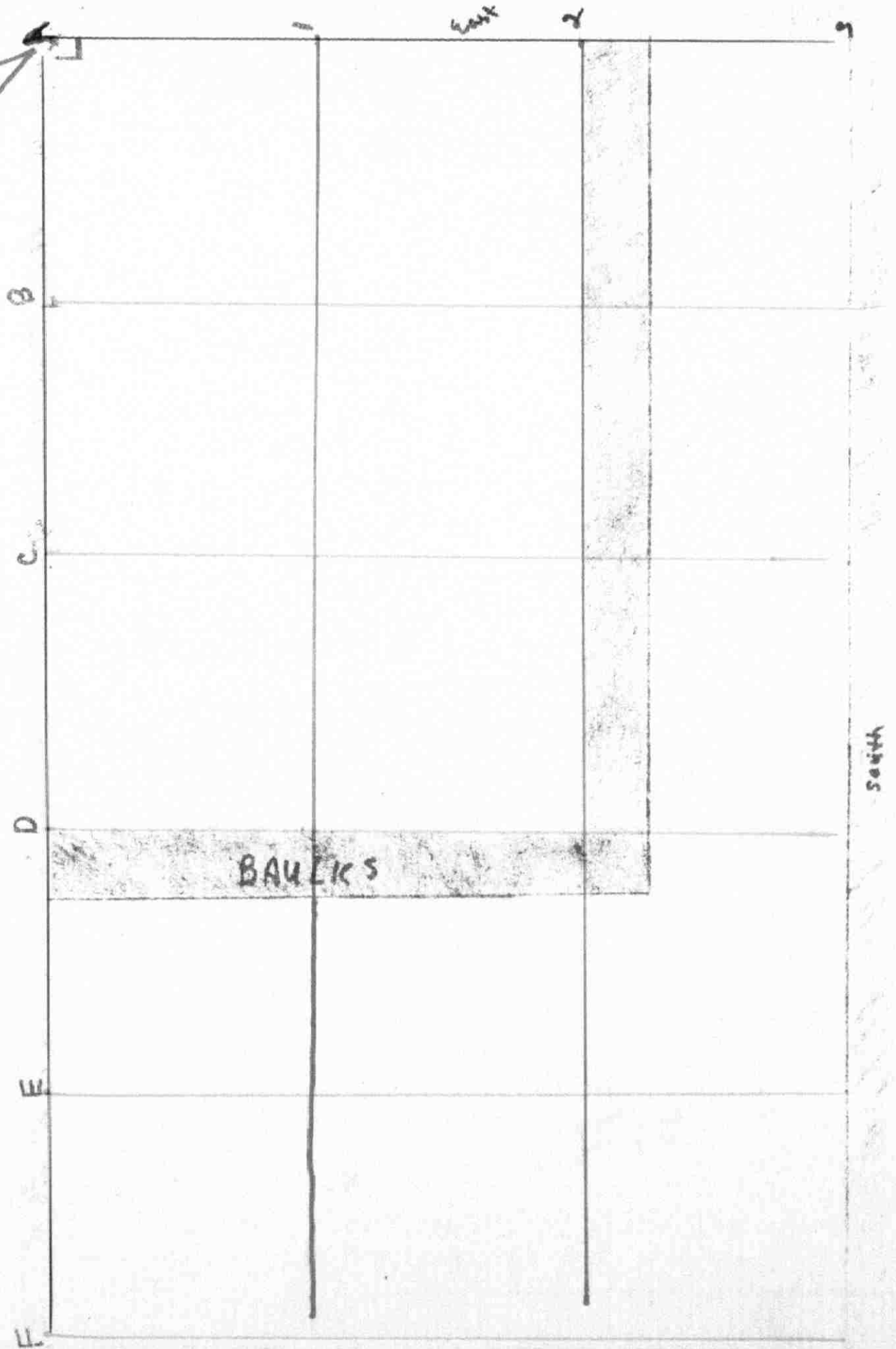
the occupation layer is studied carefully for any clues that might make dating possible.

wall lines are not actually followed during digging because of the danger that they might be inadvertently destroyed in the process. Therefore, digging is done in an area where walls are expected to be found in such a way that it goes into the side of the wall and not on top of it. (diagonally).



Scale = 1" = 20.5 meters

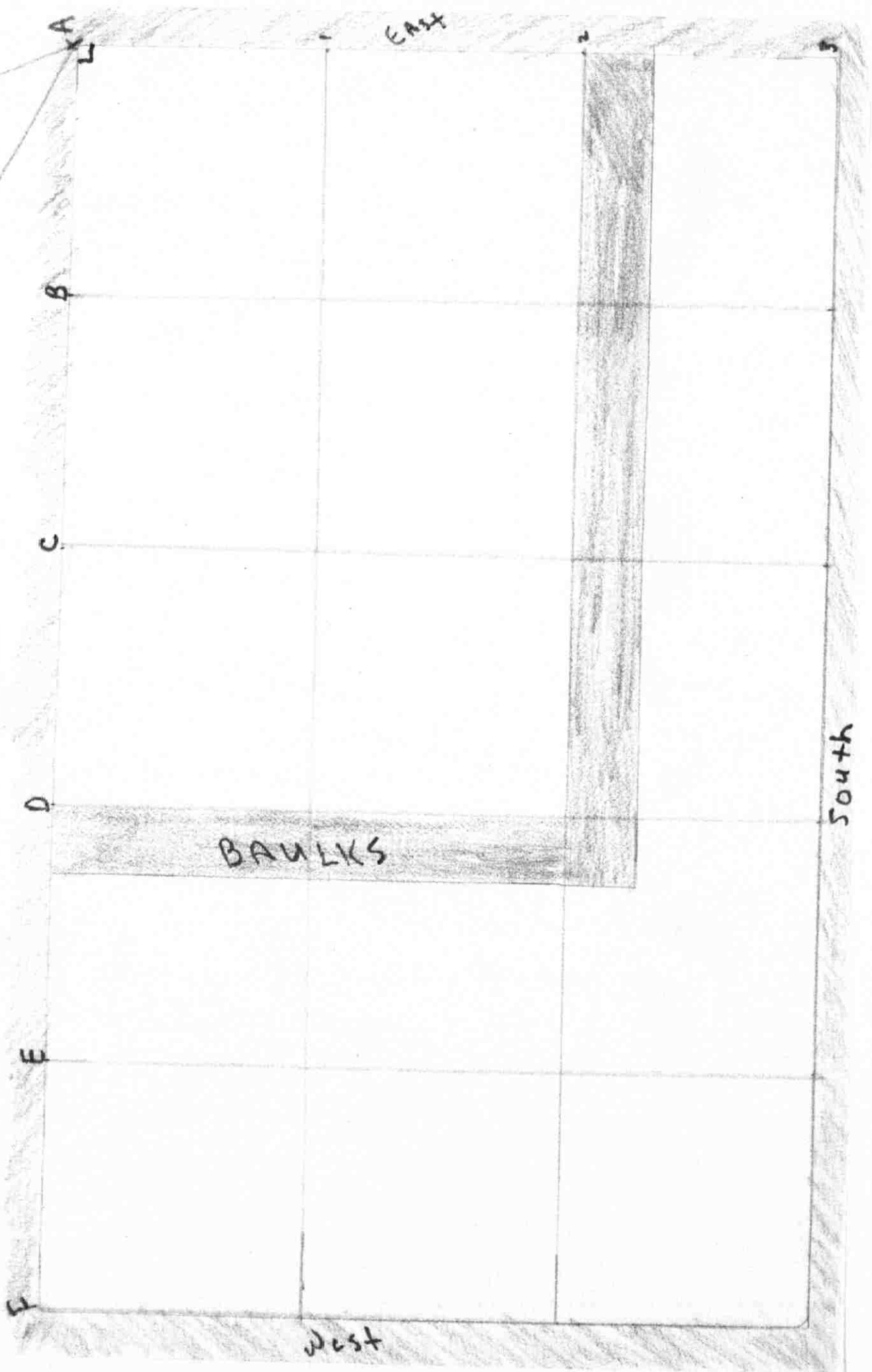
- X - datum points
- X - semi-permanent marker
- █ - bank and other unexcavated areas



A PLAN SHOWING AREA EXCAVATION

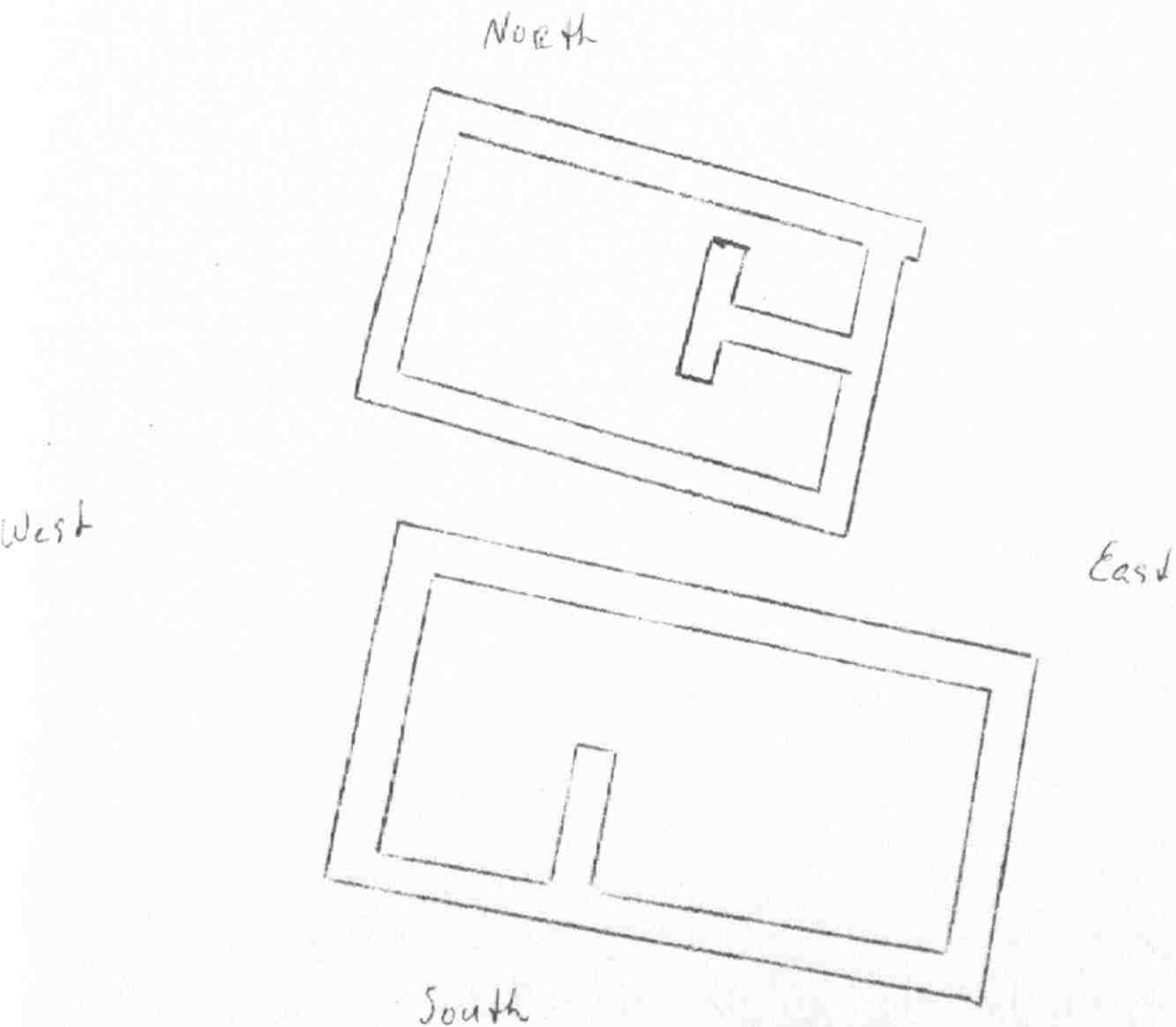
SCALE - 1" = 2.50 YARDS

- X - datum points
- X - semi-permanent marker
- - baulks and other unexcavated areas



SUGGESTED OUTLINES FOR TEMPLES TO BE BURIED IN A PLASTICINE TELL

(two Iron Age temples found superimposed during the A.U.B. excavation in the Bekka - see: D.C. Baramki : Second Preliminary Report on the Excavation at Tell El Ghassil, 1964 in A.U.B. Library)



4. RECORDING ARCHAEOLOGICAL FINDS

a) Subject matter

All finds, whether layers, structures or small artifacts, must be recorded precisely because excavation is a destructive process. Evidence which is not recorded promptly will undoubtedly be destroyed either in the continuing process of excavation or soon afterwards. Digging into a layer disturbs the evidence lying in it and digging through one layer to reach a second obviously completely destroys a good part of the first layer. Even when baulks are left, it is not possible to recreate the entire layer from the baulks alone because the small baulks are intended to furnish a reference for checking interpretations and not to represent the entire large layer. Another reason for prompt recording in the case of structures wholly or partly built of mud-brick is the danger that the mud walls when once again exposed to the rigors of climate will begin to dissolve into a meaningless pile of mud burying artifacts in it. Even stone walls suffer from exposure and crumble more; stones fallen from the walls are sometimes shifted accidentally adding to the difficulty of reconstruction.

Recording is in three phases - surveying a site to put it on a map, diagramming the method used to clear the site, recording stratification (all layers found) and noting the exact relationship of all small finds to the layer in which they were found (this is the only way of dating a layer). Records can be in the form of maps; general surveys of a site; drawings of the plan used to divide the site for excavation; drawings of stratification in section; drawings

or photographs of the finds made in each layer with their position in the layer noted; air photographs of the site where necessary, and photographs of the site including a photographic record of the excavation process. A narrative account of the excavation process and the findings in general is also an important part of a complete record of the excavation.

Surveying a site means that the site is put on a large-scale map in relation to two permanent landmarks in the area. It is not sufficient to say merely that the site is in Beirut, for example, because someone looking for the site in the future could not find it on the basis of such scanty information. The importance of locating a site precisely varies greatly of course; the spot where the Temple of Jupiter Heliopolis stands in Baalbek could hardly be missed but a tell in the Bekaa or a site in Beirut soon to be covered up again might be difficult to find. The site should be shown in relation to any two well-defined and more or less permanent landmarks, for example a road, a sea wall, a river, the crest of a mountain, a lighthouse, and so on. The distance from the landmark should be calculated as closely as possible.

A plan should be drawn to show the part of the site being excavated and to give a general indication, if possible, where future excavating might be useful. The plan of the site should be diagrammed showing the method to be used in clearing it, such as area excavation. When the excavation season ends and again at the completion of excavation, all the structures found should be drawn on the plan with structures representing each culture on a separate piece of paper.

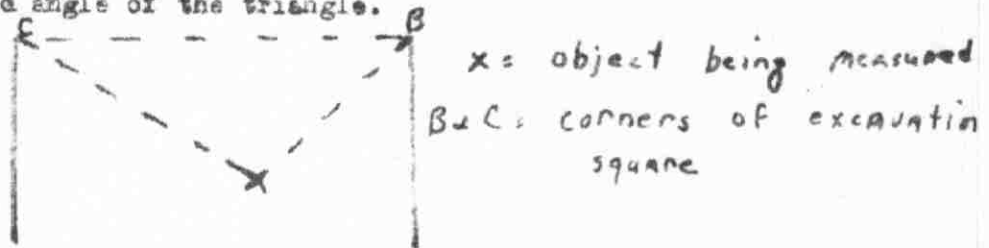
Records of stratification are usually done in preliminary and then final form. The preliminary recording is done through notes taken as the excavation progresses; each square being cleared is given a page or more in a notebook, i.e.,

square A1, A2, B1 and so forth are all given separate pages in order to keep the recording as simple as possible. All layers of occupation with their structures and small finds are carefully recorded on the appropriate page. Soil condition is noted and walls are numbered as they are found. Some preliminary identification is made of layers and walls but no real interpretation is attempted until a number of squares have been cleared because interpretations based on evidence in one or two squares is often confused. Therefore, each square is considered as a separate entity during the preliminary recording. Scale drawings are made of the layers found and the layers are numbered from top to bottom; the general characteristics of each layer are noted, for example ashes, rubble, floor, foundation trench, wall cutting through layer. Eventually, correlation and interpretation of the layers and then the strata are made through the drawings and the more intangible impressions the archaeologist has had while the excavation was in process⁴⁰. The final excavation report reflects these interpretations.

Small finds (those things which are not structures) are labelled immediately with the square in which they were found and a brief description of the layer in which they were discovered; these finds are not usually left "in situ" and are taken away from the site because they furnish museums with their exhibits. Before small finds are removed from their place of discovery, some of the most important ones have to be labelled with a three dimensional measurement so they can be

⁴⁰Woolley, Sir Leonard, 'op. cit. p.136

returned, at least on paper, to the exact spot where they had lain prior to excavation. This measurement is often done by a process called triangulation; measuring points are put into two corners of the excavation square and a string connects them to a measuring rod held over the object; this forms a triangle the sides of which comprise two of the three measurements; the depth measurement is made by the rod, the third angle of the triangle.



Small finds such as pottery and coins which form the bulk of the group on any site are kept in boxes or bags marked with the square and layer in which they were found. Notations are made in the preliminary notebook of finds from each square and layer and an index card filing system is organized with all small finds labelled, drawn and described on a separate card.

Photography is an important aid in recording. Air photographs often reveal details of a site not noticeable from the ground (this is true of the photographs made by Poidebard of Sidon). Other photographs can give an excellent general view of a site in the process of excavation and can record in a vivid way structural remains which may have to be removed to reach lower layers. It is too difficult to photograph every small find made but photographs of the more important ones, especially before they have been taken from their place, can be a great help in rechecking interpretations. Photographing excavation sites and finds accurately and clearly is a very technical process because distortion of picture may lead to a distorted view of the site or find.

Recording and cataloguing have to be put into their proper context; the purpose of an archaeological excavation is not to collect a museum full of "things" but to discover material remains which give clues to a great understanding of man. The people who made the things are important not the things themselves. Sir Leonard Wooley⁴¹ writes:

"Of course, objects must be catalogued and the catalogue must record measurements and material, form, colour, technique and, perhaps chemical composition; but never forget that the object was made by an individual man who was not bothering about any such analysis but was a creator giving shape to an idea. The archaeologist's job is to get through the object to its maker; if he does that then, helped by the material qualities of the thing, he will begin to understand the society in which the thing's maker lived."

⁴¹ibid., p.6

b) Concepts to be developed regarding recording of finds

1. Excavations are a waste of time and an unnecessary act of destruction unless they are precisely recorded because the act of excavation destroys for the future the evidence being uncovered.
2. Recording is done by surveying a site to put it on a large scale map, by diagramming the method to be used in clearing the site, and by showing all stratification evidence and the position in which structures and small finds were discovered.
3. Recording is an important part of the excavation process but records are made, not to have a catalogue of old things, but rather to help the archaeologist and historian use the material remains uncovered to learn about the men who made these things.

c) Learning activities relating to recording of archaeological finds

1. Make a large scale map pretending that the American Community School playground was the site of the "tell" excavated by the class - keep in mind that the plasticene tell was a scale model of the actual tell represented by the playground. Take two permanent landmarks in the area of the playground and draw a map showing the exact location of the playground "tell" - the map should be large scale and should show all the landmarks in the immediate area. Scale could be 1" - 1 yard. Fix datum points somewhere just outside the "tell".
2. On a sheet of paper, record in narrative form and drawings all the "occupation levels" or layers formed by natural causes that were found while digging on the plasticene tell.
3. On the plasticene tell, make exact measurements by triangulation of the place where the "temple walls" were first found. Record these measurements on the paper where layers are recorded.
4. Take the original drawing of the excavation site on paper and draw in the form of the "temple" which was excavated. Draw the temple to scale showing exactly where its walls were on the site; any measurements that have to be made should be done by triangulation.
5. Examine the Second Preliminary Report on the Excavations at Tell El Ghassil, undertaken by the Museum at the American University, to see how the site and excavation was recorded. Notice the two layers of temple structures in the diagrams; these temples were the models suggested for the plasticene tell "excavation". Look at the pictures and drawings of the objects found during this excavation; notice how they were recorded and

how easy it is to replace these objects on paper in the spot where they were found. Discuss what these objects might reveal about the people who had occupied the site; the objects found are on exhibit at the American University Museum.

5. CARE OF SMALL FINDS

a) Subject matter

Small finds usually include skeletons, pottery, coins, glass and metal artifacts, tools, weapons, inscriptions, statues or small figurines, carvings, sarcophagi, jewelry, household goods, such as spindles and needles, vessels for cosmetics, and remains of clothing. Occasionally, a rarer find, perhaps some furniture or a boat, is discovered but the group listed above constitutes the bulk of small finds. Objects are found in every excavation site but some sites, such as burial sites, are richer in small finds than others.

The importance of small finds lies in the fact that much of the material is datable, especially pottery and coins. Even when a find is not datable in itself, it will often give a clue to the culture of the people who make it thereby making it possible to assign the object to a particular culture or to put it into a sequence of time in comparison with other articles found on the site. For example, a certain type of bronze figurine found at Byblos is not inscribed but is so characteristic of a period that it could help assign a general period to a level where several of them were found. Another example would be the determination on most sites that a well-executed, wheel made pot was probably from a later period than a coarse, hand-made pot found at the same site (although this is not an infallible guide).

A second reason why small finds are important is that, through them, we can

reach out to the people who made them. Small finds are tangible proofs of the existence of the people under study and help us realize that, at one time, they were as alive as we are and that their standards of beauty and way of life are reflected in the things they made and used. Through the artifacts his predecessors made in antiquity, modern man can achieve a new awareness of his past, an appreciation of the continuity of man's past and present and a deeper understanding of man.

Since these small finds are of such great importance, great care must be taken in removing them from the earth. This is apt to be one of the archaeologist's most difficult tasks. He often needs the assistance of a chemist in the field, especially if many small finds are anticipated, or a full laboratory to which he can ship quickly delicate objects in need of specialized scientific care to keep them from disintegrating. Care given to delicate artifacts at the site is usually in the nature of first-aid because it is impossible to have the specialized services of a large laboratory on hand at all times.

The process of excavating some of these small finds from the earth is one of great delicacy and ingenuity. The story makes fascinating reading later on but at the time the archaeologist and his assistants might have had to spend hours and days crouching over an object carefully blowing away surrounding dirt or brushing it off with a small paintbrush. Sometimes it is necessary to scrape away large areas of dirt with a small knife in order to free an object. At other times, braces have to be put around an article or chemicals or hot wax poured over it to keep it from turning to powder as it is lifted.

A discussion of the steps used by Sir Mortimer Wheeler⁴² to free mosaics illustrates the detailed work an archaeologist must engage in during some excavations. He has twenty-five separate steps which are condensed here: trenches are dug around the mosaic and fires are built in small buckets placed on top of the mosaic in order to dry it out completely; it is cleaned very carefully; a piece of heavy canvas is glued to a section of the mosaic; a cut is made into the earth about 2 - 3" below the mosaic to begin separating it from the ground and planks are wedged into the cut underneath the mosaic section; other planks are laid on top of the mosaic and its canvas so that the mosaic and canvas glued to it are sandwiched between planks; the mosaic is carefully lifted with the aid of the planks between which it still rests and the whole thing is flipped over so the mosaic lies on a prepared bed with its face down; then the mosaic can be removed to a workshop, if necessary, to be reset in a concrete base in a fairly complicated operation; after resetting in its new base the mosaic can be turned right side up and the canvas removed by pouring boiling water on it; final repairs are made and the mosaic is ready for exhibit.

The care given pottery is much simpler. As soon as pottery is found in excavating a square, it is put into the appropriate box for that square and layer. Then the pottery in the box is washed individually but at one time to avoid the chance of a mix-up with pottery from another level or square. Usual-

⁴²Wheeler, Sir Mortimer, op. cit., p.132-134

ly a mild soap and water is sufficient to clean pottery but, if the pieces are strong, they can be scrubbed with a small brush. Great care must be taken not to separate the pieces from their appropriate labels. Whenever possible on a site, some sorting of pottery follows the washing and obviously valueless pieces are discarded. Unbroken pottery and important sherds are marked to show the place where they were found and pieces having rims, bases, handles, unusual fabrication or patterns or pieces large enough to be useful are packed in a labelled box⁴³. There are some kinds of pottery which are very fragile, such as that of the Nabateans of Petra; in these cases, the pottery is allowed to dry first and then is brushed clean instead of being washed.

Coins are cleaned with a brush to expose enough of their surface to identify them. If the coins are still illegible, they can be washed in chemicals (providing they are not completely corroded) or given an electrolysis treatment to remove the incrusting material⁴⁴.

Wooden objects are often very difficult to keep from disintegrating, especially if they were lying in wet soil. In this case, they must be kept wet by being packed in moss until they can be treated in a laboratory⁴⁵.

⁴³Kenyon, Kathleen, op. cit., p.146-147

⁴⁴Wheeler, Sir Mortimer, op. cit., p.197-198

⁴⁵ibid., p.199

b) Concepts to be developed about the care of small finds

1. Small finds are artifacts which are important for dating purposes and because they reveal a great deal about the people who made and used them.
2. Removing small finds from the earth is one of the most painstaking tasks an archaeologist has; it is often necessary to give these objects highly specialized care to keep them from disintegrating.

c) Learning activities related to the care of small finds

1. Visit the National Museum or the American University Museum to see some of the small finds on exhibit - it might be possible to discuss with an archaeologist their importance in teaching about the people who made them. See if it is possible to watch briefly any restoration work taking place or to discuss this with the archaeologist.
2. Ask an archaeologist to talk to the class about the various methods used to take care of small finds and special problems in this field which he has encountered.
3. Copy some of the pottery seen in the museum - see if it is possible to fire the clay - also see if it is possible to arrange a simple hand-operated pottery wheel on a turntable arrangement so children can make pottery by hand or practice making it on the wheel. Notice differences of form and color and of beauty. Copy some of the coins seen in the museum - pick out the ones which give information about the people of the period (their gods, political status, their clothing or representations of cities or temples). Notice that the coins are an art work and sometimes depict structures that have long since disappeared without any other trace. Copy a small section of a mosaic found in the museum - set it in cement and imagine how complicated it would be to take it from the earth without breaking it if all the cement holding the pieces had disintegrated. This is the case with most mosaics discovered.

4. Read about famous archaeological discoveries that were especially difficult to remove from the earth or reconstruct - give reports on these or a television broadcast where a group of "famous archaeologists" discuss problems in caring for small finds that they have had to solve.

6. BOOKS FOR STUDENTS AND TEACHER

For Students:

The arranged environment of the classroom should include as many of the following books as possible as a permanent display while the unit is in progress:

ADVENTURING IN ARCHAEOLOGY - C.A. Burland (New York, Warne and Company, 1963)

fifth to sixth grade level - good introduction.

THE FIRST BOOK OF ARCHAEOLOGY - Nora Kubie (New York, Watts Company, 1957)

easy reading and a good general introduction

MODERN DISCOVERIES IN ARCHAEOLOGY - Robert Suggs (New York, Crowell and Company, 1962)

outstanding introduction and easy to read for sixth graders, discusses carbon dating very well; discoveries on Crete and under water archaeology equally well done.

PUZZLE OF THE PAST - Ronald Jessup (London, Rathbone Books, 1956)

- American edition of this book is called THE WONDERFUL WORLD OF ARCHAEOLOGY - this is an outstanding introduction to archaeology on a sixth grade reading level.

DIGGING INTO YESTERDAY - Estelle Freedman (New York, G.P. Putnam, 1958)

very well done introduction which covers Assyria, Egypt, Crete and Troy in particular.

THE GREAT ARCHAEOLOGISTS - Charles M. Dougherty (New York, Crowell and Company, 1962)

very interesting - sixth grade level

LOST WORLDS (ADVENTURES IN ARCHAEOLOGY) - Anne Terry White (New York, Random House, 1941)

archaeological explorations of general interest.

(all of the above are in the American Community School Library - elementary school)

THE PHAROAHS OF EGYPT - Jacquetta Hawkes (New York, Harper, 1966)

review in an education monthly calls it "superlative"; includes color illustrations of treasures in Egypt - could be outside reading for especially interested students - about sixth grade reading level.

SECRET OF MINOS - Alan Honour (New York, Whittlesey House division of McGraw Hill, 1961)

good biography of Arthur Evans, easy reading.

THE WALLS OF WINDY TROY - A BIOGRAPHY OF HEINRICH SCHLIEMANN (New York, Harcourt Brace, 1960)

reading level grades 7 - 12, somewhat serious style.

CAVES OF THE GREAT HUNTERS - Hans Baumann (New York, Pantheon Books, 1954)

discovery of the Lascaux caves by four young French boys - reading level grades 6 - 10.

WORLD OF THE PHAROAHS - Hans Baumann (New York, Pantheon Books, 1960)

reading level grades 8 - 12, an unusual story of the meeting between a young boy in Egypt and an old man, thousands of years old, who tells the boy about the famous discoveries he has seen take place and what the discoveries have revealed about the ancient Egyptians.

PALACE UNDER THE SEA - Elizabeth Heppner (New York, Macmillan Acorn
Paperback)

fictional story about a boy who does underwater archaeological
explorations and finds a palace - reading level grades 4 - 6.

Assignments can be made from the teacher's reference books for the more
advanced students, in particular from the anthology entitled ARCHAEOLOGY
edited by Samuel Rapport and Helen Wright.

For the teacher:

Paperback books include:

ARCHAEOLOGY, an anthology edited by Samuel Rapport and Helen Wright (New York, Washington Square Press, 1963) a number of stories about famous archaeologists and discoveries all over the world.

ARCHAEOLOGY FROM THE EARTH, Sir Mortimer Wheeler (Middlesex, England, Penguin Books, Pelican Division, 1954) very highly recommended.

BEGINNING IN ARCHAEOLOGY, Kathleen Kenyon (New York, Praeger Paperback, 1962) a good reference to have for methodology.

DIGGING UP THE PAST, Sir Leonard Woolley (Middlesex, England, Penguin Books, Pelican Division, 1960) very highly recommended as the first introduction to archaeology.

For the section on recording of finds, the teacher will need to have:

SECOND PRELIMINARY REPORT ON THE EXCAVATIONS AT TELL EL CHASSIL, 1964, Dimitri Baramki found at the American University Archaeological Museum.

B. PHOENICIA AS SEEN THROUGH ARCHAEOLOGICAL
AND HISTORICAL EVIDENCE

1. BACKGROUND INFORMATION

a) Geography of Phoenicia

Modern Lebanon is a long narrow country, about 200 miles long, bordering the Mediterranean. It can be divided into four strips running parallel to the coastline; the coastal strip, the high Lebanon mountains, the Bekaa valley and the high arid Anti-Lebanon.

Ancient Phoenicia did not occupy all this territory. It consisted only of the coastal strip, the geography of which played an important part in determining the political and economic character of the people. The coastal strip is never more than a few miles wide and is rocky and abrupt without any large natural harbors but with many small coves and sheltered anchorages from which adequate harbors have been built. Small torrential rivers, none of them navigable, cut the coast at many points. The rivers hinder communication along the coast, especially when they are in flood, and do not facilitate contact with the interior.

Because Phoenicia did not possess enough territory to become an agricultural land, it had to turn to trade and its natural outlet was the Mediterranean. The Phoenicians were able to buy cedar wood from the people of the mountains which was the basis of their early trade and their shipbuilding industry but the Phoenician cities eventually became entrepôts and were not limited to the products they could produce themselves.

The Phoenician cities stretched from Tartous (in Syria) to Jaffa (Joppa) and the chief cities were Aradus, Byblos, Sidon and Tyre, with Amrit, Beirut and

Aczib of lesser importance⁴⁶. The cities were divided from each other by the rivers and gorges which cut the coastal strip; this is one important reason why they never united to form one political entity.

The following learning activities can help the students understand the geography of Phoenicia:

1. Make a relief map of Lebanon (or visit the Geological Museum at the American University of Beirut to see their map - this map could be copied on paper to have a map available for class work). If a map is made it can be on paper or on a board with paper-maché topographical indications. Do not mark the cities.

Points to be noticed by the pupils:

- a. the narrow irregular coastline with many small harbors, high Lebanon mountains, Bekaa valley, mountains of the Anti-Lebanon.
- b. the rivers are small and cut the coastline at many places - the difficulty of communicating with the interior is not eased by the rivers. Coastal communication is also difficult.
- c. the irregularity of the coastline with its many penninsulae makes the distance between Tyre and Tripoli far longer by road than by sea - this is one reason why communication by sea was more important than by land in antiquity.
- d. what crops and economic activities suggest themselves from the

⁴⁶Hardin, Donald, The Phoenicians, Frederick Praeger, New York, 1962, p.25

geography and topography of Phoenicia. Sea trading is one obvious commercial activity and the impossibility of large scale farming in most of the country is clear too - therefore, the country had to live on trade and small agricultural operations such as fruit orchards and olive groves. Point out that the mountains were once heavily forested and this was Phoenicia's major natural resource suitable for exploitation.

- e. look at a larger relief map of the eastern Mediterranean and see Phoenicia's geographic relationship with the other areas. Notice that the major invasion routes between Egypt and Mesopotamia lie through the coast of Bekaa valley. Also notice that Cyprus, Crete and Ionic Greece - plus most of the islands of the Aegean - are within a few days sail of Phoenicia.
2. Without looking at a political map, where could the important towns of Phoenicia have been located - look for protected sites having peninsula or island forms and some natural harbor. Try to locate Aradus (an island), Byblos, Beirut, Sidon and Tyre (originally an island, now a peninsula). Check the locations on a political map.

b) Phoenicia before the Phoenicians

Lebanon has been inhabited since the Paleolithic period and relics of the most primitive men can be found all over the country. Early men lived in caves or rude shelters and in small groups until the Neolithic period when villages developed and many men became sedentary food producers, instead of hunters. Byblos is the oldest known village of urban settlement in Lebanon and claims to have been continuously inhabited for about 7,000 years.

The Stone Ages were followed by the Bronze Age (3200-1200 B.C.) which not only marks the introduction of metal (first copper and then its alloy, bronze) but also the growth of urbanism or cities. Beginning with this period, the coast of Lebanon began to be dotted with a string of towns, each town controlling and exploiting its immediately surrounding territory. The towns were proud and intensely jealous and competitive with each other so they never did unite to form a single country and only occasionally forged temporary alliances; they very often supported each other's enemies. Part of the reason for this lack of unity is geographic, because of the difficult land communications. Another reason is because of the intense commercial rivalry they had with one another from the beginning and the lack of identification with people from different cities despite their similar ethnic background. Economically, the city-states were strong commercial powers with highly sophisticated economies dependent on a far flung trade. The area as a whole was much more dependent on an urban economic structure than on rural agriculture. Politically, however, the states were weak because of their disunity and were often attacked and destroyed. They were very dependent on the fortunes of Egypt; when Egypt was strong she controlled

Phoenicia and when she was weak, the states had some degree of independence or fell under the control of Mesopotamia. Culturally, Greek influences were very important, as were Egyptian and Mesopotamian.

The most important Eronze Age cities were Byblos and Ugarit (modern Ras Sharma just north of Lattakia). Byblos was a spiritual center famous for its cult of Adonis and Astarte and was the major port for trade with Egypt. Byblos supplied Egypt with cedar wood and resin which the Pharoahs especially needed for the mummification necessary to ensure their immortality. Ugarit was a large and powerful trading city having strong commercial relations with the Greek world. It was also a center for trade with Mesopotamia and Egypt and in this cosmopolitan city no less than six foreign types of writing were used for commercial transactions (Akkadian, Sumerian, Hittite, Hurrian, Egyptian and Cypriote). Each of the languages had one hundred or more signs so economic necessity drove the overworked scribes to experiment to simplify the signs until thirty signs were finally adopted for use in all the languages. This script was still fairly cumbersome and was in cuneform, but it was one of the earliest attempts to use conventionalized signs to stand for the sounds of a language.

The Phoenician alphabet developed from a 16-15 century B.C. script, one inscription of which was discovered in the Sinai peninsula; this was a cursive alphabetic script based on Egyptian hieroglyphic letters used in acrophony (letters are represented by pictures of something, the first letter of which starts with the desired letter)⁴⁷. The Phoenicians are usually credited with the invention

⁴⁷Baramki, Dimitri, Phoenicia and the Phoenicians, Khayats, Beirut, 1961, p. 53

of the alphabet. They were the first people to use an exclusively alphabetic system of writing which was transmitted to the Greeks who spread it all over the ancient world.

Concepts to be developed about Phoenicia before the Phoenicians


1. Lebanon has been inhabited by man for thousands of years, since the early stone ages, and one of its cities, Byblos, claims to be the oldest continuously inhabited city in the world.
2. The Canaanites lived in Phoenicia during the Bronze Ages and gave the world the idea of using conventional signs to stand for sounds - the ideas of the alphabet.
3. The alphabet developed from "picture writing" - use of pictures to represent each word - the use of pictures combined to express ideas, and the use of pictures to express the sounds of spoken speech. The Phoenicians reduced the numbers of signs needed to write their language and passed the idea of the alphabet (and the way of writing the signs) to the Greeks who spread the idea all over the ancient world.

Learning activities related to Phoenicia before the Phoenicians

1. Visit the National Museum and the Museum of the American University to see the evidence from the Stone and Bronze Ages which archaeologists have found - the object of the visit is to have an idea of the development of human activities in the area of Phoenicia before the Phoenician period (the Iron Age).
2. Copy a chart of the development of the alphabetic writing on to a large sheet of cardboard for a classroom display. (see THE TWENTY TWO LETTERS p. 302-303)
3. Have a class committee do research on the development of the alphabet through the various books available at the American Community School Library - try to use the systems depicted to send messages to each other. Discuss how the alphabet (or use of a few conventionalized signs to represent the sound of the language) simplified communication. Play a game of acrophonics (where the first sound of a word is used to indicate, through pictures, the sounds in other words) - this was an important step in the development of the alphabet, e.g.:


T(ime)


e Ye


R(abbit) = TYR(E)

Books to give a general background on Canaanite life and times might include:

for students:

HITTITE WARRIOR, Joan Williamson (New York, Knopf, 1960) the story of a young Hittite boy who goes south to Palestine during this period and stays with a family in Tyre - grade level about 8 - 10.

THE TWENTY-TWO LETTERS, Clive King (Middlesex, England, Penguin Books, Puffin Division, 1966) an excellent story set in Byblos with a fanciful account of an apprentice scribe's "alphabet game" - also shows Canaanite life and the transmission of new ideas from the Hittites and Babylonians. Easy reading for grade six.

for the teacher:

PHOENICIA AND THE PHOENICIANS, Dimitri Baramki (Beirut, Khayats, 1961) pages 12-25 and 48-59.

LEBANON IN HISTORY, Philip K. Hitti (London, Macmillan and Company, 1962) pages 67-91.

c) The origin of the Phoenicians

The period around 1200 B.C. was one of turmoil and upheaval in the eastern Mediterranean world. The Hittite and Egyptian kingdoms were deteriorating and when their power was withdrawn from the region, the region was left wide open for foreign invasion. At this time too, there were mass movements of semi-civilized or highly civilized people from the Aegean and other areas seeking to escape the onslaughts of fierce barbaric tribes who were moving into the area of Greece, Turkey or Syria. Among these newcomers were a group known to history as the "Sea People" because they arrived by sea along the Palestinian-Phoenician coast; they were probably Achaeans, the remnants of the great Minoan-Mycenean civilization, who had fled the Aegean lands because of the Dorian invasions. They had apparently been in contact with the Dorians for long enough to have learned the secret of working iron, a process unknown to the rest of the eastern Mediterranean, which gave the "Sea People" a technological superiority in weapons and enabled them to proceed almost at will along the coast. They did have one great battle with the Egyptians who were unable to defeat them and who were forced to allow them to settle along the coast. Evidently, there were several groups of "Sea People": one coming from the south, who met the Egyptians and settled in the area later called Palestine after the name of this group, the Philistines, and the other coming from the north who destroyed Ugarit, Aradus and other places once controlled by the Hittites. The final fate of the second group of "Sea People" is not known but the hypothesis has been advanced that they were assimilated

by the Canaanites to form a new nation, the Phoenicians⁴⁸ & 49.

The origin of the Phoenicians remains a mystery although archaeological and historical evidence has been examined for years to try to shed some light on their antecedents and the reasons why Phoenicia suddenly burst onto the historical canvas about 1200 B.C. exhibiting the tremendous vitality that often indicates an infusion of new blood into an older civilization. The investigation into the origins of the Phoenicians gives a good example of how archaeology and history can combine to collect and evaluate evidence which might lead to a greater knowledge of the past. Historical records have been examined for clues about the eventual fate of the northern group of "Sea People" but these records do not show that the "Sea People" were finally expelled from the Phoenician coast or that they made permanent settlements on it - although one ancient writer does mention finding some Aegeans in Byblos in the eleventh century B.C.⁵⁰. There is historical evidence that the people of Phoenicia began to dominate the Aegean trade after 1200 B.C. and, since the Canaanites usually did not trade further away than Egypt, Crete and Cyprus (that is not out of sight of land), this evidence increases the possibility that a seafaring people familiar with navigating in the tricky Aegean waters were now mixed with the earlier Canaanites. Archaeological

⁴⁸Woolley, Sir Leonard, La Phénicie et les Peuples Egéens, reprinted from Syria II, p.189.

⁴⁹Baranki, Dimitri, op. cit., p.113-115

⁵⁰ibid., p.114

evidence is based partly on the fact that Phoenician pottery, during the period from the 13-11th centuries, was strongly influenced by Mycenaean forms and decorations. This was a departure from the Canaanite pottery forms and contrasted with the pottery in other parts of the eastern Mediterranean which developed along different lines⁵¹. Excavations in Crete have also shown that the use of murex to obtain a purple dye must have been an important industry before 1200 B.C. because piles of murex shells have been found⁵²; the extraction of dye from murex was the most famous industry in Phoenicia after 1200 B.C. Remains found in Cyprus dating from the end of the Bronze Age (about 1200 B.C.) and the early part of the Iron Age (1200-900 B.C.) have shown that the culture of Cyprus which is known to have been strongly influenced by the Myceneans is almost identical with that of Phoenicia during the same period⁵³.

The origins of the Phoenicians cannot be shown beyond any reasonable doubt but it is generally agreed that the land can be called Phoenicia throughout its history but the people are not called Phoenician until after 1200 B.C. The word "Phoenicia" is a Greek one but its exact meaning is not known. One explanation is that it is derived from the Greek work "phoinikes" which means "red".

⁵¹Wooley, Sir Leonard, op. cit., p.188-189

⁵²Baramki, Dimitri, op. cit., p.115

⁵³ibid., p.114

Phoenicia was not really a single nation but a collection of city states. The land had always been organized into city-states but now there were the differences that the people as a whole were called "Phoenicians" and recognized blood ties among themselves.

d) The Golden Age of Phoenicia

After 1200 B.C., the inhabitants of the various city-states along the coast of what is now Lebanon are referred to collectively as Phoenician as well as citizens of a particular city. This was never the case in the Canaanite period, before the arrival of the "Sea People", and indicates a recognition of new blood ties among all the people along the coast⁵⁴ despite the fact that the city-states remained separate political entities and jealous rivals.

The injection of new blood into the already fairly vibrant Canaanite society led to the great vitality displayed by the Phoenicians in the next centuries. The Phoenicians were ready and willing to take advantage of the power gap in the area caused by the disintegration of the Hittite and Egyptian Empires and of the disappearance of their Aegean trading rivals from the Mediterranean Sea following the Dorian invasion. The Phoenician cities grew as their wealth from commerce grew and soon the collection of states developed great sea power, despite their lack of political unity. Phoenician ships dominated the Aegean and Mediterranean Seas for several centuries making Phoenicia one of the greatest maritime powers in history.

If the basis of Phoenician power lay in its ships, the basis of its wealth lay in the energetic trading of the products carried in those ships. The Phoenician cities, especially Tyre and Sidon, sent galleys all over the Mediterranean world - to the coast of Turkey, Cyprus, the Aegean cities, cities of mainland Greece such as Corinth, Sicily, southern France, Spain and North Africa. It is even considered possible that they might have traded as far as Cornwall for tin

⁵⁴ *ibid.*, p.25

because they did evidently discover the Atlantic Ocean since they established a trading center in Gades (Cadiz, Spain) just beyond the Straits of Gibraltar⁵⁵. The Phoenicians established trading posts in a number of places and some of these grew into colonies such as those in Cyprus, Rhodes, Crete, Malta, Sicily, Sardinia, Gades, Malaga, Cordova and Utica (North Africa). Carthage was its most important colony and was founded by a group from Tyre about 814 B.C., supposedly led by Elissa or Dido, the sister of the king. Carthage developed into an empire challenging Rome in power and also built colonies around the Mediterranean, one of which was Cartagenia.

The period from 1150-853 B.C. can be called the "golden age of Phoenicia"; it was a time when the Phoenician fleets were strong enough to protect the cities because they were not threatened by any great land powers. The Phoenician cities engaged in close and friendly relations with their neighboring countries such as Israel and Egypt. Greece was not yet strong enough to challenge their control of the Mediterranean. Byblos remained the spiritual center of Phoenicia because of its sites sacred to the worship of Adonis but Sidon and Tyre became the dominant cities on the coast. Tyre was oriented in its trade to the western part of the Mediterranean and its colonies tended to lie in that direction while Sidon controlled the eastern part.

Tyre's Semetic name means "rock"⁵⁶ and the city was built on the rocky coast

⁵⁵Hitti, Philip, Lebanon in History, Macmillan Company, 1962, p.117

⁵⁶Chehab, Emir Maurice, lecture for the National Council of Tourism, June 21, 1964

and on some rocks just off the coast which formed a small island. It was set in a very protected spot and control of the surrounding sea would ensure its defense. The island was originally cut by a number of lagoons or canals which King Hiram filled in during the tenth century.

Hiram also directed the building of a great temple dedicated to Melqart, the city god of Tyre. This earned him such a reputation as a builder that King Solomon of Israel, with whom Hiram had close relations, asked Hiram to send to Jerusalem some of his expert builders to work on Solomon's temple. Hiram sent a number of stonecutters, wood workers, bronze workers and expert carvers to build and decorate his temple and palace. Solomon also asked Hiram for ship builders and experienced seamen to build and man a Red Sea fleet and construct a port at what is now Elath in order to exploit the Negev and trade with the Red Sea area. The Phoenicians did so and Solomon and Hiram divided between them the profit from the Red Sea trade; Solomon also furnished Tyre with extra wheat, oil and wine it needed but did not have the space to grow it in. After Solomon's death, his kingdom broke up and the rebels established the new kingdom of Israel in the northern part of Palestine with a capital at Samaria. This kingdom was strongly influenced by the Phoenicians to the despair of some of the Old Testament prophets who attacked its love of luxury and the introduction of Phoenician forms of worship by several of the queens. The Phoenicians built the great palace of Ahab in Samaria with its wonderful ivory carvings and developed close blood ties with the Samaritans especially through the marriage of Jezebel, the daughter of the king of Tyre to the king of Israel, Ahab.

Sidon is one of the oldest Phoenician cities and antedates Tyre in all

probability⁵⁷. It was a famous city before the Phoenician period and retained its position and fame for centuries; it was often a leader in the various political alliances temporarily forged by the city states. It must have done a great deal of trading with Greece because Homer mentions it and praises the work of its artisans, especially the cloth makers there⁵⁸, and says nothing about Tyre. Sidon was the most important city before the arrival of the "Sea People" but they destroyed the city and its fleet about 1170 B.C. and Sidon took a long time to recover its supremacy; in the meantime, Tyre took over the most prominent position.

The Phoenicians were able to maintain their independence thanks to their fleet and the protected sites of their cities as long as they were not threatened by any great land powers; then they would not be able to overcome the weakness of having to rely solely on sea power and would lie open to land invaders almost at will. Phoenician history from about 853 B.C. records a long series of attacks by many land powers and the inability of the Phoenician city states to maintain their independence. The first threats to their existence came from the Assyrians who had developed a strong kingdom in the region of Mesopotamia. By 853 B.C., the cities of Tyre, Byblos (Jebail), and Aradus were evidently paying tribute to Assyria⁵⁹. The next three hundred years were years of turmoil in

⁵⁷Hitti, Philip, *op. cit.*, p.97

⁵⁸*ibid.*, p.98

⁵⁹Baramki, Dimitri', *op. cit.*, p.29

Phoenicia as the city states struggled to regain their independence from Assyria. Several times various cities revolted against the Assyrians and the Assyrians invaded the country from time to time to put down these revolts. A twenty-one year campaign was mounted against Tyre at one point before the Assyrians were able to defeat the confederation led by Tyre; the victorious Assyrian, Sennacherib, erected a stele at the Dog River to mark this victory. Soon after this, Sidon revolted against Assyria but was defeated and punished severely; its king and all its inhabitants were killed and the city was burned to the ground. Tyre revolted again some years later but could not be taken this time because the Assyrians themselves were under attack from the Babylonians, a new nation growing in the Mesopotamian region. The "Neo-Babylonians" (so called to distinguish them from the original ancient Babylonians) finally destroyed the Assyrians' capital and empire in 612 B.C. completely ending Assyrian control of Phoenicia.

Following the collapse of the Assyrians, the Phoenician cities were free to follow their own foreign policy and went to the support of the resurgent Egypt against the Neo-Babylonians. Egypt was defeated by the Neo-Babylonians under the famous Nebuchadnezzar who then invaded Palestine and Phoenicia. Nebuchadnezzar destroyed Jerusalem and led the Jewish people into captivity at Babylon. Then he turned on Tyre which had rebelled against him and besieged the city for thirteen years before it capitulated. Nebuchadnezzar also erected a stele at the Dog River commemorating his victory and the establishment of "everlasting"

Babylonian rule over Phoenicia⁶⁰. But the Babylonian empire was destroyed by the Persian king, Cyrus, in 538 B.C. at which point Phoenicia passed under Persian control and became one of its satrapies or provinces.

The Phoenicians welcomed the Persians at first because they freed them from the terrible Babylonian domination. During the early stages of Persian rule, the Phoenicians again became very prosperous. Sidon had been rebuilt and became so strong that it was the dominant city along the coast; its fleet grew in fame to such a degree that the Persian king, Xerxes, would only travel in a Sidonian ship and the King of Sidon became the Admiral of the Persian navy. The Greek cities were now strong competitors to the Phoenicians for the Aegean and Mediterranean trade so that when the Persians came into conflict with the Greeks over Ionia, the Phoenicians were willing to contribute their navy to the Persians in hopes of ridding themselves of their competitors. During the Persian Wars, the Phoenicians contributed about a fourth of the Persian navy and fought with great gallantry. However, the fleet was soundly defeated at Salamis by the Greeks and Xerxes blamed the Phoenicians, apparently unfairly, for the defeat⁶¹. He executed a few of the Phoenician officers and the Phoenician contingent withdrew from his service as a result; they were evidently not a part of the Persian navy for fifteen years after this.

⁶⁰Hitti, Philip, op. cit., p.148

⁶¹ibid., p.152

Eventually the Phoenicians again took part in Persian naval endeavours and until 360 B.C. were loyal subjects. About this time, their subject status was becoming onerous and some of the cities, especially Sidon, tried to free themselves from Persian control; part of this show of independence took the form of bettering their relations with the Greeks⁶². Sidon began a revolt against Persia which Persia determined to crush completely. Persia's show of great force made the Sidonian king decide to betray the city. When he did this, the Sidonians decided that, rather than fall to the Persians in this way, they would destroy the city. They locked themselves in their houses and set fire to the city completely destroying the city and its entire population, the archives, treasures and books. A new city of Sidon was built but the city did not regain its earlier predominance⁶³.

Eighteen years later, the Greek, Alexander of Macedon, marched on the Persian Empire. He met the Persian army at Issus (near Alexandretta now Iskenderun in Turkey) and defeated the bulk of the army there. Then he decided to protect his rear by bringing Phoenicia under control before chasing after the Persians who had retreated to their capital. All the cities of Phoenicia welcomed him as a liberator from the Persians until he arrived at Tyre. The Tyrians welcomed him at first but refused his request to enter the island part of the city to sacrifice to Melqart whom he identified with his supposed ancestor, Herakles. The Tyrians

⁶²ibid., p.153

⁶³Baramki, Dimitri, op. cit., p.31

considered this request a breach of their neutrality in the Greek-Persian fight and shut their gates to Alexander⁶⁴. Alexander could not leave this strong unsubjected city in his rear and he was "determined to make an example of the first city which dared oppose him"⁶⁵. After a terrible nine month seige during which all the help from the sea promised to Tyre failed to materialize, Alexander succeeded in taking the city by building a causeway to connect the island to the mainland so he could bring his seige machines to the city gates. At the same time, the Tyrians lost control of the surrounding sea because Alexander managed to enlist the Sidonian, Gebilite and Arvadian fleets to aid him against Tyre. Tyre was in ruins and its inhabitants either killed or sold into slavery - all 40,000 of them. Alexander then entered Tyre, sacrificed to Melqart offering him the battering ram which had first breached the city walls⁶⁶. What was left of the once powerful city states of Phoenicia passed under Alexander's control and then fell to his successors, first the Ptolemies of Egypt and then the Seleucides of Antioch.

⁶⁴Hitti, Philip, op. cit., p.161

⁶⁵ibid., p.161

⁶⁶Rawlinson, George T., Fisher Unwin, London, 1885, p.235

2. LIFE IN PHOENICIA AS SEEN THROUGH ARCHAEOLOGICAL EVIDENCE

a) The story of the excavation of the Temple of Eshmoun

The Temple of Eshmoun is the only structure of the Phoenician period uncovered so far in Phoenicia proper. At this writing, the excavation has not been finished and only preliminary reports have been published. It is suggested that a teacher using this unit contact the National Museum to find the latest information published on this excavation.

The temple is dedicated to the god, Eshmoun, who was a very important deity among the Phoenicians and, in particular, the patron of Sidon. Eshmoun was originally an agricultural or fertility god, a form of Adonis⁶⁷; later he became associated with Aesclepius⁶⁸, the god of healing who is represented by a caduceus showing two snakes coiled around a staff, the modern medical symbol.

In 1858, a sarcophagus was found near Sidon which had an inscription saying it was the sarcophagus of King Eshmunazar of Sidon who had built several temples near his city⁶⁹. Forty years later, some villagers taking away stones from an old structure of the Nahr el Awali noticed a strange inscription and eventually the Antiquities Department became aware of it. Some preliminary soundings were made on the site to explore a small part of the terrace; but, nothing more was done

⁶⁷Baramki, Dimitri, op. cit., p.58

⁶⁸Ritti, Philip, op. cit., p.135

⁶⁹Hardin, Donald, op. cit., p.121

about the site for twenty years.

Dr. G. Contenau, a French archaeologist, visited the site in 1920 and saw the remains of two large terraces with a stone altar reached by a staircase on the upper terrace. Three years later the altar was gone and the government decided to take steps to classify and protect the site⁷⁰. Finally, the government was able to buy most of the site and excavations were begun in 1924.

A fifth century B.C. inscription⁷¹ was found hidden on the surface of a retaining wall of the upper terrace. It said "Bodashtart, King of the Sidonians, grandson of King Eshmounazar of the Sidonians, with Crown Prince Yatomilk, has built this temple to his god, Eshmoun Sar Qadesh". A second inscription⁷² was found in a more concealed area of the wall which showed it was not Bodashtart who built the temple but probably his grandfather, Eshmounazar. The dedication of Eshmounazar is written in a script that is older than the writing on the Bodashtart inscription and the Eshmounazar inscription makes no mention of Bodashtart. The alphabet used on these two inscriptions helped date the temple between the sixth and fifth centuries B.C. and helped set part of the dynasty of Sidon in the right order.

Excavations were discontinued for a number of years and only begun again in

⁷⁰Dunand, Maurice, "Nouvelles Inscriptions Phéniciennes du Temple d'Eshmoun a Bostan Ech-Cheikh, Prés Sidon" from the Bulletin du Musée de Beyrouth, Vol.XVIII, 1965, p.105

⁷¹Condé, Bruce, See Lebanon, Harb Bijjani Press, Beirut, 1960, p.245

⁷²ibid., p.245

1963 under the direction of Monsieur Maurice Dunand, who directed the excavation of Byblos. Trenches dug on the lower terrace in 1963 showed a Roman occupation layer above a Hellenistic layer which is above a Phoenician layer dating from the period when Phoenicia was under Persian domination. The Phoenician level was built on bedrock and virgin soil.

Two artificial terraces have remained which indicates that the site had been constructed as a type of "hanging garden". The lower terrace dominated the valley and the upper one was recessed about eighteen feet above it. A temple must have been built on these terraces but all traces of it had disappeared. In order to try to find some walls⁷³, digging was begun along the three exposed edges of the upper terrace; the fourth side is backed against the hillside. The two sides of the terrace were cleared first because they were easier to find. When the side walls of a structure had been cleared on the upper terrace, the third wall in the front was slowly exposed. Except for parts of the lower courses of the walls, very little has remained of the temple. There is even some question whether the extensive damage done to it by the removal of so many stones will not make it impossible to deduce the original plan⁷⁴. So far the temple appears to have consisted of a one room sanctuary in a large courtyard.

Work on the upper terrace had been going on for five months and nothing really significant had been uncovered. Then pieces of eleven small marble statues

⁷³Dunand, Maurice, *op. cit.*, p.105-110

⁷⁴Chehab, Emir Maurice, lecture for the National Council of Tourism, July 2, 1964

were found. They were statues of infants which had been offered to Eshmoun in his form of Asclepius, the god of healing, to thank him for curing the children. On the base of each statue was written the child's name and a list of some of his ancestors. The writing was in Phoenician with a script indicative of the fifth century B.C. and, fortunately, one of the eleven statues represented the king's son and gave his ancestry, in dynastic order.

The little statue was a tremendously lucky find not only because the Sidonian dynasty could be put into chronological order but also because the statue gave a clue which made it possible to date the temple more accurately. Some time before, a coin had been found inscribed with the name of a Phoenician king; the coin could be dated to circa 430 B.C. but it was not known to which city it belonged because coins are scattered everywhere in trade. The name of the coin was the same as the one listed on the statue as being the child's father. Since the statue was also fifth century, it was decided that the kings named on the statue and the coin, King Ba'aana, represented the same man. Then the coin could be ascribed to Sidon and the statue could be dated to circa 430 B.C. If the statue was presented to Eshmoun about the year 430, the temple was probably completed by that date.

Once these items were known, the two earlier inscriptions could be fitted into order and, together with information inscribed on the sarcophagus, the names of a number of the Sidonian kings from the sixth century to Alexander's conquest could be listed⁷⁵.

⁷⁵Dunand, Maurice, *op. cit.*, p.105-110

b) Plans of Tyre and Sidon

Plans of Tyre and Sidon have been revealed to a certain degree by archaeologists who have done air photography and their hypothesis have been checked with various literary sources to give us a general idea of the plans and port arrangement of the cities of Tyre and Sidon. Neither city has been excavated to the Phoenician level; the modern city of Sidon is partly built on the old one and in Tyre excavators digging in the former island city have reached water at the level of the Hellenistic layer.

Tyre - consisted of two cities, one on the island which was a fortress but which also contained the temple to Melqart and some houses and the other city on the mainland where most of the 40,000 or so people lived. Tyre was first built on a series of rocky islands just off the coast; these small islands were joined together by Hiram in the tenth century. Herodotus and Strabo, Greek writers of the fifth and first centuries B.C., describe Tyre as primarily an island city and undoubtedly the island was the focal point of the city. Many houses were built on the island and they were usually multi-storey dwellings - apartment houses. Tyre was permanently connected to the mainland by the mole built by Alexander during his seige; sand has silted against the mole to such a degree that the city now appears to be in a peninsula. Air photographs of Tyre have shown the remains of the two ports the city had - one to the north, called the Sidonian harbor, and one to the south, called the Egyptian harbor. The port to the north was evidently a good natural

improved upon by the addition of a sea wall; the sea wall not only gave additional protection to the anchorage but also enabled the Tyrians to close off the entrance to the harbor with a boom or chain in times of siege. The southern harbor was originally an open roadstead but the Tyrians apparently preferred to have two harbors so that, regardless of wind and weather, the city would always have one port open for commerce. The southern harbor was constructed by large sea walls which walled in a good size harbor again leaving a small opening which could be closed in case of attack. There was also supposed to have been a canal in the middle of the city joining the two ports⁷⁶ but no evidence of this has been found. We know from accounts of sieges of Tyre that the city was walled but no evidence of walls around the town itself has been found. Evidently the Tyrians withdrew to the greater security of the island fortress during sieges; as long as their fleet controlled the surrounding waters the city could be safe because the island wells assured an uninterrupted flow of water without which the city could not have endured long sieges.

Sidon, - evidently also consisted of two cities but one of them was at the coast and the other in the hinterland probably between coastal Sidon and the temple of Eshmoun. The coastal city of Sidon was in several

⁷⁶Rawlinson, George, op. cit., p.45

parts⁷⁷ - there was a small low island to the west of the city which served as the commercial anchorage and where warehouses and trading centers were located - this was connected to the city proper by a long mole which served as a quay - then there was the city itself containing two harbors. The northern harbor was a good harbor protected by a jetty of rocks with watch towers at intervals on the jetty along a strong defensive wall; the harbor entrance was small and could be closed with a chain in case of necessity. Only national ships could enter the northern harbor; commercial vessels from other cities were kept at the island port. There was also a southern port in the main city but this was evidently more of a bay which could be used as an anchorage in good weather.⁷⁸

One interesting fact revealed by the air photographs is that the Sidonians had a system⁷⁹ for keeping the sand from silting up the small enclosed military harbor. The system was ingenious and consisted of sluices or water gates crossing the moles at a number of places which served to catch the sand and could be cleaned out periodically and, in order to maintain currents to filter sand, there were several passages between the jetties and the port open to the currents

⁷⁷Poidesbard, A. and J. Lauffray, Aménagements Antiques du Port de Saida, Beirut, 1951

⁷⁸Hardin, Donald, op. cit., p.28

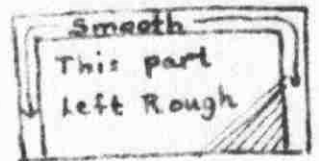
⁷⁹Baramki, Dimitri, op. cit., p.102

and ties and jetties were built on columns with open spaces under them between the columns so that the currents could carry away the sand. Since this system was allowed to fall into disuse, the shifting sands have nearly obliterated the northern harbor.

c) Phoenician structures

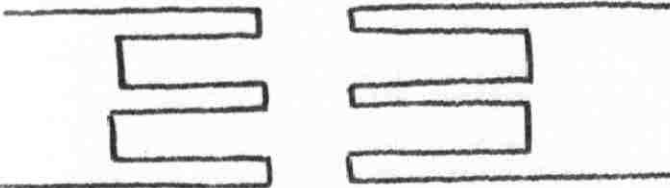
The only Phoenician structure found in Phoenicia is the Temple of Eshmoun and hardly any of that has remained. However, from literary sources giving descriptions of cities, from structures such as the palace of the Kings of Israel at Samaria, and from coins it is possible to have some idea of Phoenician cities and buildings.

Phoenician architecture is characterized by massive stones and a preference for straight lines and right angles. Sometimes, temples were cut out of living rock; the rock was cut into to form the temple so that quarried rocks did not have to be used. The quarried rocks were usually left rather rough in front and back and their sides were smoothed only enough to make them fit together. The three sides of the front face were smoothed to make what is known as a three marginal draft. This type of stone is very characteristic of Phoenician architecture, although stones which were smooth all over their front face were also used sometimes in important buildings.



City walls were built of massive stones and evidence from Tyre and Aradus indicates that each stone was about 1 meter thick, 1½ meters high and 2 meters long. The city walls were typically crenelated which means that they consisted of two parallel stone walls with stones in the dimensions above, and rubble filling in the space between the two walls. The reason for this type of construction was that it made the task of a besieging enemy very difficult; in order to penetrate the town's walls, one would have had to break through two thick stone walls and clear away a great deal of rubble and small stones in between the main walls. Some

city gates have survived in Palestine and it is thought that the Phoenicians might have often used the type which has two or three nearly touching piers and two deep bays.



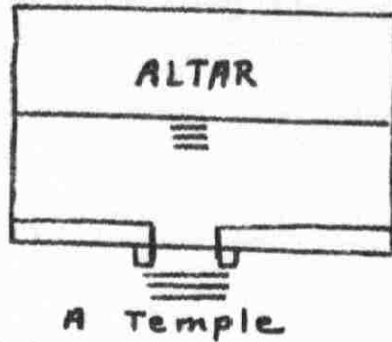
A City Gate

This is a very difficult gate to force because the defenders can fall back three times and attack the invaders as they gather in the bays.

Public buildings were large scale using massive stones. The outside of the buildings was left in stone (not constructed with marble in the Greek and Roman style) and ornamentation was usually confined to wooden or bronze carvings and decorations. Evidence of Phoenician structures is derived from Biblical sources which describe the Temple and palace of Solomon (built by Phoenician workmen), from the palace of Samaria in Palestine which has been excavated and from the remains found in Syria and Palestine of a building plan called Beit Hilani which is thought to be a Phoenician plan.

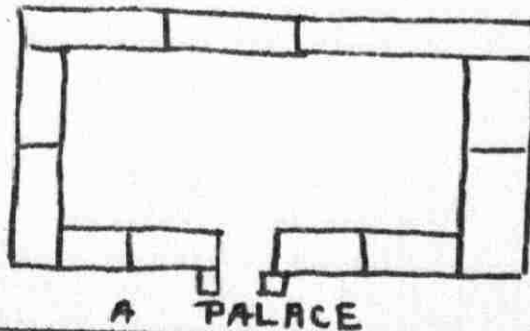
The Beit Hilani house⁸⁰ has a colonnaded porch with a room flanking it on each side. The porch opened into a large central hall with rooms surrounding the hall on each side; all the rooms opened into the hall. Palaces were built according to this plan and temples, probably including Solomon's, were modifications of it. In the temples, the porch was not flanked by rooms but opened directly into a main hall; instead of rooms all around the hall, there was only one room in the back where the altar or deity's statue stood and a vestibule in front.

⁸⁰ ibid., p.102



The temples of Amrit (on the Syrian coast) and Eshmoun were slightly different and were built during the period of Persian domination. The temple at Amrit was a shrine in the middle of a walled courtyard. The temple of Eshmoun was set in a vast courtyard and consisted of a one room shrine in the center of the court.

Another type of house can be seen from paintings and carvings⁸¹ which show tall houses of several storied crowded together. They all seemed to have small, square windows which appear quite often in Phoenician carvings⁸². Columns have been found with an early form of the Ionian capital⁸³ and with a typical Persian capital⁸⁴.



⁸¹Hardin, Donald, op. cit., pps. 134, 109, plates 47 and 50

⁸²ibid., plate 61

⁸³ibid., plate 45

⁸⁴ibid., ibid., page 55

d) Phoenician pottery

Pottery is found on almost any site after the Neolithic age. It is important to archaeologists because it helps them date occupation levels and also because pottery can tell them a great deal about the people who lived on the site. Pottery was used by everyone, regardless of wealth, in the Phoenician period and potters had to cater to a variety of tastes. A wide range of pottery can be a good indication of the state of handicrafts in a period, the wealth and stability of an area, standards of utility and standards of beauty. In addition, pottery's shape and physical condition can sometimes tell what it was used for; this can throw a light on the people's daily activities and manner of cooking and eating. The following types of Phoenician pottery are all in the American University Museum and some of their uses have been deduced:

cooking pot - had tops and holes just below the tops which indicates that the Phoenicians had a type of pressure cooking - holes were stuffed with clay during the cooking process. Round based cooking pots with two handles are frequent which shows that pots were either hung over the fire with string tied to their handles or that they rested in some sort of base on top of the fire. These types of pots are frequent which shows that stews must have been a basic type of meal.

cups for drinking - two kinds are often found together and the abundance of both indicates that one sort of cup was used for drinking cold beverages (cups with spouts) and the other (a goblet) was used for hot beverages because it is impossible to

drink hot things from a spout. The goblet-shaped cups may also have been used for soups and stews.

bowls

- were used for eating - food was sipped from the bowl itself or taken up with fingers or bread. Some bowls were evidently used for frying food; the food was then served in the same bowl in which it had been cooked - the blackness of the soot at the bottom of some bowls has led archaeologists to conclude that the bowls must have been used in cooking too - in addition, one such blackened bowl was found at Khaldé cemetery with the remains of a fried fish inside it.

kettles

- some cups were used as kettles for boiling milk as evidenced by the soot on their outsides and the milk remains inside.

beer jugs

- beer had been drunk in this region for quite a while before the Phoenician period and it was very popular in Phoenicia and among the Philistines of Palestine. Many beer jugs have been found that were made by the Phoenicians. They have a spout with a strainer inside to keep husks of malt from being swallowed.

feeder cups

- babies must have been fed their milk with these "feeder cups" with a long spout.

amphorae

- two handled jugs - the large size were used for storage but the purpose of the small ones is not known.

- large jugs - were used for storing liquids, such as oil, water and wine and solids such as wheat.
- dippers - were used to take liquids from the larger storage jars.
- decanters - were made in standard sizes (like our measuring cups) and were used to measure out liquids probably most often for selling - standards of measurement were developed by the Babylonians.
- crater jugs - so called because of their wide mouths - they were a type of mixing bowl but were used for blending wines to suit varieties of taste - the Phoenicians and most of the people on the Mediterranean drank a great deal of wine.
- small juglets - were usually used for perfumes.
- lamps - were of pottery with one corner pinched to hold a wick which floated in oil.

From the evidence of their pottery, often found with the remains of food still in it, plus representations on various carvings, plus a knowledge of the food this climate and soil could produce, it is possible to state that the Phoenicians must have eaten meat, fish, chicken, vegetables, fruits, olives and olive oils, wheat baked into bread and cooked into a cereal or the way we cook rice now, and drunk wine, beer and milk.

Their eating utensils were knives of bronze and iron and perhaps wooden spoons, no traces of which have been found. Most of the time, the Phoenicians must have drunk soups and thin stews or eaten with their fingers.

e) Clothing and ornamentation

The Phoenicians normally wore woolen and linen garments and their costumes can be seen in various carvings and paintings. Their dress was fairly elaborate with embroidery and often brightly colored. It is thought that perhaps Joseph's "coat of many colors" might have been Phoenician work and Homer speaks about the many colored robes of the Sidonians⁸⁵. Phoenicia was famous for its textiles and dying industries.

Ornaments of many types have been found and, evidently both men and women wore jewelry. Jewelry found has included glass beads, gold, silver rings and ear-rings, large pendants, bracelets, necklaces, pectorals and scimitars. Work was done in precious metals, stones and scarabs.

⁸⁵ibid., p.144-145

f) Art objects

The Phoenicians excelled in small works of art such as jewelry, ivory carvings, carved metal bowls, glass objects, pottery, metal statues and various types of stone carving. Samples of these objects can be seen in the American University Museum and the National Museum.

The Phoenicians were famous for their craftsmen as well as for their small works of art. They were excellent metallurgists, weavers and dyers and their craft work was highly esteemed all over the Mediterranean world. Phoenician builders were famous enough so that Solomon asked them to direct the building of his temple and Phoenician workmanship and decoration is found at Samaria (especially the ivory carvings on walls and furniture) and the Assyrian capital of Nimrod (again ivory work predominates the Phoenician contribution).

Because Phoenicia was at the crossroads between the Egyptian and Mesopotamian civilizations, it received strong cultural influences from both regions and Phoenician art reflects a blend between the two influences while remaining strictly Phoenician in essence and workmanship. Therefore it is usually not difficult to distinguish between Phoenician and Egyptian or Mesopotamian art work.

g) Use of leisure time

The Phoenicians' favorite recreation activity was evidently fishing but hunting was also very popular judging from the many representations of hunting scenes found on stele and bowls. They also had a game similar to draughts. Other than these, the Phoenicians' use of their leisure time is not yet known.

Few Phoenicians could read, so reading could not have been a leisure activity for very many. So far, there are no literary references to oral poetry such as that described by Homer. No Phoenician books have been found and few can be anticipated because the Phoenicians wrote on papyrus which is perishable and, in addition, Byblos, Tyre and Sidon were destroyed nearly completely in the fourth century B.C. About fifteen inscriptions showing the development of Phoenician script⁸⁶ have been discovered but no literature was found from the period between 1200 (the destruction of Ugarit where many Canaanite literary works have been found) and the fifth century⁸⁷. There are, however, some literary reference to poets of Sidon and Tyre and also to a great Beirut author so it is assumed some Phoenician literature must have existed.

⁸⁶Baramki, Dimitri, op. cit., p.49

⁸⁷Hitti, Philip, op. cit., p.126

h) Religious beliefs

A great deal of information about the religious beliefs in Phoenicia has been discovered on the clay tablets found during the excavations of Ugarit. Most of the tablets concern religious matters and reveal religious beliefs centering around "magical rites and formulae which were destined to ensure fertility"⁸⁸.

The Phoenician gods and goddesses included⁸⁹:

El - the supreme deity - called Kronos by the Greeks - his symbol was the bull and he was the sun god.

Baal - the son of El - called Zeus by the Greeks - his symbols were the thunderbolt ending in a spear and the bull; he was the god of thunder, rain and storms. (He was also called Reshef by the Phoenicians) Baal was involved in protecting the agricultural cycle with his son Aliyan and Baal died every year.

Aliyan - the son of Baal - later called Adonis which means lord - he was a fertility god and ruled with his father during the autumn, winter and spring when the crops were being planted and growing - Aliyan also died each summer when the crops were harvested. As Adonis, Aliyan became well known in Greece and he was the most famous Syrian deity - his worship was centered in Byblos and at Afqah (the source of the Nahr Ibrahim in Lebanon) where he was supposed to have been gored by

⁸⁸ Baramki, Dimitri, op. cit., p.55

⁸⁹ ibid., pps.55-58

a wild boar while hunting near the spring; it was believed that the Nahr Ibrahim ran red with his blood each spring (it was actually red with clay washed away by the rains). Adonis appears in Greek mythology.

Anath - was in love with Aliyan - she was the goddess of war and fertility. Later Anath became identified with Astarte, a city goddess who became more famous as a fertility goddess.

Artemis - the huntress and moon goddess replaced Anath in some areas - she is a main character in Greek mythology too.

Dagon - was a sea god who was sometimes identified with Poseidon, the Greek god of the sea. Dagon is often pictured on the coins of Aradus.

Eshmoun - was a fertility god in one aspect and the god of medicine in another. He was identified with Adonis in the first instance and with Aesclepius, the Greek god of medicine, in the second.

Melqart - is the special god of Tyre but was found in other places too. He was later identified with the Greek god, Herakles, from whom Alexander the Great claimed descent.

i) Mythology and legends

The most famous myth of the Phoenicians was the story of Adonis, who was killed by a wild boar in the spring, and descended into the underworld until he could be rescued by the goddess who loved him, Astarte. Then Adonis was brought back to life and the harvest cycle began again.

The story of Osiris, killed by his evil brother, and Isis, his sister who rescues his body from Byblos, is an Egyptian legend with a similar theme of death and resurrection according to the harvest.

Cadmus and Europa were the hero and heroine of a well-known legend which began in Tyre when Europa, the king's daughter, was kidnapped by Zeus who married her and gave her name to the continent of Europe. Cadmus, her brother, went to Greece to look for her and, although he never found her, he was supposed to have taught the Greeks the Phoenician alphabet.

The story of Dido or Elissa recounts the legend of the founding of Carthage. Dido is also an important character in Virgil's AENEID because Aeneas stops at Carthage to stay with her and leaves on the bidding of the gods to found the city of Rome.

j) Political organization

Very little is known about the Phoenicians' political institutions except from scant literary references and coins which indicate that the cities usually had a king, possibly hereditary. It would also be logical to suppose that the king would want to - or be forced to - consult with the city's notables, probably its leading merchants, from time to time. There is a great deal of evidence that such councils existed in Tyre, Sidon, Aradus, and Byblos after the sixth century B.C. Carthage did not have a king but had a judge and a hundred man Senate which Tyre later imitated⁹⁰.

The only archaeological evidence giving information about the Phoenician political institutions are inscriptions such as that found on the walls of the Temple of Eshmoun, giving names of kings, or sarcophagi, such as Ahiram's, or coins, such as the one showing the king of Sidon walking while the king of Persia (his overlord) rides in a chariot.

⁹⁰ *ibid.*, p.55

k) Economic activities

The Phoenicians engaged in agriculture to some degree and grew fruits and vegetables similar to those grown in modern Lebanon. Lumber from the cedar tree, grapes, figs and olives were especially important agricultural products. However, the amount of land along the coast which can be devoted to agriculture is limited and the Phoenicians must have had to import some of their foods.

Phoenician craftsmen gained a high reputation for the quality of their products and Phoenicia was famous for its metal, weaving, dyeing and glass industries.

- a) metal industries - included silver and gold jewelry, vessels of gold and silver which were often engraved and more prosaic products such as knives and fibulae pins (an early "safety pin") in various alloys.
- b) weaving - many spindle whorls, parts of a weaving frame have been found by archaeologists, and from this plentiful evidence plus literary sources, such as Homer, it can be deduced that weaving was an important industry for home consumption and trade and that the Phoenician cloth was of a high enough quality to make it very desirable.
- c) dyeing - this was Phoenicia's most famous industry. Tyrian purple made from the murex was a prized color; it was so difficult to make and so expensive because of the need for a great deal of painstaking work that only kings could wear it; this gave rise to the phrase "born in the purple" - born to royalty. Archaeologists have found the dyeing vats used to make this dye and there are still mounds of murex shells outside Sidon and Tyre but the exact method of preparing the dye has been lost;

there is a literary reference from Pliny which gives a general idea of the process⁹¹.

d) glass - an early form of glass called faience was used in Egypt at an early date but real, translucent glass was probably invented in Phoenicia⁹². Glass was another famed luxury product because each piece had to be molded - blown glass was not invented until the first century A.D. in Sidon.

The basis of Phoenician wealth was trade. Products made in Phoenicia were traded with other cities and the Phoenicians did a carrying trade, too, transporting products made outside Phoenicia to various areas of the Mediterranean world.

The Phoenicians carried ideas as well as goods. They helped spread to the west the new ideas from the east, such as navigation by the stars at night, accounting and book-keeping which were all developed by the Babylonians and the alphabet which was the Phoenician's great gift to civilization and carried Greek art and culture from the west to the east⁹³. This transmission of new ideas played a great role in the vitality shown by the countries around the Mediterranean.

The literary references to the Phoenician trading routes and practices include an account by Herodotus of a Phoenician voyage around Africa, and another about the "dumb trading" the Phoenicians engaged in when trading with natives who could not understand their language; Hanno's report of a trading trip to the west coast of Africa, an account of Ezekiel in the Bible and Xenophon's description of the

⁹²Baranki, Dimitri, op. cit., p.75

⁹³ibid., p.112-113

loading of a trading ship. Knowledge about the ships used by the Phoenicians rests partly on coins and partly on paintings and engravings.

Archaeological evidence of the extent of Phoenician trade is based on the discoveries of Phoenician coins in foreign cities and products made in Phoenicia found elsewhere or imported products discovered here.

Early trading was done on a barter system but eventually very large bars of silver were used as a type of currency to supplement the bartering. The bars were so large that they were impractical and finally by the fifth century B.C., coins were introduced into Phoenicia. The earliest coins were the silver and gold Persian coins and the drachma of Athens. Phoenicia was still under Persian control when the most important cities along the coast began to mint their own coins, about the end of the fifth century. The best known coins of this period are those from Aradus, Byblos, Tyre and Sidon. One of Phoenicia's gifts to commerce was the introduction of standardized coins - always containing the same amount of metal.

Coins are a very important "small find" because they make it possible to date layers with some degree of accuracy especially if a variety of contemporary coins are found in a layer. Coins are valuable finds, too, because they represent fortresses, city-walls, and temples which have long since disappeared - for example, an accurate reconstruction of the temple of Baal-Jupiter at Baalbek was made possible by coins. Coins also show the development of scripts and alphabets, the names of kings and sometimes titles, and are an accurate indication of the progress of the art in the city minting them. Because cities and countries usually engrave their coins with their heroes and the things they

value the most, a great deal can be learned about a culture from the study of its coins. For example, Phoenician coins very often were engraved with the particular god or goddess of the city or the deity in the pantheon which the city worshiped the most together with the deity's symbol which helps to identify the god and tell us what worship he represented.

3. LEARNING ACTIVITIES RELATED TO THE PHOENICIAN STUDY

1. Many facets of Phoenician history and daily life can be investigated by committees of pupils with reports given orally and in writing. Class discussion of the material in the reports should be encouraged.
2. Make a time line to show Phoenician history - explain to the children that the history of the Lebanese coast goes back thousands of years (Byblos is 7,000 years old). Show them how long the time line has to be before 1200 B.C., when the Phoenician period began. Then show how much longer it must be to reach the date of the discovery of America. Mark the important events in Phoenician history and keep only that fragment of the time line. Let the pupils make the time line themselves if this is possible.
3. Make maps of the general plan of Sidon and Tyre (Poidebard has a map of Sidon and Harden has one of Tyre) for the classroom.
4. Do research on the plans of a Phoenician type public building and make a model of it in plaster of Paris for a class display.
5. Visit the National Museum and the American University Museum to see Phoenician pottery - draw examples of the pottery for a class display. Read pages 28-31 in ADVENTURING IN ARCHAEOLOGY to learn how to make pottery as ancient man did - make a few of the Phoenician type vessels and paint them in typical patterns - keep them for a class display.
6. Notice the jewelry in the museums and draw pictures of it for a display - make a chart showing how the Phoenicians made their purple dye. Dye a piece of cloth in many bright colors used by the Phoenicians (Hitti, p.109-111 for purple and crimson dye).

7. Draw pictures of a few coins from Aradus, Byblos, Sidon and Tyre - see PHOENICIA AND THE PHOENICIANS pps.80-83.
8. Write stories of the myths of Adonis and Osiris or the legend of Cadmus and the founding of Carthage and illustrate them.
9. Write a story about the Phoenician voyage around Africa - or act out the story. Have the class ask themselves what they would have done if they had been the Phoenician captain.

Write a story about a caravan arriving in Babylon or a ship arriving in a Greek port to trade - or act out a possible situation, such as "dumb trading".

Write a story about the Phoenician ships at the Battle of Salamis during the Persian Wars - illustrate it with a Phoenician ship or build a model.

Write a story about the people of Tyre going out to meet Alexander the Great and deciding whether to reject his request - find out all they can about the progress of the seige and act it out. Does the class think the Tyrians acted wisely in refusing Alexander - what would the class have done ?

10. Write about a day in the life of a Sidonian or a Tyrian.

4. BOOKS FOR STUDENTS AND TEACHER

For students:

- THE FIRST 3000 YEARS, C.B. Falls (New York, Viking Press, 1960) excellent maps and discussion of the Phoenician period - reading level sixth grade or above.
- THE ANCIENT WORLD, L. Tenan (London, Macmillan, 1964) good general introduction to Phoenician history and civilization - reading level about sixth grade and above.
- BUILDERS OF THE OLD WORLD, Gertrude Hartman and Lucy Saunders (Boston, Little, Brown and Company, 1946) good, easy reading on Phoenicia, includes the relationship between the Phoenician alphabet and the modern English one.
- THE GOLDEN HISTORY OF THE WORLD, Jane Werner Watson (New York, Simon and Schuster, 1955) very easy to read material on Phoenicia, ancient trading practices, Greek and Roman gods, Persian wars.
- EXPLORERS OF THE WORLD - THE STORY OF MAN'S CONQUEST OF THE PLANET, William Clark (Garden City, New York, Natural History Press, 1964) excellent, sixth grade reading level, Phoenician explorations, especially the trip around Africa.
- DISCOVERING OUR WORLD'S HISTORY, Dorothy Fraser and Alice Megenis (New York, American Book Company, 1964) a basic sixth grade text containing a few pages on the Phoenicians, Unit 1, chapter 3.

BACKGROUNDS OF AMERICAN FREEDOM, Edna McGuire (New York, Macmillan and Company, 1961) a basic sixth grade text containing a few pages on Phoenicia in its discussion of Mediterranean civilizations.

THE PAST LIVES AGAIN, Edna McGuire (New York, Macmillan and Company, 1950) excellent textbook of fifth grade and above reading level, contains much information about Phoenicia including a description of Solomon's temple, Phoenician trade, gods, description of Tyre and her trade, founding of Carthage, description of a Phoenician caravan arriving in Babylon.

THE GOLDEN BIBLE, includes a description of Solomon's temple and an attack by Elijah on the worship of Baal in Samaria.

THE LORD IS MY SHEPHERD, Nancy Barnhart (New York, Scribners, 1949) tells the story of the building of Solomon's temple and the part played by the Phoenicians, has wood-cut drawings of the temple and uses many Biblical quotes.

THE LANDS OF THE BIBLE - A GOLDEN HISTORICAL ATLAS (New York, Simon and Schuster, 1957) outstanding maps and pictures of artifacts, Solomon's temple plan, shows Samaritan-Phoenician relations, Assyrian invasion, Persian conquest of the area. Sixth grade reading level.

ATLAS OF WORLD HISTORY, edited by R.R. Palmer (New York, Rand-McNally Company, 1957) excellent maps

OLD GREEK STORIES, James Baldwin, (New York, American Book Company, 1923) contains the story of Cadmus and Adonis.

BYBLOS, Maurice Dumand (Beirut, Catholic Press, 1964) contains the legend of Adonis and Osiris.

THE AENEID, Virgil (London, Macmillan and Company) a "Macmillan Classic" part of the story dealing with Dido and Aeneas in Carthage.

FINDING OUT ABOUT THE PHOENICIANS, D. Philip-Birt (London, Frederick Muller, 1964) moderately good presentation - good chapters on literary references to Phoenicia and ships.

THE WONDERFUL WORLD OF MATHEMATICS, Lancelot Hogben (Garden City, New York, Garden City Book, 1955) discusses the Phoenician system of navigating.

THE STORY OF OUR CALENDAR, Ruth Brindze (New York, Vanguard, 1949) very well done on calendar development.

THE ROMANCE OF WRITING, Keith Gordon Irwin (New York, Viking Press, 1961) part of this is devoted to the Phoenicians.

FROM STONES TO SKYSCRAPERS, Thea and Richard Bergere (New York, Dodd-Mead, 1960) very good history of architecture with many illustrations.

COINS AND COIN COLLECTING, Seymour Reit (New York, Golden Press, 1965) history of coins including a few Phoenician ones.

For the teacher:

LEBANON IN HISTORY, Philip K. Hitti (London, Macmillan and Company, 1962)

PHOENICIA AND THE PHOENICIANS, Dimitri Baramki (Beirut, Khayats, 1961)

THE PHOENICIANS, Donald Hardin (New York, Praeger Paperbacks, 1962)

 this book deals with Carthage more than Phoenicia but its plates
 are very good and it is a convenient reference.

For reference to the map of Sidon, the teacher will need:

AMENAGEMENTS ANTIQJES DU PORT DE SAIDA, A. Poidebard and J. Lauffray

(Beirut, 1951)

CHAPTER VI CONCLUDING ACTIVITIES OF THE UNIT

Concluding activities

Concluding activities should remain simple and should not dominate the unit. Suggested activities include:

1. a class trip to the Temple of Eshmoun, Sidon and Tyre
2. an exhibit for other classes and parents to show them what the class has learned about archaeology and Phoenicia - make display centers for each part of the learning
3. collect papers written and drawings and organize all the material into a book which will be given to the library - when necessary rewrite and collect pictures for illustrations - try to explain briefly the most important ideas the class has learned about archaeology and Phoenicia so that students who did not do the unit can understand some of what the class learned.

CHAPTER VII CONTINUING ACTIVITIES

Continuing activities

It is very important that pupils understand that learning about a subject in school does not mean they have learned all there is to know about it and that they can then forget the subject completely. Knowledge and understandings acquired in elementary school are intended to furnish a broad foundation on which pupils will build and to furnish them with a certain awareness about man and the world in which he lives. Therefore, continuing activities are valuable in keeping the subject matter alive and encouraging the children to continue being aware of what they have learned and always open to new information about the subject. Continuing activities give the children the experience of learning on their own without teacher direction; hopefully, this is a habit that will carry over to their adult years leading to continue their pursuit of knowledge and understandings despite the fact that their formal education has been completed. Continuing activities, and a teacher's enthusiasm for whatever the pupils can learn outside school, demonstrate to the children that the teacher, too, does not feel she can forget about a subject when she has finished "covering it" in school.

Continuing activities must remain very informal and simple if they are to serve their purpose; when the rigorous unit activities are finished and the class has gone on to other learning without forgetting the importance of what they have already learned. Examples of continuing activities include:

the teacher may tell the class she will always be interested in hearing any new information they might find on the unit topic and that she

will be happy to give any pupil time to discuss with the class whatever he has learned; the teacher also needs to make it clear that finding additional information will not be rewarded by receiving extra credit and that adding to one's own knowledge and understanding of the subject is reward enough.

the teacher can suggest that the children take note of any articles on archaeology or Phoenicia that they might see and bring them into class if possible - the teacher might also be able to acquire any new books in these fields that she happens to find so that the class will have a permanent collection of reading material for pleasure reading.

the teacher can suggest that the pupils record any tells they see while travelling in Lebanon - they should mark the place on a map which could always be available in class. The children should be told to note the name of the nearest town to the tell and the approximate kilometers from the town to the tell - emphasise the importance of being able to locate the tell accurately on a map - it is also necessary to note the direction to travel from the nearest town, or other permanent landmark, to the tell.

the teacher can suggest that the class look for places where ancient stones or pieces of columns have been re-used in modern buildings near sites.

The first part of the report deals with the general situation of the unit. It is found that the unit is in a state of transition and that the work is being carried out in a haphazard manner. The second part of the report deals with the specific work of the unit. It is found that the work is being carried out in a haphazard manner and that the results are not satisfactory. The third part of the report deals with the financial situation of the unit. It is found that the unit is in a state of financial difficulty and that the work is being carried out in a haphazard manner. The fourth part of the report deals with the personnel situation of the unit. It is found that the unit is in a state of personnel difficulty and that the work is being carried out in a haphazard manner.

CHAPTER VIII EVALUATION OF THE UNIT

The purpose of this chapter is to evaluate the work of the unit. It is found that the work is being carried out in a haphazard manner and that the results are not satisfactory. The work of the unit is evaluated in terms of its objectives, its methods, and its results. It is found that the unit is in a state of transition and that the work is being carried out in a haphazard manner. The results of the work are not satisfactory and the unit is in a state of financial difficulty.

Evaluation

Evaluation should be a continuous process conducted mainly through informal discussions and observation of the children during activities. A few brief tests at the end of each section of the unit might be worthwhile so that the teacher will have an idea of what the children learned of the main concepts of the unit.

Discussions can take place on a daily basis with the teacher conferring briefly with each group about the day's activities or the daily unit work can be closed with a brief discussion about the work done. Every week, the teacher can discuss with the class what was done in the light of the unit objectives and what still remained to be done. Because the activities are divided into many sections, the weekly discussions should try to bring in some of the previous learning and its relationship with the current work. A longer, more intensified discussion should take place at the end of the unit and should include what the children felt they learned, whether they enjoyed it and whether they felt it was worth-while learning.

The teacher may keep anecdotal records showing intellectual and social growth exhibited by the children as the unit progresses because the unit gives her an unusual opportunity to observe the pupils working as individuals and as members of the group. These records might be kept on cards or in a notebook with one page or card for each child.

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