LEARNING STRATEGIES OF EARLY BRITISH COLUMBIA DIVERS

by

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Learning Strategies of Early British Columbian Divers

ABSTRACT

This study examined the informal learning strategies of individuals who were among the first to belong to the original small group of British Columbian recreational divers. These individuals included breath-hold divers, users of Oxygen Re-breathers, and users of Self Contained Underwater Breathing Apparatus (scuba). Through the narratives provided by the divers themselves and other corroborative evidence, this qualitative investigation looked at who the divers were and how they approached learning to dive in this context of informal learning: that is, how they learned about and acquired the skills and knowledge needed for diving, and the changes in attitude and aspirations they acquired which stemmed from those learning activities.
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Bill Griffith: For his sage and ever practical advice. To wit: “A thesis is only a large term paper. It is not a dissertation. Treat it accordingly. Keep it simple and short.” Thanks Bill. While I did ignore this particular advice, I miss your wisdom.

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1950
- Summer 1950: Croy discovers swim fins
- Summer 1952: Moore joins

Winter 1953: Swean, Willis. Pool sessions, basement meetings
- August 1953: Carter, Trice: scuba
- Summer 1953: Mona, Thomson, Morrow join

Late Spring 1954: Mona & Thomson form Vancouver Blue Sharks.
- 1954, 1955: Al Lotsczar, Jack Robertson and two other scuba divers join Blue Sharks

1956: Blue Sharks fold
- Late 1955: Croy, Francks withdraw from VSDC activities

July 1 1956: Death of Jimmy Willis

August 17 1956: Vancouver Skin Divers Club about eight divers
- August 1956: Pat Molony starts to "teach" VSAC members at weekend meetings in firehall on Hornby or Howe St. Fireman Len Morrison assists.

"Instructors" trained by Pat Molony form the British Columbia Divers Examining Board
- 1958: Gino Gemma begins teaching scuba through the YWCA

1960
- 1958: Gordi Squarebriggs begins to scuba, taught by Gino Gemma through Gino's dive shop

Figure 1A: Key Events Timeline
CHAPTER 1

Background of the Study

It is far from an understatement to say that one’s ability to learn from life-experiences directly impacts on one’s immediate and long-term success in life and living. According to Edward Cell (1984), learning from one’s own experiences affects one’s personality, coping skills, and feelings of personal power and significance. He and numerous other writers before and after him have also pointed out that experiential learning tends to be a highly effective method for achieving change in the learner, in terms of behavior, interpretation skills, personal autonomy, and creativity. Today’s theorists, researchers and educators broadly accept this view.

During the Second World War in Occupied France, French Captain Jacques Cousteau and his companions Phillippe Taillez and Frederic Dumas were very directly involved in an experiential process of adult learning under adverse conditions as they sought to develop and test what later became known as the "Aqualung" directly under the guns of their wartime enemies. Success both in development and in the first use of the Aqualung came in June of 1943, but Cousteau noted that the three experimenters had spent the last eight years together learning about the sea and the experience of being divers (Cousteau, p. 8). In *The Silent World*, Cousteau later described the learning process which he and his diving companions had experienced as they immersed themselves in the developing art of diving:

I listened hungrily to gossip about heroes of the Mediterranean with their Fernez goggles (p.9). … Our first researches in diving physiology were attempts to learn about cold (p.12). … We learned that the best way to restore heat is the most obvious one (p.13). … I experimented with all possible maneuvers of the Aqualung (p.7). … Sometimes we are lucky enough to know that our lives have been changed, to discard the old, embrace the new, and run headlong down an immutable course (p.9).
"We learned ..., we listened ..., we discovered" ..., these were the words used by the first scuba diver to describe his own and his associates' experiences relative to diving.

In British Columbia, recreational breath-hold diving appears to have begun in about 1951. From this beginning and to about the end of 1957, there were no formal or institutional education programs or facilities available for the teaching of diving in BC. Despite these circumstances, a number of enthusiasts achieved a considerable level of competence in diving. What were the approaches to learning of the first small group of British Columbian divers? How did they acquire the skills and knowledge necessary for diving? Was the learning incidental to the situation, or was there conscious and organized effort to acquire understanding of the physics inherent in diving? Was safety an issue? Was learning strictly progressive, step by step, or were there episodes of enlightenment? Given there was a conscious and organized set of learning strategies, are these learning strategies transferable? Would these be of benefit to other learners, both divers and others in both formal, informal, and non-formal situations? The study sought to find answers to these and other questions through the collection and blending of personal narratives from diver participants into a 'group' narrative describing 'how diving happened' in BC, and an analysis of the approaches to learning found within the group narrative.

This research does not claim by any means to be a complete history of recreation diving in BC in the 1950's. The researcher is aware of still further potential narrators each of whom without doubt would contribute to a better understanding of the unique conditions under which the participants learned to dive. The personal narratives herein were collected in the manner with which oral historians interview their narrators; however the immediate purpose of the
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collection was the examination of learning strategies found within the narratives, not the narratives themselves.

My own interest in these personal histories of early BC divers comes from several directions. Prime among these is my intense curiosity over the questions surrounding adult learning in general. More particularly, I am interested in ‘how’ adults learn in non-formal and informal conditions. When they are successful in the learning activity, how did they arrive at that success? Similarly, when learning goes awry, what does the mis-step ‘look like’? Are ‘good’ learning strategies portable and transferable? Can ‘bad’ strategies be avoided? There are many other questions that are outside the scope of this research.

In addition to my curiosity vis a vis adult learning, there is the value I place on history in general as a learning tool. History may not repeat itself, and indeed this condition may be preferable to the alternative. Nevertheless the lessons that have been learned by reviewing the past conditions of humanity, when combined with reflection, seem to me to have in a number of key events allowed humanity to avoid the reenactment of the condition within a separate set of time.

There is also my own considerable number of years and phases as a diver, and here in hindsight I ruefully admit that a number of my initial expectations as a researcher were woefully off base; most of which I could have avoided had I bothered to review my own efforts and conditions in learning to dive. Though the era in which I learned to dive began a good decade and a half after the events described in the research, the original circumstances were quite rural, and in many ways included the same or similar obstacles, fears, and ignorance.
Lastly, an excellent excuse, in my view, for this approach stems from my lifelong love and valuing of a good ‘yarn.’ I can’t claim to be a great ‘spinner’ myself, but I am a fair listener. I have yet to have had a storyteller recount to me his or her life story where I have not been captivated. The narrators who participated in this research are no exception. The value that I hold for the stories related to me by the narrators, I hold equally for the words, sentence structure and story shape each narrator used to recount their tale. Thus I have made an effort to use their words in favor of my own whenever possible in the narrative, equipment and learning chapters that follow, choosing to use my own words as threads to bind the story, rather than as the voice which tells entire story.

As I discovered in the course of my research, at best in British Columbia there were never more than about forty-five persons involved in the activity of diving from its ‘birth’ in 1951, up to August 1956 when there was an explosion in diving’s popularity and the Lower Mainland population of divers. Additionally until that time, there were no dive-shops, no dive boats, no resorts, no instructional facilities. The shores by which the adventurous dove were not lined with buildings, and the bays were less filled with boats and ferry terminals. Unlike today, easy access dive-sites were not cluttered with neophyte divers dropping their weight belts on others below. In those days in BC, diving was an oddity and the people carrying out the activity were newsworthy, but to be treated with caution.

The individuals I interviewed are “full vessels.” They experienced and explored diving in British Columbian waters in a fashion that none after them could. No individuals or groups learning to dive in BC since that time will have experienced the learning environment that these few encountered. These narrations contain a wealth of edifying information, the substance of
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which cannot be found elsewhere, and which may be of value to British Columbian divers, divers in general, their educators, their institutions and to British Columbian historians. Additionally, information gained from studying these learning strategies may well be transferable to other learning activities.

Dale and Conti (1992 p. 52) pointed out that although the informal recreational setting is one where adult education is increasingly expanding its boundaries, this area of adult learning is largely “uninvestigated.” This study recorded and sought to understand and describe the learning strategies employed by early British Columbian divers, in a normally recreational setting, from 1951 into 1958. Using material gathered in interviews with divers surviving from that era as the primary data source, and using available documents and literature as secondary sources, I explored the historical question of how early British Columbian scuba-divers learned and practiced their activity.

As previously noted, diving came to British Columbia in the early 1950's. For the first few years, the entire diving population numbered forty-five or less hardy souls. In fact so far as this research has been able to verify, the breath-hold diving population looked approximately as follows.

<table>
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<tr>
<th>Year</th>
<th>1951</th>
<th>1952</th>
<th>1953</th>
<th>1954</th>
<th>1955</th>
<th>1956</th>
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<tbody>
<tr>
<td>Number of Confirmed Divers</td>
<td>2</td>
<td>3</td>
<td>11</td>
<td>18</td>
<td>??</td>
<td>36</td>
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Figure 1: Diving Population by Year

There may well have been other individuals using a combination of swim fins and mask or other means, to assist with swimming within BC during these times. Indeed several of the narrators
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indicated they had experimented prior to meeting each other. However it appears clear to the researcher that these efforts were swimming and not diving efforts.

Diving equipment was hard to come by in those days. Primitive swim fins and plastic lenses masks were fairly common articles for play, but Oxygen Re-breathers, Aqualungs or other types of diving tanks, regulators and related equipment were rare and expensive. Much equipment was homemade. Snorkels were sometimes manufactured using a piece of copper wire wrapped around a length of garden hose. Drysuits were available elsewhere in the world, but hard to come by in Vancouver. A ‘diving suit’ in BC often consisted of several pairs of long underwear, or no protection at all. Imagine diving down into water, kicking your way down to a point where very suddenly the water becomes so much clearer, but with equal suddenness the water temperature has plummeted to the point that it is cold enough to make you want to scream.

Where equipment was available, there was also the need to understand both the idiosyncrasies of that equipment, and exactly how to use it in an environment historically and elementally foreign to the human body. Picture moving about underwater while holding the end of a bag in your mouth with your teeth. Imagine a small cylinder attached to the bag, upon which is a small thumb screw valve which you twist about every 30 to 60 seconds. Envision the above as the system upon which your ability to breathe underwater depends, a system which, if you descend too deeply, will poison you and one with which, if you ascend too quickly, or perhaps forget to breath in and out evenly, will kill you in seconds by exploding your lungs. Each approach to diving had its equipment and the separate sets of learning conditional to it, and at the same time each approach had much in common with the other, so much so as to occasionally and dangerously lull divers into a state of complacency which might kill them.
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These early divers learned their activity without the assistance of formalized training programs as are now offered by organizations like the National Association of Underwater Instructor (NAUI), the Professional Association Diving Instructors (PADI), or the Young Men's Christian Association (YMCA). Organizations such as these did not appear, or did not offer substantive diving instruction or training in BC until several years later.¹⁴

Problem

There was also a paucity of educational programs or facilities for the teaching of diving, yet a number of enthusiasts achieved some level of competence in the activity and some are now revered by the diving community as the 'founders' of diving in BC. Some of the information disseminated in today's diving courses derives from the learning and skills acquisition that took place back then. Considering that the potential hazards which divers today are trained to know are inherent in the activity, the mere fact that the early divers survived this then dangerous sport to 'tell' their tales demands that we 'listen.' Thus arise the following questions. Who were the early divers? What were their learning strategies? How did they acquire the skills and knowledge necessary for diving? Therefore, with regards to the foregoing, the purposes of this study were to:

• investigate the beginnings of sport-diving in British Columbia

• examine the learning strategies of a group of men with varying degrees of formal education who were involved a non- or informal, complex, long-term and sometimes dangerous learning activity
Overview of the Thesis

The study in general looks at diver learning in BC from about 1951 to 1958. Chapter One provides the reader with the background for the study, and asks the questions upon which the study is based. Chapter Two includes a survey of the adult education literature, historical research literature which is relevant to adult education, and literature concerning oral history research. Chapter Three covers the areas of the design and methodology of the study, analysis, dating and sequencing evidence, the questions which guide the research, and its significance. The fourth chapter provides the reader with a sequential narrative, woven together from the narratives of individuals divers from that time plus other supportive evidence. The majority of these divers were members of the Vancouver Skin Divers Club, which remains the major focus of this study. The fifth chapter looks at the introduction of diving equipment into the diving community, the means by which it arrived, and the impact the equipment had. As did Chapters Five and Four, Chapter Six draws mainly on the evidence provided to the researcher by the narrators to investigate the question of 'how they learned.' Chapter Seven contains the conclusion to the study, as well as addressing the limiting factors and possibilities for future research. Ten appendices follow, providing the reader with a view of samples of tables accumulated in the course of the research, as well as a sample of the Letter of Introduction, the Consent Form, the Guideline Questions, and a sample portion of the 'Schedule of Questions developed for the research. A Glossary of Terms relative to diving follows, which may or may not be useful to individuals reading this study.
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1 1994 Interview series with Fred Rogers.
2 There is some evidence that a few individuals may have used snorkel and or fins prior to 1950 in BC, however in swimming pools, as swimming assistants, not for the purpose of diving.
3 FR94
4 In 1958 the YM and YWCA’s in Vancouver began offering scuba lessons as part of their curriculum. Gino Gemma was their first instructor.
CHAPTER TWO

SURVEY OF THE LITERATURE

What is Learning?

There are many definitions of the word 'learning.' Various dictionaries differentiate between types of learning, and often differ slightly from each other within the type. Psychologists, sociologists and educators each have their varying definitions of learning, both between professions and between competitive ideological stances held by individuals and groups within the professions. Not surprisingly, as more and more effort is consumed in the effort to understand what learning is and how learning is achieved, more and more definitions of what learning is appear to compete with each other.

Weiner et al (1977, p. 323) have described learning as "the ability to modify behavior as a result of experience .... producing relatively permanent behavioral changes" (p. XXXI). A key factor in defining learning is the notion of change. Learning defines not simply one strategy, but the plethora of strategies with which a learner may permanently modify "what [s/he] does in specific situations as a result of what [s/he] does in specific situations" while interacting with the environment. We know learning has taken place, they say, when we observe that a "relatively permanent change has taken place" (p. 324).

While Weiner et al defined learning in a relatively straight forward manner, and sought to outline the importance and limitations of what learning is, there are also a number of psychologists and educators who have spent considerable energy and resources looking closely at questions concerned with 'why' and or 'how' learning takes place. Over time and within
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various contexts, differing perspectives which seek to answer these questions have arisen, and have taken form as ideological positions, or paradigms.

In the Cognitivist paradigm, the 'aware' learner is actively involved in the interpretation or arranging of accepted new information within or attached to an existent framework of learned information, or knowledge. **Context** is critical in the level or degree of knowledge or skills change. This broad view of the effect of context requires that: "task characteristics and cognitive performance be considered in the light of the goal of the activity and the interpersonal and cultural context in which the activity is embedded" (Davidson, 1990, p. 4).

'What is context' can also be considered 'what is situational,' and as cognition, or the act of knowing, takes place in an environment or situation, thus there is 'situated cognition.' Dewey (1938, p. 25) states that "all genuine education comes out of experience," and experience must be situated. Cell (1984, p. 5) as noted earlier states that learning from one's own experiences affects personality, coping skills, feeling of personal power and significance. Lave and Wenger (1991, p. 35) see learning as "an integral part of generative social practice in the lived-in world."

Abraham Maslow thought highly of human potential, the "third force". He "held that the individual is basically sound and whole, healthy, and unique, with an innate drive for growth and self-actualization" (Davidson, p. 52). At the same time Maslow didn't wish to place limits or restrictions on himself with regard to what paradigm he fit into concerning learning theory. Maslow saw humanistic psychology as a "coalescence" of "splinter groups" split off from behaviorist or Freudian based psychology. He saw himself within that third alternative, not in opposition to the other two, but rather, as he put it: "I am Freudian and I am behavioristic and I am humanistic, and as a matter of fact I am developing what might be called a fourth psychology of transcendence as well" (Maslow, 1972 p. 4). What Maslow was looking for was an optimal
outcome in terms of human self-actualization, given the right ingredients, that is “good [human] specimens,” and optimal conditions, that is “good society.” Maslow believed that a particularly good society would ultimately nurture good humans.

Carl Rogers contended that the most effective learning strategy moving towards self-actualization occurred when the learner did not need to be concerned about the approval of others (Davidson 1990, p. 53). The notion of self-actualization, that is becoming all that one has the potential for, for one’s own purposes, is central to Humanistic learning concepts (Elias and Meriam, 1980, p. 120). As learning may be defined as a form of growth, and growth as a form of self-actualization, learning may be regarded as synonymous with the notion of self-actualization.

The self-actualization process an individual involved in a personal learning activity might follow is described in the Inquiry Model of Self-directed learning as outlined by Adrianne Bonham’s Chapter Two of Long’s Self-Directed Learning: Emerging Theory & Practice (1989). This model allows for self-actualization to take as a form of “Deliberate Learning in [a] Non-Instructional Format.” The model recognizes that the learner “begins with a general need to know, finds resources as they become available ... does most planning as learning is in progress,” and does not initially know how useful a particular set of resources or information will be (pp. 18-20). The Inquiry Model falls under deliberate learning; however, the line between deliberate and incidental is sometimes vague. This vagueness seemed appropriate within the context of this research paper, as it may be expected that persons seeking to become divers in the 1950’s would learn both incidentally as well as from deliberate learning efforts.

Paradigms associated with learning cannot be considered exclusive from one another. In fact there is ‘inter-flow,’ meaning concepts associated with one paradigm are often migrated to
another when those concepts are useful in achieving an end result deemed desirable. As well, each paradigm has risen as a consequence of practitioner dissatisfaction with the status quo. Behaviorism, for example, grew out of dissatisfaction with an earlier psychological construct, called Structuralism. The fact that each new paradigm has arisen due to disenchantment by some ideologues with a preceding paradigm therefore should not be seen as a complete disassociation on the part of the followers of the new model with that which preceded it. This becomes quite evident to the observer of teaching activities in today's learning centers. Nor, hopefully, would either an educator or learner wish to be blind-sided in their allegiance to one paradigm such that they are unable to benefit from any tidbit of wisdom provided by a competing alternative. Real-life environments also impose varying degrees of tyranny and choice on a learner, and thus could be viewed as a combination of the various 'ideals' represented in learning-related paradigms.

The question arises whether the notions of self-actualization and socially situated learning are compatible, particularly where the concept of self-actualization is seen to be synonymous with the notion of self-directness, or self-directed learning. This question arises whenever champions of either concept feel the need to defend their own ideological notions of learning by mounting an offense with regard to the other. 'Self-directed learning is an oxymoron,' say its attackers. 'Learning takes place in society, therefore there can not be such a thing as a self-directed learner. Besides which, the notion is 'atomistic' when taken to its logical end.' 'Not so,' say the defenders. 'There are innumerable examples of individuals who have educated themselves to the betterment of society, that is, directed their own learning using such tools as the Great Books series.' If all learning was dependent on social situation, how would Bell have come up with the telephone, the Wright brothers aircraft, and Einstein dynamite?
They didn't have great peer groups and teachers near by discussing how to invent these things. Dale and Conti are among those who seek to resolve this apparent schism.

Dale and Conti (1992) cite Fellenz & Conti, (1989) as having stated that real-life learning needs develop within the context of the learner's "real-life environment," which in turn is influenced by the surrounding social environment. A significant shift has taken place in the research emphasis of adult educators from adult education toward adult learning, they say. Much new research is centered around the needs of the learner rather than program design. They suggested that today, rather than the focus being on educational program structure, increasingly it is towards "the how and what adults do to learn and what other real-life factors enter into the strategy of adult learning" (p. 51).

Continuing, Dale and Conti noted that "despite the growing emphasis on learning in real-life settings by adults, nearly all of this research has been conducted in the formal setting, and almost no concern has been placed on informal participation in adult education" (p. 52). A consequence of this tendency for researchers to confine their study to formal environments, they pointed out, is a dearth of "research-to-practice application" when the time comes to decide what research problems and questions should be investigated. In turn the problem with this circumstance, they advised, is that a major area of expansion in the field of adult education is that of informal recreational learning, and that recreational learning is one of those "largely uninvestigated areas of adult education" (p. 52).

The example of recreational learning that Dale and Conti held up for the attention of the reader was fly fishing, which they described as a "comprehensive outdoor sport" requiring considerable training in several areas, proficiency in various activities, and "use of special equipment." They noted that numerous fly fishers also constructed some of their own
equipment, and that participation in the activity was growing rapidly world-wide, with "an estimated 750,000 serious fly fishers in the United States." The research leading to Dale and Conti's study investigated how and why highly motivated adult learners conducted their recreational informal learning activities. The study included questions concerning what learning resources were used; what learning strategies were employed; how much time was involved in the learning activity; what "special equipment" was "most effective in learning," the "type of learning experiences most effective in the informal recreational setting, and the reasons [for which individuals] participated in such activities" (p. 53). The study was naturalistic, and found that fly fishers displayed distinctive learning characteristics which "strongly agrees with the assumptions of the humanistic school of educational thought" (pp. 53-57). The research involved in this study found a good deal of support in Dale and Conti's work, and in the sense that this research also investigated a group of adult learners involved in a recreational activity, complemented their work as well. The most obvious difference between these two pieces of research into adult learning is that this study examined activities which took place some forty-plus years ago. Thus the approach to this research was historical.

**Historical Research and Adult Education**

Anderson (1990) has stated that it is often the case that "historical studies are ... justified solely on the basis of understanding and explanation," pointing out that Beal's 1987 study was an effort to understand and explain historical events (p 35). But, Rachel (1986) has suggested that the importance of research was "not always (perhaps even rarely) apparent when research is begun" (p. 157). As well, Rachel argued that historical research contributed "to a better
understanding" of adult education, noting that while historical research seldom has "direct bearing" on the practice of adult education, it is "nevertheless intrinsically valuable because it provides not only a context for practice but also a way of thinking about our field" (p. 160).

**Oral History Research**

Oral history as a theory of history and a technique for recording history is a relatively new approach, beginning during the 1940's with the appearance of the tape recorder. Rosenberg (1978) suggested that the portable tape recorder "led to the crystallization of the idea of oral history" (p. xiii). The first "project" to use the name oral history was that of American historian Alan Nevins, who founded the Columbia University Oral History Collection in 1948. Nevins' interest in tape recording historical evidence came from his observation that the careers of "important persons were summarized only in their obituaries." Nevins believed such persons should have the opportunity to record "testimony" about their life, and that the sound of their voices should be preserved (Rosenburg, p. -xiv). Although not all historians accept that oral history is necessarily the best technique for documentation, it is now widely accepted as a legitimate and special technique, and one which is advisably used in certain circumstances including those where the historian "is faced with a scarcity of written documents" (p. xv).

Grele (1985) suggested that oral history interviews should be considered a dialectic which incorporates and acknowledges the interpretive power of the interviewee "and the crucial role of the historian creating the document." He argued that oral history "should be a way to get a better history, a more critical history, a more conscious history" (p. viii). Grele contended that oral historians are interested in the minds which reveal themselves through conversation with the interviewer. At the same time there is general acknowledgment amongst practitioners that oral
records should be complemented as much as is possible with written sources, and indeed the
need for basic documentary research prior to interviewing wherever possible. Such an approach
enables practitioners in the creation of documents which give "insight into the nature of the
historical strategy itself" (pp. viii-ix).

Lummis (1987) noted that all history sources have their biases and omissions. The major
advantage to the oral historical methodology, the retrospective interview, said Lummis, was that
through its use historians would be able to "intervene directly in the generation of historical
evidence relating to the recent past." The historian would be able to collect a type of evidence
otherwise not available, or at least not normally supplied. As oral history is the product of both
the informant and the researcher, that product should be more "informative and precise" than
personal autobiographies and testimonies, because oral history by definition is focused on
historical matters rather than on biographical (pp. 11-12).

A criticism of oral historical technique has been the question surrounding the human
memory. Informants may suppress, reshape, reconstruct or simply forget major "chunks of
experience." People may lie about the past. How large a contribution can be provided to
historical evidence through the telling of one person's perspective, or the recording of several
persons' perspectives? Lummis agreed that the aforementioned are all possible. Yet he pointed
out that these were equally possible within documentary evidence. Human history does not take
place within documents he argued. Rather, history is lived human experience which is recorded
by some person or organization and can be seen at least as somewhat retrospective, secondhand,
and somewhat biased (pp. 12-13).

Oral history has the advantage of being removed somewhat from the historical moment.
Informants in most conditions are removed by time from the consequences of relating events.
Pranks, wrong-doings, theft, cover-ups, etc., are sufficiently distant that informants need worry little about the consequences of relating them. "Informants have no powerful reasons to conceal whatever was the genuine situation," Lummis claimed. He argued as well that contemporary historical recording often must deal with the informant's "present situation and ego," whereas oral historical interviewing years later removes that bias to some large degree (p. 54).

"The value of oral evidence as a historical source must ultimately be established within its own authenticity," said Lummis. If that authenticity can only be established by confirming the content of the oral evidence with documentary evidence then, he asked, why bother with anything but the documents? Both oral and documentary evidence have their strengths and weaknesses, and each stands to gain when used together in partnership. Lummis held that each may be used to highlight the shortcomings of the other, in terms of acquiring evidence, but that this relationship should be viewed as complementary rather than contradictory. This supports the notion of triangulation. He pointed out that documentary historians tend to also be elitist historians, and that oral history is more greatly appreciated in general by social historians, and argued that this polarization can not either be seen as surprising or as a reflection on the rigor of either approach. Rather he suggested, the polarization more probably stems from the relationship between what he referred to as "professional predisposition to accept the 'truth' of documents," and the corresponding historical lack of documentation of social history (p. 155).

Concerning the question of generalization, Lummis argued that while one oral history might not necessarily be considered representative, having a cohort of interviews from a particular category, locality and period provides the possibility of generalization. Thus, he contended, one very necessary step in the strategy of conducting a oral historical project would be to "ensure that a representative sample of experience is collected." As well, he suggested,
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dpending on the nature of the project, "that the strategic approach in which informants from a particular occupation or category are interviewed until 'saturation point' is reached." He concluded by noting that oral history is an "exciting, humanistic," and rounded source of history, but that as a form of historical record it is also "exacting and challenging" (pp. 159-160).

Learning, then, is a process which provides the learner with the circumstances to modify his own behavior and conceptualization of the world as a result of experience. Learning takes place in and among learners within a context, allowing for personal self-actualization and in optimal circumstances the betterment of society. The study of learning in a non-formal or informal environment is of great importance to adult educators, and an area which sadly has received insufficient attention to date. Historical research is a useful set of tools with which to approach the questions surrounding adult learning, and more specifically, oral historical approaches to learning when complemented with available other sources, provides educational researchers with a set of tools to understand adult learning from a more critical, conscious, humanistic and grounded position.

5 Maslow is not suggesting that we divide the race into 'good' and 'bad' specimens. He simply wants to examine a sample population containing only 'good' in order to see how much this optimal sample group can attain.
6 "that society is good which fosters the fullest development of human potentials, of the fullest degree of humanness." (p. 7)
CHAPTER 3

DESIGN AND METHODOLOGY

This inquiry was based on in-depth, or oral history, interviewing similar to the phenomenological techniques, as described by Seidman (1991). Interviews involving questionnaires or schedules were conducted with each narrator in order to understand and to illustrate how divers learned their activity. The primary historical data collection technique was a series of one or more tape-recorded or oral evidence giving interviews. The secondary historical data collection technique was documental research and analysis. The secondary data collection largely preceded the primary.

Secondary data collection proceeded in the following manner. Names of early divers were collected from tape-recorded and transcripted previous research carried out by the researcher in 1994. Additional names were obtained from Fred Rogers' unpublished *A Brief History of Sport Diving Around The British Columbia Coast*. Further inquiries were made within the BC diving community, with which the researcher is fairly well acquainted. Compiled names of possible potential narrators were placed in *Names.doc*, a table, with additional fields created for such things as confirming their being alive or deceased, last known location, where the reference came from, etc.. As the number of potential leads approached forty-five, the table was transferred into a MS Access file named *olddivers.mdb*.

As potential names became available, the researcher used contacts within the diving community, the telephone book, and the Canphone CD ROM database to acquire potential locations, addresses and phone numbers for leads. Additionally, email was used to inquire about the location of two potential candidates, successfully in one instance. When a lead became a confirmed narrator candidate, the candidate was sent a copy of the letter of introduction,
followed up by a phone call to briefly explain the purpose of the research and to schedule an appointment for the first interview session. A primary criteria question was asked during the telephone conversation which was “When did you begin to dive? In what year?” Divers who began their diving activities after 1957 were not considered for this research.

Simultaneously, the UBC Library, Vancouver Public Library, New Westminster Public Library, and SFU Library computer access systems were searched for material potentially related to diving in category ‘diving-submarine.’ As well the New Westminster, and Vancouver Library clippings departments were searched. Additionally the microfiche and microfilm at UBC, Vancouver, and New Westminster were searched. Unfortunately news-clippings related to diving between 1953 and 1957 were not recorded on microfiche. However substantial collateral material was obtained from the New Westminster Public Library microfilm section copy of Popular Mechanics. Likewise the archives of the Vancouver Maritime Museum were examined, with little result. In the library system as a whole several books were found that discussed topics related to diving which were available to be read in the library system in the first half of the 1950’s.

Newspaper articles found in the microfilm searches were photocopied. The photocopies became the basis of an MS Word table clippings.doc, in which the clippings were organized into fields representing, dates, names in each clipping, title of article, in what newspaper and what page the article was found, etc. Names of potential candidates were added to olddiver.mdb. Candidates were confirmed alive or deceased, and locations discovered through directory searches and through other candidates.
A table file entitled timeline.doc was introduced into the process. The original file predated this research, and represented the efforts of the researcher to create a representative timeline of people, events and circumstances noted in an earlier interview process with narrator-to-be Fred Rogers. Dated, relevant clippings were introduced into timeline.doc from clipping.doc. As the research progressed, so did timeline.doc, becoming a table of twenty-nine pages.

As dated or approximately dated information became available throughout the interview/narrations process, this too was added to timeline.doc. Eventually by 'saving as' a new file shorttime.doc was created, and information not directly related to the research was culled, leaving twenty-two pages of table information.

A series of questions covering the spectrum of family, education, diving equipment, personal diving history and experience, and work experience were created as a schedule of questions for the interview process in case that should be necessary. These were placed in a file called question.doc. During the course of initial interviews, the researcher found both advantages and disadvantages to a schedule of questions. When the narrator was unsure of where to 'go' with his narration, the schedule often got him on track. However, when the narrator's train of thought, or his memory of the past was already primed and ready to 'go' or proceed with his narration the schedule questions tended to interfere with the smoothness of the narration. The general experience of the researcher was that narrators, left to their own devices, tended to answer most of the questions in the schedule through the narration before the questions were asked. A further general experience was that the majority of narrators were ready to provide their entire personal history as it related to diving, and fully expected the researcher to
create a document which describes the history of diving in BC. Even when the researcher reaffirmed the purpose of the research as outlined in the original letter of introduction and the consent form, the majority of narrators appeared to think it inevitable that I would construct a history of diving in BC at some point in the future.\textsuperscript{14} The importance of asking open ended questions became more pointedly obvious during early interviews. As well one quickly acquired the habit, when receiving short responses, of saying "Oh, can you give me some examples," or "Can you make that clearer to me?"

There are approximately twenty-five individuals now known to the researcher, who dived in BC waters between 1950 and August 1956, and who lived in British Columbia during the period of time in which the research took place. Fifteen of these individuals were mailed letters of introduction and intent, approved by the University of British Columbia Ethics Review Committee. The letters outlined the intended oral history research to be conducted, and requested the individual's participation as a narrator in the study.\textsuperscript{15} The letter requested that individuals participate in between one and a series of interviews, concerning their learning activities as divers in the previously outlined time period. Of the fifteen candidates in British Columbia, fourteen were eventually interviewed; however, at the closure of the first interview with the second narrator the researcher concluded that although the narrator had a fascinating life history, he also had been far too young between 1952 and 1957 (eleven to fifteen years of age) to be reasonably considered a candidate for this particular research project. One further individual now living in Queenston, Ontario, agreed to be interviewed by telephone as well as to respond by mail. Additionally, the researcher sent and received back a letter of consent from a further informant who is living in Toronto, obtaining permission to use his 1952 journal or log
as a research information source. Lastly, one individual initially agreed to be interviewed, but decided at the time of the appointment not to be interviewed.

Immediate follow-up to the letter of introduction was a telephone conversation where that was possible. During this process a formal interview opportunity, in most cases at the narrator’s home and otherwise his place of business, was arranged. The major exception to this interview ‘rule’ was of Cameron Porteous who now lives in Ontario, who was interviewed by phone, and who also responded to a series of questions in writing. All narrators indicated they had read the letter of introduction, that they understood the intent, and were prepared when asked to sign a consent form.¹⁶

A preliminary questionnaire/schedule was designed for the first in-person interview to probe into the who’s, what’s, where’s, why’s, and how’s of the general question of “how the early BC divers learned to dive.” Questions ranged from "how old were you" to "who was with you on the first dive" to "where did you purchase your equipment" to "how did it feel to..." However in most cases the questionnaire was either unnecessary or barely necessary. Interviews were conducted solely by the researcher. Each interview was approximately one and one-half hours in length, and was semi-structured in the sense that there was a series of questions available; however, frequently the narrator answered the questions before they were asked within his narrative, thus the degree of structure was lessened.

During the course of the interviews narrators were routinely asked if they remembered having read any books or other materials about diving and if they had any of these still in their possession ‘now,’ from back in the 1950’s. Several narrators affirmed they had material and brought these items in question out. These made excellent centers for conversation and often
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appeared to stimulate the memory of some event important to the diver. Additionally some books were dated with a date of acquisition, providing some evidence about what information was available at that time.

All interviews were tape recorded. Where possible interviews took place in the narrator's home. In two cases that interviews took place in the narrator's place of business. Field notes were kept and a coding system was developed for significant non-verbal communication. Usually, interviews with each narrator were transcribed verbatim before a following interview was held with that narrator. Each narrator received a copy of their own transcripts and were asked to correct, comment, enhance and edit same. Interview schedules were altered when an unanticipated item of significance emerged from an interview. On several occasions either the researcher or the narrator had limited availability and with the narrator's consent, two one and one half hour interviews were held in a single day.

For the second and sometimes third interviews, the researcher normally first reviewed the preceding interview(s) and field notes, and returned to the narrator with emergent questions both from the original interview with the narrator, and where relevant, questions which emerged from interviews with other narrators. All narrators agreed to their names being used in the research, although the alternative of anonymity was offered. Thirteen of the potential narrators residing in BC who agreed to participate in the research completed the interview process. One, as noted earlier, was disqualified from the process due to his youthful age during 1952-1957. One non-BC resident narrator was also interviewed by phone.
Analysis

Analysis was ongoing between interviews, both between those conducted with one individual and between different individuals. Each interview was transcribed in MS 6.0. Transcripts had three inch left-hand margins, had numbered pages and had numbered lines. Transcripts were ‘nicknamed’ after the initials of the narrator combined with the year in which the interview took place. Thus a transcript for Gino Gemma made in 1996 would be called ‘GG96.’ The tenth line on page twelve of GG96 would be called GG96/12/10. Using the drawing function of MS Word, the researcher was able to place comments or further questions in the left-hand margin of each page, directly beside the portion of the transcripted narration that warranted attention.

Chunks of narrated material dealing with the general categories of learning and equipment were pulled out of the narrations and placed in table documents entitled learntab.doc, a fifty-six page table, and equiptab.doc, a twenty-eight page table, which when combined with the previously created and abbreviated shortime.doc, a twenty-five page table, provided three ‘catalogues’ of responses. The latter formed the basis of the ‘narrative chapter’, the first the ‘equipment chapter,’ and the second the ‘learning chapter.’ Individual entries in each table would be the equivalent of a single card in a card file. Each table/card file card was sorted by year, season, narrator/page/line. Additional sorts were available in shortime.doc, such as source of article, name of article, name of author or key person, in the case of a news clipping or book, and so on. This method allowed for easy ‘cutting’ and ‘pasting’ of individual ‘cards’ both within each table and between tables.
Later, during the construction of each chapter, catalogued responses were also subjected to ongoing analysis in order to further classify them with regard to linkages between 'cards' in terms of time, location, similarity and/or difference, etc. When necessary the researcher went back into individual narratives to pull out additional 'chunks' of information where that information contributed to the construction of the chapter.

**Dating or Sequencing Evidence**

It is of primary importance to note that in order to examine the approach to learning utilized by divers, that is to examine 'how it was that they did learn,' it was necessary to first take the gathered information and to sequence it correctly on a fixed timeline. Individual narrators tended to achieve fair accuracy regarding the order in which their personal events occurred. The majority also tended to approximate the length of time between events with reasonable accuracy. Narrators had a pretty fair idea that they had learned to do 'A' before commencing with 'B,' and/or that 'B' took place a certain span of time later. Collectively the narrators' biggest trouble was accurate dating of learning experiences and other events. In some cases this inability was acknowledged by the narrator openly and freely at the beginning of a diving narration almost as a form of disclaimer and approximating the following: 'Well you know I can tell you when or how things happened and I can tell you the sequence in which they occurred, but I can't tell you the exact dates.' In other cases narrators appeared to seek to 'date' an event at a time when it could not have possibly occurred.

In the first case there tended to be more accuracy in terms of the length of time between events. Divers who provided the 'disclaimer' tended to be more accurate in terms of timing, than the divers who believed they knew all the dates. Fortunately, a number of fixed dates either
were available, or became available through the investigation. Some of these dates related
directly to diving and some did not. One such date or time the 1954 British Empire Games
which were held in Vancouver and which had a specific impact on particular individuals, but
which also provided a benchmark in terms of time. A second such fixed date was the death of
Jim Willis in July 1, 1956; he having been a very important linkage in the diving community of
the Lower Mainland. His death had an impact not only on the emotions of individuals, but the
manner in which they conducted themselves in the water in the future, on the equipment they
used, and 'how they learned,' thereafter.

A further example of a prime date was the date on which the Vancouver Sub-Aquatic
Club, as opposed to the earlier Vancouver Skin Divers Club, came together - August 17, 1956.
Another most important date or approximation of a date was the timing of the actual trip that
George Croy and Don Francks made to Mexico, from September 13th to early November 1952,
as recorded in Don Francks' log of the journey. This trip is understood by divers albeit
inaccurately to have been the advent of sport diving in the Lower Mainland. Other factors of
importance would be such things as approximate dates or times that various diving related books
became available in the Lower Mainland, or that particular movies were shown in theaters.
Dated newspaper clippings also helped, as did various articles appearing in early diving
'magazines' such as Skin Diver Magazine or Popular Mechanics.

The importance of these dates became obvious as the researcher attempted to bring
individually narrated storylines into sequence both with each other, and with fixed dates.
Because individual memories of the timing of events were slightly different, and in some cases
quite different, it initially appeared as though the same learning history was continuously
repeating itself in small groups of divers throughout the Vancouver area. While this repetition seemingly was possible, it also seemed improbable since there was migration or continuity from group to group by individuals involved in almost the earliest of what I call 'pods,' and involved as well in the later pods. Logically their knowledge and experience would have to have accompanied these migrating divers.

Combining fixed dates with individual testimony proved extremely useful. For instance in the case of Dennis Thulin, it was possible to establish the actual date that Dennis moved to North Vancouver, and in doing so, it was further possible to pin down when Edith Thulin took scuba lessons at the YWCA. As Edith was in the first scuba class ever held at the 'Y,' it was possible to date the beginning of this activity.

It was also through the Thulins that it became possible for the researcher to verify the exact date that the Vancouver Sub Aquatic Club was formed. Dennis Thulin had acquired a book on scuba diving at that time, and recorded on the inside front cover, that on August 17, 1956 a new club was formed with twenty-six divers in it. Dennis confirmed during the interview process that this club was in fact the Vancouver Sub Aquatic Club (VSAC).

Being able to ascertain when VSAC was formed in turn led to confirmation of the approximate date when Cliff Donovan must have joined the Vancouver Skin Diver's Club. This was mere months or weeks before the formation of VSAC and appeared to have been just after the death of Jim Willis. Narrations by Donovan, Thulin, Rogers, and others indicated to approximately when Gino Gemma ‘showed up’ in each narrator’s own particular narrated timeline, but as the narrators couldn't give exact dates, until there was a benchmark date near to this time, it was not possible to approximate the arrival date of this individual into the
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Vancouver Skin Divers Club. This timing was important as Gino Gemma was one of those narrators who, being fairly certain of the sequence of events, was vague with regards to dating the events, and due to his pivotal role in 'how divers learned' from 1958 and onwards.

Having established a series of benchmark dates it was possible, in effect, to 'slide' Gemma's and other narrator's personal timelines along the benchmarked timeline, and thus to establish with reasonable accuracy such things as when they began to dive and when they actually became a part of the groups of divers being studied. In turn, establishing Gino and the other narrators in the larger timeline contributed to the placement of other events, such as Phil Nuytten's arrival into the club. Gino's narration was very clear on the point that he felt he had been snorkel diving with two friends for about two years when he met Phil Nuytten. Having pinned down approximately when it was that Gino began it was possible to 'slide' the stories concerning Phil Nuytten's entry into the club along the timeline and arrive at an approximation of when this individual 'showed up.' Timing concerning this arrival, for instance, was additionally corroborated by triangulation of other evidence found in narratives from Fred Rogers, Graydon Baker and others. Cam Porteous's narration of Phil's arrival served to solidify the timing to 1954.

A further example of assisting dates or times connected with the 'arrival' of a diver follows. This diver was clear in his original interview that he knew the first snorkel divers in the Lower Mainland had been George Croy and Don Francks. He was clear that his own diving had begun after theirs. Thus we were able to conclude that this diver's personal timeline, although very accurate with regard to sequence, and fairly accurate with regard to the approximate period
of time between events, was considerably ‘off’ with regard to dates, probably due to his very young age at the time. Nonetheless, this diver displayed great accuracy of sequence and periods. Triangulating these sequences and events with both fixed dates and the narration by others made it possible to attach this diver’s personal timeline to the fixed date timeline.

These types of information were quite useful for fixing events which occurred at an uncertain time in some narrations with known dates and events. It was clear that George Croy and Don Francks began to dive together in 1951. George Croy’s narration, Gordi Moore’s confirmation of Croy’s evidence, and Fred Rogers’ *A Brief History* ... all supported these starting dates. There is photographic evidence as well. There is no question that Croy and Francks began breath-hold diving together in the summer of 1951. In addition, there is a complete log of the events of their diving trip to Mexico in 1952.

As, then, there was no question of who began to breath-hold dive ‘first,’ there was only the question of discerning at what point those who started diving after the original divers began their activities. It was possible to establish this by looking at the narrations provided by the divers themselves and triangulating this evidence with that provided by other sources.

**Guideline Questions**

In order to investigate the circumstances of early British Columbia divers’ learning strategies, a series of guideline questions were posed. These provided an initial ‘template’ within which the investigation could proceed. They were however subject to change as the research progressed. The first question is a case in point. It originally read: “Who were the early BC scuba divers and how did they learn their activity?” Very quickly into the research,
however, it became obvious that the question needed rewriting to: “Who were the early BC divers and how did they learn their activity.” This change was necessitated by the re-discovered realities surrounding diving and the divers at that time, that diving was an evolutionary activity and that this activity did not begin with the Aqualung. In order to gain a complete understanding of the conditions in which the first scuba divers learned their activity, it was first necessary, then, to understand the conditions leading into the activity.

The second question: “What were the learning characteristics of the early divers and who, if any, were their teachers?” was fully answered by the narrators. With regard to the individuals interviewed for this research, characteristics were as follows. These were young males from families of generally limited income and social status. They were physically active, and curious. They were generally bright and articulate, but although half of them enjoyed their formal, institutionalized learning, only one followed his high school experience with full-time university. They were adventuresome and inventive and sought to couple their learning about the world with challenge. They sought and found a learning environment in which they could excel and a learning activity in which they could afford to participate. Although they constantly were willing and eager to learn more about their activity and actively sought out new information and techniques, for the most part they were their own teachers, or perhaps more accurately co-learners.

Through the third question: “What facilities were available to facilitate the learning strategy involved in becoming ‘successful’ divers?” it quickly became clear that, with the exception of a diving store in Seattle which opened in the summer of 1953, for the first several years there were no facilities at all which actively sought to facilitate the learning of diving.
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There were beaches at such places as Horseshoe Bay and Whytecliff, the YMCA and Crystal Pools, but these places made no offer to facilitate the learning of diving. There were books and magazines which promoted diving activities and equipment, and often provided the reader with the wisdom and the example of the author, but still these cannot be seen as facilitators of learning for most of the narrators, who had no opportunity to read them. These young men participated in a learning experience wherein common experience, common sharing of information, and a common need to be successful was what facilitated learning.

Number four, a two part question, asked: “How accurate was the information early divers received? Did the knowledge and experiences of these early divers affect the educational environment of BC's scuba-diving community today?” Particularly with regard to re-breather diving, the research suggests that information which pointed out in straight forward terms to divers the dangers and limitations to re-breather use was available if divers actively sought safety information out. Bert Mona and Bill Thomson easily found expert advice in the form of Keith Carter, the ex-Royal Navy diver. Additionally, books dealing with diving published in the early fifties often had information in them about re-breathing as well as a cautionary notes relative to their limitations. However, according to narrators who actually obtained and used re-breathers, information concerning the limitations didn’t always come ‘in the packages’ with the re-breathers themselves. When the safety information was there, it was not that information, but the ‘fun’ that was emphasized. The end result of this information gap was a series of re-breather related deaths in the young diving community, the shock of which brought about the institutionalization, or more accurately the commercialization of diver learning. As it happened, answering question four also resulted in answering question five: “When, why and how did the
learning strategy become an instructional strategy, and where did the rational for an instructional strategy come from?"

Question six asked: "Were the early divers recreational or commercial or some combination of the two? When did the learning activity involved "split" into recreational diving and commercial diving, or was there always a difference or a dividing line of some sort?" This question showed the ignorance of the researcher relative to commercial diving as a state of the art activity at that time. With the end of World War II and the exit from the war machine of numbers of navy divers, the ‘line’ between commercial and recreational diving wasn’t really a line at all. It was more of a broad and wiggly border. Pre-war commercial divers were ‘coppertop’ or ‘hard-hat’ divers. These were divers in heavy restrictive canvas and rubber suits with metal helmets, and attached to the surface tender by umbilical lines for air supply, communication and safety. Al Trice recalled that these commercial divers were members of the Bridgemen’s Union. Post-war ex-navy divers who offered their diving services used re-breathers and later scuba and for at least several years after 1953 were not members of the Union. With almost no exceptions, once Aqualung or scuba breathing units were available, the narrators involved in this study recalled participating in diving activities for which they were paid. However true commercial Aqualung diving precedes recreational Aqualung diving in BC albeit only by months. True commercial diving was a separate activity, and although divers could and did pass back and forth over the ‘border,’ as did information and understanding, narrators tended to be quite definite about the difference between the two activities when defining themselves as members within one or both of these activities.
The last 'guideline' question asked: "Was there a strategy of independent or self-directed learning utilized by the early BC divers?" The answer had to be "yes" and "no." Divers, once they found each other, tended to dive in particular groups and in particular locations. They held group meetings. They also shared information. They learned in a social environment. They were 'socially situated' albeit that 'society' was limited to other divers and those individuals wishing to become divers.

At the same time circumstances often arose where the diver acted in a fashion quite separate from the group. This might be due to distance, as when Fred Rogers traveled to different parts of the province to work and took his scuba equipment with him. Fred’s descriptions of his often solitary diving activities while away make it clear that he constantly sought new knowledge and understanding concerning diving even while away. Other narrators described tool and equipment fashioning as solitary activity.

Nonetheless each of these activities lead back to the larger group. When Fred returned to the Lower Mainland, he had tales to tell and wisdom to espouse to his community of divers. When Dennis Thulin manufactured a weight-belt for himself, he ended up in the weight-belt manufacturing business in response to the demands of his diving community. When George Croy discovered his own interest in diving, the first thing he did about it was to convince his two best friends to participate in the learning activity with him.

Significance of the Research

In terms of 'diver history' in British Columbia, this piece of research may be the first of its kind. Fred Rogers' A Brief History... makes no claim or effort to be exhaustive, nor is this item published. Additionally, because the research in this paper was based on oral history
techniques, the research also brought to light aspects of the "social history" of diving as well as shedding some light on the "culture of early divers in BC." There is also the possibility that the individual histories themselves may be of interest to historians at some point, for reasons both related and unrelated to diving.

In relation to education the research may be useful in several ways. A better understanding of the dynamics of how divers learned when there were no "institutionalized" educators may be of value to present day educators of divers and of other formal, informal, and non-formal activities involving risk or environments new to the learner. Knowing how learners go about gaining expertise on their own should serve to enlighten educationalists with regard to effective approaches to facilitating learning in a more structured situation. Both new and more experienced divers may find the recorded learning experiences of these divers educational, in the sense they can now read about diving being learned under circumstances quite different from those prevalent today. Divers in general may derive pleasure from having the opportunity to read about the experiences encountered by the early divers.

With respect to adult learning research the study has great potential. Dale and Conti (1992) note that recently adult learning research has begun to focus more on the real-life learning needs of the learner developing from the learner's real life environment. Investigation of real-life learning and learning environments and strategies, particularly where those strategies are reviewed from the perspective of having been removed from the consequences of being honest in the description, will surely be helpful to the planning of a "learning strategy which is designed and centered on the learner" (p. 51).
Disturbingly, the microfiche system has a gap from 1953 - 1957 where records concerning diving related newspaper articles should be located.

They are probably right.

Entries are noted by the first line in each.

It could on the other hand be seen as the precursor to semi-organized spot diving.
In August of 1950, an article entitled "King Neptune Wears Goggles" appeared in the magazine supplement of Vancouver Sun. The article described the exploits of one Garth Quinn, a former Vancouverite and skin-diver in California. The article contained pictures of Quinn dressed in 'diving gear,' including fins, mask, spear, snorkel, a rubberized body suit covering him from head to toe with gloves, boots, and an attached hood. A second picture showed him wearing a sweatshirt over top of his suit while in the California waters. The article described Quinn's diving exploits and adventures along the shores of his adopted home. Quinn was referred to as a member of the Neptune Skin Diver Club, situated in Northern California.

During that same summer, but roughly two months previous to the Quinn article, George Croy, a recent graduate of Vancouver Technical School, borrowed the swim fins of a lady friend's brother, who was stationed with the US Navy in Hawaii, but on leave back to Vancouver, BC.

George Thomas Croy was born on May 6, 1932. He had been raised in east Vancouver, close by Beaconsfield School, and later moved to Victoria Drive. Croy's mother and father built their first home from salvaged materials, including the nails, he recalled. Croy was an avid student who ended up attending Vancouver Technical School, where he enjoyed the tremendous variety of learning opportunities. Receiving no support with regard to the notion of university from his blue collar mother and father, Croy joined the Air Force Reserve, where he discovered to his chagrin that he had an inner ear problem, thus ending his Air Force aspirations. Always
physically active, Croy began breath-hold diving in the 1951 and continues to this day to breath-
hold. He never tried scuba. Croy’s adulthood has been one of continuous learning and at the
time of this research he is a self-employed printer, and very involved in Scouting. He lives with
his wife in Duncan, BC. Croy recalled:

he brought fins and mask with him, which was the first I had ever seen. And I got to try
his fins, one day in Trout Lake in fact. And - not the mask. And I could not believe it. I
was never much of a swimmer until I got fins on and I just felt the power! Couldn’t be
stopped! They - I really fell in love with swim fins.23

Also during that summer period, following Croy’s initial encounter with swim fins, he
and school chum Don Francks took in a movie called Under the Red Sea, featuring Hans Haas,
world renowned ‘skin-diver.’ Francks grew up in the same neighborhood as his buddy Croy.
Among his friends Francks was well liked and respected, and thought to be very bright. He
attended Britannia High School, worked in a foundry, sought and found a career in the
entertainment business, and became quite successful as an actor. He presently lives in Toronto.

At the time, however, the content of the skin-diving movie intrigued both the young men
greatly; however, shortly thereafter both became otherwise involved. In the fall of 1950
Francks, together with mutual friend Gordi Moore, bluffed their way on to the steam ship
Argofax as crew, leaving on a working ocean voyage which took them to England via Panama
Canal.24 Moore grew up the son of a struggling electrician. He had attended elementary school
with both Croy and Francks, and high school with Croy. He was always interested in sports, and
was quite a ladies’ man. Additionally Moore was a singer and dancer, and was employed as
such. Later when his father opened his own electrical contracting company, Moore joined his
dad in what became a successful family-run business. While Moore and Francks left for distant
shores, Croy was seconded by the Air Force Reserve to Ontario for officer training. Upon conclusion of his Air Force Reserve related activities several months later, Croy joined up with Francks and Moore in Toronto on their way back from England, where the three lived and worked for a time, seeing the sights and earning the train fare back to Vancouver, to which they returned in late spring 1951.25

Act One: First Fin Kicks

In the summer of 1951 Croy and Francks followed up on Cray’s original excitement over the use of swim fins and their shared theatre going enthusiasm surrounding ‘skin-diving.’26 Noted local maritime historian and early diver, Fred Rogers, says: “In the summer of 1951, George Croy and Don Francks tried out fins and goggles which they found fascinating both with the visibility and speed to view the new world beneath the surface.”27 They sought out and finally found a general sports store that sold ‘diving’ equipment. It was Spaldings, downtown on Granville Street, where initially they were only able to obtain swim fins. Green Voit swim fins. Croy says: “it seemed to me that I’d already been looking for quite a long time - or not spending my full time looking for it but watching out for it and inquiring about it.” At first they swam only with the swim fins, in a fashion similar to Cray’s first use of fins in Trout Lake. But, Croy says, they were able to obtain their diving masks shortly afterward from the same store, “and that just - that changed your life because now all the sudden you’re dealing with being able to see this new dimension. And we did all sorts of things y’know?”28

Things such as hitch-hiking to Cultus Lake, or canoeing, busing, and later motorcycling out to spend the weekend camping at Cable Cove between Horseshoe Bay and Whytecliff, and
“then around the corner was Bachelor Cove and that’s where we did most of our diving .... we actually trained ourselves.”

There wasn’t any information about ...[dangers]. The - all the information we had we learned a little bit at a time. You know, we walked into six inches of water and laid down and started lookin’ for barnacles and nails and boards, and sharp stuff and broken glass on beaches and that. Y’know? Put our face underwater and advanced with our face and mask just the GLASS being under water and still being able to breath through your mouth so that we weren’t stepping on things - on sea urchins or whatever that might stick us. We knew about those just by going to the aquarium. And uh, where at Second Beach - was the Aquarium at that time? Yeah. And the uh, well we just slowly went into deeper and deeper water and began to thread our way around little rock outcroppings through little narrow passages - uh originally it was almost like learning to fly. Because the y’know dealing with the new element. We didn’t know what in the hell - heck we were gong to encounter. At all. I mean having to raise your head totally out of the water and losing contact with uh, close rocks and barnacles and that sort of thing. Losing visual contact with it was - unnerving - to say the least. And we were always aware of - potential danger. Water was dark y’know? Visibility was poor. Until you got below the thermoclyne. Which we weren’t doing early on. We were not just going into open water and diving straight down because you didn’t know what the heck - you were gong to encounter. ‘Cause you couldn’t SEE it -- from the surface - so we always worked on beaches and went into the water progressively. And worked our way along.
Croy and Francks free-dove without snorkels through the summer of 1951. Croy’s memory is: “Now this is the kind of thing we were doing. Bathing suit. Mask - two fins, no snorkel in sight anywhere that I can see. In fact, I’m pretty sure that the first snorkel that we found was just before we went to Mexico in ‘52. That red plastic thing.” So, in the summer of 1951 these two individuals were the breath-hold community in the Lower Mainland, diving with fins, mask and no other equipment, other than homemade spears and bathing suits.\(^{31}\)

**Act Two: The Journey**

In the early part of September 1952 Croy and Francks decided to travel by motorcycle down to Mexico, through California. In BC diving lore as recounted by each narrator interviewed excepting Croy and Moore, this journey is the beginning of diving in BC. In relation to British Columbia diving, the motorcycle trip south and back home by Croy and Francks is akin to the bringing of fire to humanity by Prometheus. There was, of course, no such intention on the parts of Croy and Francks at the time. Rather their purposes were to see that part of the world while perhaps getting in some diving and to that effect they included their fins, masks and newly purchased snorkels amongst their sparse travel kits. Croy remembered crossing the Canadian - American border:

> When Don and I left for Mexico in ‘52, we went on motorcycles. Which were old motorcycles at the time. A 1939 Triumph Tiger, and a 1941 Harley Davidson ex-military bike with a twisted frame. So they were already pretty old pieces of machinery to head off on a pretty long trip. And looking all over the bike, do you think I could find a place to out this dam molded plastic thing, that would be safe? So finally I taped it under the seat to the part of the frame? And thought “Well that’ll be safe there” and went across the border and we had visas, we had everything to get into Mexico. And we crossed the border at Blaine into the US, and there were two Customs or Immigration - whatever it was - fellows talkin’ to us and uh, we told them about what we were about to do and everything and they were interested and, but they were still kind of standoffish. And the one fellow pointed at the red plastic thing under the seat and said, “And what’s that thing there?” An’ I said “Oh that’s the snorkel that allows you to breathe while your head is underwater.”
... And the guy turned absolutely red in the face and spluttered and he said “Don’t fool with me young fellow!! I know motorcycles won’t run underwater!”

Don Francks also carried and wrote in a journey log:

Each day I, Don Francks, put down what happened to my pal George Croy and myself on our trip to Mexico, (to spear-fish) on motorcycles - George riding on a Harvey Davidson 42-45 and myself a ‘39 Triumph tiger 100. We left on Saturday September 13th 1952 and be the good Lord willing, should be home safe and sound in 4 [sic] to six months.

They left on September 13, arriving in the town of Guaymas, Mexico after several days of hot weather traveling and not a few adventures with their bikes. Once there, Croy said:

There was a full blown club in the Mexican town that we stayed in - in ‘52. Can’t think of the name of it. But the son of the Mayor of the town, whose name was Ernesto Sargoso, was the President then of the divers club. And they took us out on expedition on weekends when they were not working. Had a marvelous time. Incredible ... We found that our training in this cold water with uh minimal visibility, made us uh, at least as skillful as those people from California and Mexico, that were diving - many more hours, than we were. Our endurance was better, our physical conditioning seems to be better, and uh, we could dive as deeply as any of them and manage everything every bit as well as they could. Mind you it was like a dream, going from here to [the ] clear waters of Mexico where you could see fifty feet straight down. Once you got below the thermoclyne it was incredible.

The pair also learned about standard ‘J’ shaped snorkels from their new Mexican and American friends, and Croy remembers being given one. He was also bitten by scorpions -- twice. Croy and Francks lived in a tent half a mile from town. They dove daily while in Mexico, and normally ate at least one meal a day they’d caught themselves and had prepared in the local hotel’s kitchen. Eventually the two adventurers began to run low on cash and decided to return home. A slow trip with several long stops finally brought them back to Vancouver at about November 15, 1952, where tales and photographs of their exploits ended up in the newspaper shortly thereafter. Fred Rogers mentions this article as being the one that originally brought the existence of these divers to his attention.
Although, it is unclear precisely when Gordi Moore began to dive, both he and the researcher place the time as in the summer of 1952, at Sandy Cove. The lack of absolute certainly stems from imperfect memories after forty plus years and the combination of the following quotes. Moore said: “So it would be 1952 when I began. In the summer of 1952. After they’d been away and came back again I started with them.” And Croy stated: “In winter of 1952-1953 Croy, Francks are joined by Moore, ... as they practice skills and breath holding in the [indoor] Burrard YMCA Pool.” Initially, both narrators had Moore beginning his diving after Croy and Francks ‘come back’ but Moore was fairly certain that his very first experience was with a mask at Sandy Cove, in the summer. This could only have taken place in the summer of 1952. By the summer of 1953 there is ample evidence that Moore was a seasoned skin-diver.

During this 1952/53 winter pool session, the trio were also often now joined by Jim Willis and Terry Swean during their practice sessions and for ‘meetings’ in Croy’s basement. Willis came from a poor family, and usually had two to three jobs going to help his mother pay the bills. One such job was at the Palimar Club as a lighting man, where Willis first met Don Francks and Gordi Moore and thus were introduced to diving. Another was in a photography company, through which the avid photographer Willis managed to produce a quantity of pictures the topics of which were diving and divers. Swean grew up on the east side as well. As a youth and into his manhood Swean suffered from a deviated septum, causing him to get colds easily. He didn’t do well in school, but had previously enjoyed swimming with swim fins and a cheap plastic mask.
As an example of activity in the pool practice sessions in which Willis and Swean participated, Croy said, “the idea was to see if you could swim two lengths of that pool, diving off the wall, swim two lengths and touch it without taking a breath”\(^{40}\). Meetings were informal get-togethers during which they discussed with each other what they’d learned in the water, or by other means, such as magazine articles. Swean lived only a few short blocks from Croy’s home on Victoria Drive, and became aware of the divers through the *Vancouver Sun* news article run in November 1952, just after Croy and Francks returned from Mexico.\(^{41}\) Swean walked over to the Croy residence and “Sorta mentioned I’d been reading about it and I thought it was pretty interesting.”\(^{42}\) Jimmy Willis, Moore says: “was a uh - the lighting and sound man at the Palimar Supper Club. And uh, he joined the Vancouver Skin Divers Club. ... he joined, learned with us, and then came [and] dove with us.”\(^{43}\) He continues: “Because I was entertaining and he was a light man at the Palimar Supper Club... Light and Sound. So, I met him there and Don was there and so we probably all just got together and went diving at the ‘Y.’ And then he went diving with us later.”\(^{44}\)

In late Spring of 1953, Cam Porteous joined the group. When he was quite young Cam’s parents had moved from Saskatchewan to Vancouver so as to ensure that their child would receive a good education. His dad worked in the Woodward’s department store. In Cam’s words:

> How I got involved with them, was uh, was that I was doing it all myself. I had a homemade mask. I was trying to make - uhm, which was NEVER successful, obviously. But I had a box with a glass plate in it. Y’know? I had a pair of fins, and I had goggles. And I was bumming around in Horseshoe Bay one day with this uh, box, uh viewbox - off the top of a pier - so I could photograph the little perch and bass. And uhm, I ran into the attention of uhm, George Croy and uhm, Don Francks, who were uh, swimming and diving that day. And they had drawn to their attention some other people. Which one was Jimmy Willis. And they said, “Well why don’t we - we’ll start out and we’ll have a club meeting?” And that’s how we started. Yeah! It was as off the wall as that.\(^{45}/^{46}\)
Thus began the Vancouver Skin Divers Club. Croy designed a club crest and was elected club President. Croy says: “See here we are in August of ‘53 and already we have a club formed, the Vancouver Skin Divers Club. And we’ve got crests and everything.”

The divers learned, practiced and honed their diving skills in the pool, and their spear hunting at places like Horseshoe Bay, Cultus Lake, and Whytecliff. They continued to hold meetings in George Croy’s basement, where they discussed Hans Haas’s movie and book by the same name, Under the Red Sea, Jacques Cousteau’s recent The Silent World and various other available books and magazines, as well as the things they’d learned in and about their new water environment itself. By mid-summer the club was becoming quite newsworthy, attracting further interested parties.

By late August 1953 there were more new faces in the water at Horsehoe Bay. Bert Mona and Bill Thomson were to be found among the snorkelors. Their friend Al Morrow was there briefly as well. Mona had been raised in the Interior of BC during the Depression by his Norwegian parents. His father was carpenter by trade, but never could find enough joinery work and so took to mining. Life was tough. The family eventually moved to the eastside of Vancouver, and upon finishing high school Bert became a salesman in the clothing industry. His buddy Bill Thomson and he met through work. Thomson grew up in the same hard times and never finished high school. He came to work with Bert in a men’s clothing store which Bert was managing. Al Morrow was Bill Thomson’s school chum. These three didn’t seem quite as much a part of the group and while continuing to dive in the same general locations they tended to keep more to themselves. Cam Porteous’ friend George Gordon also participated, but Cam says, “never gave it his all.”
Spear-fishing was a favorite activity of the breath-holders. Croy looked at it as an extension of fishing, a sporting activity he had done for some time. He and Francks had spear-fished prior to their trip to Mexico, using several versions of trident spears and a homemade Hawaiian sling. Croy later hand-made two wooden spear-guns with hollow metal spear shafts, propelled by rubber bands. Cam Porteous also mentions having made the effort to learn spear-hunting even prior to having joined the group. "I was given a pair of swim fins and goggles and for the first time I saw underwater. ... I would motor about on the beaches picking up sea shells and always looking for the gold ring and watch. No luck. I even tied a jack knife to a broom handle and tried to spear small fish under the pier at English Bay." Effectiveness as underwater hunters improved with time and experience. And there were 'special' occurrences that are hard to forget. Gordi Moore:

We did have uh, annual skin diving competitions. Most of it was done around October. For what reason I can't remember. It was the end of the year --- we 'd have a skin diving/fishing competition. And uh, I can remember one incident under water, when I
was trying to spear a lingcod. And I have no idea how big it was. All I could see was its head in a crevasse of some rocks. And I shot at it with my Arbalete and the thing was so --- had such a heavy bone structure that my Arbalete actually bounced off it --- I must have been distant from it. And the Arbalete bounced off its skull and it swam right out after it sorta sat there --- for a bit --- it swam right back at me, and it must have weighed fifty pounds. It was a big one and it bowled me over as it came through. That I remember quite clearly.\textsuperscript{52}

Bert Mona remembered spearing an octopus:

... once when I was recovering a motor, one came at me or, guess it was curious to see what I was doing. ... he was coming from the top! ... He was fanned right out! He looked pretty big when I was down there tying a rope, and for some reason I looked up, and this big thing was settling down on me, and I thought "Get away!" ... So uh, I had my spear-gun with me. Like I never went anywhere without it, so I poked him, and he wouldn't go away, so I - shot him --- through a tentacle and I hauled him up to the surface. And we put him in a pail and took him to the Vancouver Aquarium. And he lived for about a week or so, I think it was. I'm not sure ... \textsuperscript{53}

Figure 4: Basil "Pat" Molony and His 'Gear' with Gordi Moore - August 1953. Photo provided by G. Moore
Another diver remembered: "An' they had, those days you used to make your own, spears, you know trident spears with like a Hawaiian sling with an elastic on the end of it, and the barb or something that we could make up ... and they were spearing lingcod and rock cod and everything, like this. And uh, so ah, that's what we did at first".  

"All I know is that we had a great time spearing cod up there and uh we got quite a few of them. That's some nice big twenty, twenty-five pounders, something like that". A still later diver, Cliff Donovan, clearly remembers a near spear-fishing tragedy when he and his buddy, Bill Hitchcock, were diving one day.

Another time.... it scares me to this day, that I almost killed Bill Hitchcock with a spear-gun. I ah, was diving. And I went down. It was quite deep. It was about forty feet. And here in this cloud of dust I saw this white patch - not white, it was greeny-gray. Quite - more green than gray. And in the center of the patch of dust. And it looked and appeared like a massive sting ray or a flounder. And I remember taking my loaded spear-gun and pointing it right dead center of it. And I just hesitated, and I don't know why. And out of this cloud of dust came Bill Hitchcock. He was mucking around on the bottom, creating a terrific disturbance of sand and dirt and dust. Here I thought it was a big flounder and I had my spear gun, dead center of his back, ready to pull the trigger.

Generally though, spear-fishing was good exercise, fun, entertaining, and an activity around which the early divers developed skills and friendships.

**Act Four: The Second Age:**

In the early fall of 1953, at about the time that Basil 'Pat' Molony joined the Vancouver Skin Divers Club, sport diving began to get more complex. Molony was a City of Vancouver policeman and considered among both his diving and police peers to be quite bright and inventive. He'd been diving for a season prior to joining the Vancouver Skin Divers Club. With him into the local diving environment came his homemade oxygen re-breathing system. This,
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Molony’s first re-breather effort, was made with a hot water bottle and a hand opened and closed valve on the oxygen bottle.

Figure 5: Bert Mona and Bill Thomson - 1953. Photo provided by Bert Mona

Although new, re-breathers weren’t unheard of in the Lower Mainland diving community. There were advertisements for them in the Popular Mechanics Magazine. One ‘ad’ offered a “Re-Breather Type-Mark II for Shallow Diving” for a mere $69.50. ‘The finest Oxygen Re-Breathing Set ever offered for shallow water diving (to 35 feet). Completely rustproof. Brand new U.S. Navy Surplus. Complete with all accessories and instructions...” At about this time Cam Porteous acquired a United States Navy surplus submarine re-breather, along with his rubber diving suit. Jimmy Willis purchased a re-breather unit from Bill Thomson, who’d in his turn originally purchased the unit from Woodward’s. In Thomson’s words:

... at that time they were using self contained breathing apparatus which had been developed in the war. It was the same type the frogmen used during the war to avoid detection. And uh, anyways we thought that was great. Actually we ended up - I actually bought one, and then I sold it to this Jim Willis ... It was one of those types that had, it seems to me that it had a canister on the front, and then a small little oxygen
bottle. And every minute or so you had to push this uh button on the oxygen bottle to release the oxygen into the canister to purify it or something like that.\textsuperscript{60}

Thomson gave up his re-breather very nearly immediately after having purchased it. In August 1953, he and Bert Mona took the unit down to commercial diver Keith Carter’s place in Coal Harbor and he showed them how to use it. During WWII, Carter had served in the British Royal Marines as a sabotage diver using re-breather rigs and was quite familiar with them. He’d brought one with him to Vancouver, taught his new diving partner Al Trice to use it, and they’d both been working underwater with the rigs since May 1953.\textsuperscript{61} But Carter cautioned Mona and Thomson saying “You have to be extremely careful ‘cause they’re very very dangerous.”\textsuperscript{62}

Mona recalled:

I tried a re-breather and uh, \textit{since I’d never swam before} -- uh, Bill tried it first and went down to the bottom I guess, and I tried it but I froze on the ladder going into the water. I could not let go. ‘Cause I didn’t have, uh, flippers on for one thing. And it was the first time under water for me. ... And I put on his re-breather and I BREATHE underwater on the ladder - there’s a ladder off the dock, but I could not let go. I froze. It was weird.\textsuperscript{63}

Thomson continued: “Well we tried that thing out and then we were kind of wary of it. Nobody seemed to know hardly anything about them. Then, after listening to uh this guy telling us - you’d better be real careful, well [we decided] we’d better not bother with it.”\textsuperscript{64}

Thus, while impressed with the re-breather, Mona and Thomson set their minds on obtaining the Aqualung-type of equipment they’d read about in Jacques Cousteau’s 1953 publication of \textit{The Silent World}. They’d also seen that type of gear at Carter’s place in Coal Harbor. Carter and Trice had been diving with Aqualungs since the first part of August themselves, and Carter recommended this method. Accordingly, the duo ordered their two sets of equipment from US Divers in Los Angeles, through the ever helpful Woodward’s sports
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department, including tanks, double hose regulators, drysuits and weight belts. These were subsequently shipped up to them from the California.

The scuba gear and other equipment such as dry-suits and weight-belts arrived in October 1953 and the fellows immediately traveled out to Horseshoe Bay to try them out. Gordi Moore recalled Bill Thomson showing up one day with his scuba equipment, and he, Moore, helping Thomson into the gear for what Moore believed and Thomson confirmed to the researcher was his first time. Thomson then proceeded into the water. Moore recalled:

But I guess the scariest thing that I can remember was when Bill Thomson, who was a Blue Shark - got his scuba gear - for the first time. He had brought it up from the United States. And he went out Horseshoe Bay ... And uh he put the gear on and I guess Bert Mona was there at the time, because they dove together a lot. But Bill was the only one with scuba gear. And we were all really taken by it. But he put it on, walked in the water and we didn’t see him for half to three quarters of an hour. We were all scared. We were all worried that he wasn’t coming back. ... We couldn’t - well we knew about bubbles, we couldn’t see them!! He’d - what he’d done is he’d swum a half mile out into the bay. ... We didn’t have the faintest idea which way or where he had gone and of course, the harbor, at least Horseshoe Bay at that time, was nothing like it is today. It was just a quiet little fishing village. And pleasure craft. And so he just disappeared. And that was scary. I’ll never forget that.

While Moore and the others may have found the experience scary, Mona and Thomson were sold on the benefits of the Aqualung. Bill returned from his first foray without harm and excited with the possibilities. However the comparative affluence of these two young salesmen, which allowed them to purchase Aqualungs and complete diving kits at this point, also placed them in a group further apart than previously they had held themselves from the majority of divers making up the Vancouver Skin Divers Club. Subsequently, in 1954 Mona and Thomson formed the Vancouver Blue Sharks, a short lived and strictly Aqualung related dive club with an
approximate membership of six Aqualung-type equipped divers, including Jack Robertson and Al Lotsczar, over its approximately two year life-span.\(^{68}\)

Late summer 1954 brought new faces, equipment, and activities to the Vancouver Skin Divers Club (VSDC). Thirteen year old Phil Nuytten was noticed in the water one day by a club member and subsequently became the youngest member of the Vancouver Skin Divers Club.

Cam Porteous recalled the sensitivity surrounding the admission of young Nuytten to the club:

Phil Nuytten, as I remember was introduced to me by Jim. This extraordinary young man with a passion for diving that was unreal. He wanted to join the club but as Jim advised us he was far too young, for we had a (I think a 17-18 years) min. age for joining and Phil was 14 [actually he was thirteen, JBC]. I remember going to the Chilco Grill [for Dinner and sitting and having coffee with Phil’s mother and sister while Jim conducted the interview and explained the age minimum. “He either joins your club or he will end up in jail” was the answer. An emergency meeting was held with Pat and being a Cop he understood the true meaning of what was being asked of us. Phil joined the club and his story is very well documented.\(^{69}\)

In September 1954, Fred Rogers and Graydon Baker and others joined the club. Due to the Depression Rogers had left high school at fourteen to work with his Dad in their coal and sawdust fuel delivery company. He’d served in the Navy, and was working as a pipefitter and welder. Baker had grown up the son of a minister. His family was poor, and after the death of his father, Graydon worked in a number of fabrication shops. He met Fred Rogers at one of them, and finding a mutual interest in diving, the two sought out others with their bent.

On the advice of their new found friends, Rogers and Baker purchased their diving equipment at a new dive shop opened by Sheila and Dave LaClerk in Seattle, including dry-suits, weight-belts, fins, mask and snorkel. George Croy already had his ‘shorty,’ a green short armed and legged dry-suit by the Italian manufacturer, Perrelli. Throughout the late fall of 1953 and into the winter of 1953-54 the majority of VSDC members had also purchased ‘drysuits.’
These were thin rubber full-body suits, with built in 'feet' and 'sealed' tightly around the wrists and faces of the wearer. They had little insulating effect and the wearer usually wore several sets of long underwear underneath. They were quite fragile and subject to pinhole and tear sized leaks, whether one stepped on a tiny barnacle or accidentally tore the material getting into or out of it. Gordi Moore recalled: "... as the pressure of the suit, forming around your body - while the suits weren't tight like wet-suits are today. They were loose fitting. And they would collect around your body in folds. And they would trap your skin and pinch - when the pressure..... you'd end up with it hurting - generally around the crotch area."\(^{70}\)

Graydon Baker's ongoing dry-suit experience was potentially crippling or fatal, although he didn't realize this until years later.

Twenty feet was easy. Fifteen feet was never getting concerned. OK? At sixty feet in water over my head, that was a concern to me - I was VERY respectful. Two reasons. One: I could not - I could hardly kick. I could only pull with my hands. Even at forty five feet I had this problem. I pulled myself along the bottom - I wanted to be on the rocks or something. Because if I tried to kick at sixty feet, in a dry suit, the compression on my body - by squeezing the air out of the underwear - the amount of clothing we had on - was all squished together and you just - the joints just [makes a grinding sound and his hands demonstrate a joint not moving properly.] and everything. You could really scratch or bruise yourself or tear yourself. Your clothing is compressed right on your body eh? You can see the compression when you take the suit off. You could always see the compression marks on the body. And at sixty feet I found it VERY tough in a dry suit. So at sixty feet I wanted to be touching rocks, or something, you know? It's this, [makes a hand motion describing jack-knife dive straight down to the bottom] and then I was heading in.\(^{71}\)

Loosing control of your limbs when you're sixty feet below the surface of the water with no air to breathe other than that in your lungs might be a bit uncomfortable. Based on the description one would hazard to guess that Graydon's suit was far too loose on him, and the amount of folding and pinching it must have done at sixty feet would have been quite painful. During the interview Graydon did not seem to realize that his personal experience of joints not moving
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properly at sixty feet due to suit compression was abnormal. On the other hand, the suits combined with two or three sets of ‘longjohns’ underwear provided much needed insulation, thus extending both the length of time individuals could stay in the water on a particular day. This also increased the length of the diving season dramatically, from only the summer and first half of autumn for the hardy to being year around.

Through 1954 - 1955 snorkeling and breath-hold or free-diving, combined with spear-hunting, remained the strongest interest of the growing club; however, re-breathers became readily available through several sources and were very intriguing. One important factor was the cost. Oxygen re-breathers were readily available to purchase for between $60.00 to $70.00. Comparatively, Aqualungs or their competitive equivalents were available immediately only by mail order and could cost between $160.00 to $200.00. Alternatively divers could make their own systems based on descriptions in available books and magazines. Pat Molony built his several evolving versions of homemade re-breathers, one of which he later sold to Phil Nuytten. Phil Nuytten modified his own re-breather several times. As noted previously, Cam Porteous purchased and used a “US Navy re-breather for submarine escape.” Jim Willis bought Bill Thomson’s re-breather, originally ordered through Woodward’s. Several divers purchased re-breather units on sale at the “Three Vets-type store,” on Main Street. Gino Gemma indicated that he obtained the use of a re-breather through his work:

Strange enough, I’d heard that Jim Willis and Cam Porteous and these other guys were using re-breathers -- and Phil. And we all got kind of envious, because here they were using -- breathing apparatus. OK? So, just by coincidence I went to work for Vancouver Tug Boat at that time. [I was] Just nineteen I think, at the time. ... I had to go to the shipping office for Vancouver Tug one day, and I walked in to the uh, the dock office and I saw this beautiful oak chest, on the floor. And uh, it was a gorgeous thing. Just the chest alone. Just gorgeous. and you could tell it was military. And I said to the foreman there, I said uh, ‘What - what’s that?’ And he says ‘Oh, that’s a diving lung.’ I said ‘No kidding!!’ I said ‘Wow! Can I see?’ And he says ‘Why are you interested.’
And I says ‘Yeah I’m a diver.’ ----- I didn’t tell him what kind of diver, but I says ‘I am’ -- he say ‘ARE YA!!?’ He says ‘Well you just became the official diver for Vancouver Tug!! It’s yours!!’

Gino grew up an only child in a loving but far from affluent family. His immigrant father had little command of the English language but nevertheless usually held down two or three jobs to provide for his family. Gino’s first job was as a shoeshine boy, so as to help out his parents. He remembered doing some fin and mask swimming with two school chums before meeting up with the Vancouver Skin Divers Club.

By late 1954 - early 1955 some members of the Vancouver Skin Divers were also beginning to investigate Aqualung-type diving units. There were now several cheaper equipment sources. In August 1954, Palley Supply Co. advertised “build-it yourself” diving equipment kits in Popular Mechanics, complete with a “free folder - contains complete details and illustrations on how to build your own diving lung.” In April 1955, C. and H. Sales Company made a similar offer. Dive-Craft Industries of Pittsburgh offered a double tanked self contained breathing apparatus including double hose regulator for $99.50, or a single hose tank plus regulator for $75.00, by mail order. Fred Rogers, a welder and pipe fitter by profession, was starting to make up his own sets of single and double tanks from war surplus air-force fire extinguishers obtained in junk yards and high pressure pipe fitting. One of his more amusing stories follows:

That’s right. I was takin’ carbon dioxide out of these war surplus tanks, an’ using them to make aqua lungs. And this one day I had this thing in the vice there, and I punched a hole in the seal - a little bit too hard - and it blew a bigger hole than I wanted. And the jet force was so strong, that the tank slipped out of the vise, and went shooting out of my yard there (chuckles in the background) in Burnaby, and it got went across the road, and hit a neighbor’s fence, an’ there was a great long plume shootin’ out the back of it like a rocket you know? And this tank was zoomin’ around all over an’ makin’ terrific noise - busted some pickets on the fence an’ my neighbor over there, and then went back across the road again. Well I was afraid it was gonna hit something and glance up, and get
airborne, and really take off! But it was just sliding around, slithering all over the road, an' last it got up into a culvert, and it got stuck up there, and it blew itself out, and by now, all the neighbors 'er out on the street, wondering what in the hell was going on! You know? An' I went back in the garage an' didn't say nothin' (snickering). An' then later on I went back out and I got a long, long pole an' I rammed it down the culvert, and I got this tank out, but I uh, I made up quite a few of those little units. Yeah, they were. it held about oh around about 55 or 60 cubic feet of gas you know? It weren't much as a standard seventy, but it was uh, the price you know, the difference between buying a seventy then, and one of these little units I'd make up - I used to get these tanks, I'd pick then up for about 4 or 5 bucks a piece you see? Yeah. And then I'd get some high pressure hydraulic fittings and make them up, and they worked out great. Yeah. They were very popular. There were quite a few of them I made.  

Cam Porteous was one of those to benefit from Rogers' handiness. "Diving became serious now. I felt the effects of Oxygen Poisoning and realized my equipment was dangerous. I asked Fred to make me a 2 tank Aqua-Lung and I purchased my first regulator." Dennis Thulin made a set for his wife Edith and later others for a few friends. Dennis and Edith had first tried diving in while on vacation in Mexico, and although Edith never became too involved, Dennis turned his diving into part of a career. Then-apprentice plumber Cliff Donovan remembers:

We made our own. we used to buy what they called the 'bridge.' That was the part that took the regulator. We could get that. We had access to that from down in the States. And um, we'd get two Oxygen tanks - they were from Three Vets. They were second world war surplus store, and they were oxygen tanks out of airplanes, fighter planes and we used to join them together with this bridge we'd buy and uh order our regulators in from California, and uh, they had no reserve on them. They were just --- we used to get them tested up to 2000, or 3000 psi., I remember that. Get them cleaned yes and checked out, and then it was safe to use them. ... in fact I think I've got a set kicking around somewhere still.

Cliff was one of two sons of his father, who was employed as a plumber. Cliff was a 'mixer' who didn't do well in school and left early to become an apprentice plumber.

Snorkel and breath-hold diving, though still considered the 'purest' form of diving, were losing popularity as the sole everyday activity. George Croy, Don Francks and Gordi Moore
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resisted the use of artificial lungs, remaining breath-hold divers and hunters, in effect slowly removing themselves from the mainstream of diving while remaining 'revered.' Spear-fishing and breath-hold diving contests became popular as a means of showing one's diving skills off, such as breath-holding, with teams from various locales hosting visitors. These contests in turn encouraged the exchange of information about diving in general, as well as spear-hunting underwater and related equipment.

By the beginning of 1956, in the Lower Mainland, the sport called diving now revolved around the twin scuba poles of the oxygen re-breather and Aqualung-type breathing systems. There were about 35 'experienced' recreational divers. Many new divers were diving to learn with the 'experts.' First, a few 'lessons' with a snorkel, fins and mask. Next a ten foot shallow dive. Then the Aqualung. There were a few women divers - usually spouses of men determined not to become 'scuba-widows.' People dove for pleasure and to hunt. Photography was beginning to make its way underwater here. Jim Willis had been photographing above-the-surface diving related activities since the early days and Cam Porteous says: "I also created a small viewing box, of which Jim created a larger one a year latter [sic] so he could take photographs under water. Somewhere, there are the first underwater photos in BC taken by Jim looking down from the surface." Fred Rogers and Pat Molony had begun to search for shipwrecks a year earlier.

...One of my diving buddies, that's uh, Pat Molony, he was, well, a Vancouver policeman. And uh, he had a friend who had a commercial fishing boat and he took us over to Portlier Pass over there to dive on this old wreck of the steam tug, the Point Grey. .... So we had a three day Easter weekend over there. And we had a, quite and adventure. Its the first wreck I'd ever seen. And it was quite a, quite a daring event for us, because Porlier Pass is a kind of a -- wild spot anyway. Y'know what I mean? It looked terribly treacherous to us guys 'cause we'd just been diving in a nice quiet bay. But here this vicious tide was boiling around the wreck, y'know what I mean? Great big
whirlpools and eddies and things ‘n I thought sure in hell this is a, ha! this is a death program, y’know. But once we’d gotten inside the wreck, where we were out of that wild current, why it was OK, and we went all through the end, looking at the great big boiler there and all the engines and everything else, y’know what I mean .... And then I begin to wonder: well, how many other wrecks is on the coast. If there’s one, there must be more of them....

In short, there were numerous diving activities taking place and a relative explosion in the diving community population when tragedy struck. Maurice Goodmans, a young man diving in Propect Lake, was drowned on June 25. Only six days later, on July 1, 1956, Jimmy Willis was killed while diving at Cultus Lake with his best friend Cam Porteous.

My father had taken Jim, George Gordon and I to Cultus Lake for a lake dive. We both had never dove the lake and we wanted the experience. It was a glorious day. Sun in full shine on a late summer day. Jim was using his Haas and I was on 1/2 tank of air. Our idea was to dive and look. The “buddy system” was in full usage for years so no one dove alone. The water was disappointing. Dirty and murky. We set out from the float. Jim at my side. [We were]about 12-15 feet deep when Jim touched me and pointed to the surface. He looked like he had water in his mouth piece and the Haas unit had no mouth piece vent. He turned and surfaced. I watched and foolishly stayed down thinking that as soon as he cleared he would be down. I lost sight of him and then after a few minutes (seems like hours) I surfaced to see my father yelling and pointing to a spot that Jim was in trouble. I dove down almost upon him. The lifeless body weighed a ton. I managed to get him to the surface where a life boat was waiting: and they took over. Jim had drowned, as I was told from ruptured lungs. From a great force the doctor said. Jim had broken the first rule: never surface holding your breath. Water in his re-breather, not being able to get a breath, or being afraid to exhale. No one will ever know. We were not deep enough for ‘Rapture.’ It could have been oxygen poisoning. I know what that was like. Jim was gone and so was my love of diving. The club tried to help the police. We gave them all the manuals and information we could for this was the first death that we knew of, from diving. The only decompression chamber in our area was at Burrard dry dock and Esquimalt Navel Base. We were truly alone.

It was this aloneness, this state of learning without any ‘formal’ assistance that exemplifies the manner in which the majority of the early Lower Mainland divers learned their diving skills. Not literally solitary, the members of the Vancouver Skin Divers Club learned with each other, but at the same time were largely isolated from their diving peers in other parts
of the world, partly by distance, to some degree by ignorance, and perhaps by bravado. They were also isolated by income and the fact that their activity at the time was quite alien to the general population. They were not isolated from each other, however. Information did find its way from one part of the diving community to another by word of mouth, by mutual activity and through the media.

**Act Five: The Third Age**

The death of Jimmy Willis in 1956 was the catalyst that brought about great change to diving in BC. Cam Porteous never dove again in BC. George Croy and Don Francks lost interest. Terry Swean and others stopped as well. It was as if the death of this one young man had awakened the rest to the fact of their own mortality. In the larger world, politicians roared about regulating the sport. The BC Safety Council was asked by the Attorney General to look into the matter of diver and diving safety. The sale of Oxygen Re-breathers was banned, and many re-breather users threw away or destroyed their equipment. Gino Gemma’s memories of that time were particularly vivid.

The Attorney General at that time was Robert Bonner. And HE got angry, wanting to know what was going ON here! How come we killed four divers in one month! WHOA! Let’s put a stop to this and find out where this thing is going .... And at that time they actually closed down Three Vets.

He got really upset, and Three Vets had a closure - a very short one mind you. Because they were selling the re-breathers as war-surplus equipment. Whether or not what they sold were worn by those that died, that never did get proved. But the fact was that the four who did die were all were wearing re-breathers, so the commonality was there. As to the type of equipment. So of course at that time, that’s when Pat Molony -- made a decision to step out, of his um, unanimity, and say “Hey! I, I’m an ex-Navy British frogman. I dealt with, you know I dived with these things in World War Two. I know the dangers. These kids can’t do what they’re doing.” ... And of course we didn’t know.
“No this was general - I mean speaking - a public thing you know? Hue and cry! And uh, we decided at that point - ‘Whoa!’ It didn’t SAY, ‘don’t dive over thirty feet,’ or we didn’t see it. And it didn’t say ‘Don’t stay in any longer than forty-five minutes at thirty-three feet or over.’ And if you did you were liable to become a victim of oxygen poisoning! So ‘Whoa!! We better stop using this stuff!’ And axe, axe, axe...”

On August 17 1956, just short of two months after the tragedy, the division between breath-hold and scuba became even more pronounced. The Vancouver Skin Divers Club, which had continued to grow, now split up into two groups. The smaller portion of the club retained the name Vancouver Skin Divers Club, and chose to retain breath-hold diving as the main focus of the club. These divers also promoted the ethic of spear hunting of fish to be only pursued by a diver who was breath-holding, not using scuba gear. The larger group of twenty-six divers split off to form the Vancouver Sub Aquatic Club.

In 1958, Gino Gemma, who had joined the Vancouver Skin Divers Club just months before it split in two, began teaching scuba diving at the YWCA, under the auspices of the YW. Additionally, the BC Safety Council continued to take an interest in diving, even as much as to be present at diving contests at Whytecliff and to be presenting trophies to divers. An umbrella diving council was formed.

...We decided that at time, with the help of the BC Safety Council, who was getting concerned, that we should form a Council. So back in uh, I don’t know if I mentioned that here (referring to notes) but back in the - the late fifties, we started what was called the BC Council of Diving Clubs. And that was an association with representation from each club, to a council. And the council was the governing body for all diving activities -- except for teaching,...

With the inception of the Council, the teaching of diving was sanctified as a commercial activity. Gino Gemma argued that: “Except for teaching commercially. Except it didn't have anything to do with stores or anything like that but because a lot of the people that were on the
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council were those instructors that were teaching for school board, UBC, Divers Examining Board and such. And the Council became very strong. Very strong.96 Others however disagreed with Gino. First, as was noted by Gordie Squarebriggs, Gino did in fact have a store, and his business did in fact profit from the teaching of diving. Fred Rogers noted on page eight of A Brief History "that a rift soon started. Some eager beavers broke away to start new clubs - mainly interested in making money."97 The objection by Rogers and others towards the notion of the teaching of diving taking on a 'for profit' status seems to stem from their own rich 'non-profit' learning experiences. However, it is only fair to note the following words from Gino Gemma. "And I probably y'know, can say quite proudly that I never ever uh, jeopardized the safety of a person when I felt they shouldn’t be there --- for the sake of the money, so to speak."98

22 Vancouver Sun, August 12, 1950, p.5
23 GC1/6/2 - 1996 Interview Series with George Croy
24 GM1/5/28 - 1996 Interview Series with Gordi Moore
25 GM1/5/29
26 GC1/30/24
27 A Brief History of Sport Diving around the British Columbia Coast (unpublished)...p.2
28 GC1/16/9
29 GC1/2/8
30 GC1/3/12
31 GC1/6/26
32 Croy, in telephone conversation 12/9/96 between Bryan Cuthill and George Croy, GC1/16/9
33 GC1/6/31
34 Don Francks' Log of Croy and Francks Trip to Mexico in 1952, p.1
35 GC1/2/32
36 Brief History, p.2
37 GM1/5/34
38 GC1/9/6
39 Note: Gordi has himself starting in summer 1952 - which is BEFORE DON and George go south. I tend to think this is so. George has Gordi practicing in the pool with them AFTER they return, but Gordi’s first memory of diving is Sandy Cove and coming up sputtering, which couldn’t occur in WINTER, and MUST have occurred before Spring 1953, as both George and Gordi recall doing pool time with Jim Willis before summer 1953, and that Gordi began BEFORE Jim Willis. In fact Jim Willis is INTRODUCED to diving through Gordi.
40 GC1/7/47
41 TSI/1/29 - 1997 Interview with Terry Swean
Gordi Moore’s memory differs: I think I met Cam ... I may be wrong in this, but I think his uh - I worked with his Father in the shoe department at Woodward’s. John Porteous. And whether Cam heard about our skin diving and - we got together some how. And so Cam came from that source. GM1/9/44

The picture in the Vancouver Sun with Croy, Swean, Gordon Moore, and Cameron Porteous is in July or August 1953. Caption reads ‘BC Frogmen Get Variety of Fish: And find underwater world off out coast inspiring and grand.’ Article written by Bernice McDonough. [note; in Rogers Brief History - article is listed as in 1952. Could not have been. Swean not diving ‘till 1953.]

This activity may have been in response to advertisements in such magazines as Popular Mechanics. An ad promoting ‘frogman suits’, ‘self-contained diving units,’ ‘arbalete spear guns,’ ‘swim goggles,’ ‘swim fins,’ and three sizes of ‘diving masks, appears, for instance, in the August 1953 Popular Mechanics, on page 259.

However the first record of the use of Aqualung type equipment is that used by Al Trice and Keith Carter. An article appears in the December 15, 1953 addition of the Vancouver Sun (p.16), describing the purchase and use of the equipment for commercial purposes from August, 1953 onwards in Vancouver.

Popular Mechanics - 1956, p. 301
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88 CP2/4/44
89 I have not verified that four divers died in one month. JBC
90 GG1/35/8
91 Gino appears to be confusing Pat Molony and Keith Carter. Carter was a Royal Navy diver. Molony was never a Royal Navy diver. In effect Gino seems to have combined Molony and Carter.
92 GG1/25/33
93 GG1/35/39
94 CD1/8/39
95 GG1/19/60
96 GG1/19/31
97 A Brief History...
98 GG1/29/54
CHAPTER 5

EQUIPMENT - ACQUISITION, MODIFICATION, FABRICATION AND INNOVATION

In British Columbia, equipment availability and usage in the early sport-diving community developed in three general stages, allowing for some overlap and a couple of false starts. The stages were the breath-hold or skin-diving stage, the oxygen re-breather stage, and finally the Aqualung or Scuba stage. These stages are depicted on the chart below. The breath-hold stage is symbolized by the medium-thick upper two arrows. The first arrow (a) shows the period of time during which the original two divers George Croy and Don Francks were the central actors in the activity. The second and immediately following arrow (b) represents the more lengthy breath-hold period which began with Jim Willis becoming President of the Vancouver Skin Divers Club and continued on into 1958. The very thin third arrow (c) from the top of the chart describes the O² re-breather period which began with the arrival of Pat Molony and ending tragically in July of 1956. The thick fourth arrow from the top (d) of the chart represents the advent of scuba diving within the Vancouver Skin Divers Club carrying onward towards today, while the fifth and final arrow (e) represents the earlier but short lived move into scuba by the members of the quickly defunct Blue Sharks.

![Figure 6: Early Stages of Sport-diving Development in BC](image)
The Breath-Hold Period

Equipment Scarcity

The breath-hold period was first, and in the sense that all else follows on it, the most important stage. The majority of the equipment used in diving was incorporated in to the activity in this period. It began in 1951. Breath-hold diving is the general term used in this text for swimming underwater, without the benefit of a mechanical device which allows the swimmer to breath while submerged. Generally, but not necessarily, the breath-hold diver wears fins and mask, and usually a snorkel. In 1950, the evidence of this type of activity in the Lower Mainland is that provided by George Croy's descriptions of his experiences, as accounted in the narrative chapter. There is no substantial evidence of skin-diving equipment being readily available in Vancouver or area. In 1951, however, things begin to change. Croy:

I don't think they [fins and masks] were readily available. It seemed to me that we had trouble finding stores that had any. And finally we found a shop on Granville Street downtown somewhere. Couldn't tell you the name of it. That had fins. I know that the first place we found fins we bought them. And that was it. There might of been other places that had it. But it seemed to me that I'd already been looking for quite a long time. Or not spending my full time looking for it but watching out for it and inquiring about it.99

He continued:

In fact, we couldn't even find uh, fins and masks in Vancouver when we started. We went to all the sporting goods shops and one sporting goods shop on Granville Street, which name I can't remember, brought some in from California, both mask and fins by Voit.100

'Ordering in' was one way to deal with the problem of equipment scarcity. Fabrication or modification were two other approaches. A number of divers recall seeing pictures of Pat Molony's home-made fins, each fin made of a running shoe and a piece of plywood, nailed
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together through the bottom of the shoe. Molony apparently used these fins prior to joining the Vancouver Skin Divers Club. Terry Swean recalled going to a glass store “down on Hamilton or Homer - one of those places there” having the plastic lens removed from his mask, and replaced with a safety glass substitute. “It cost you extra but it was worth it because you saw with a lot more clarity.”

Spear-hunting

A major diving activity was hunting fish. The divers assembled several versions and types of spears. The initial spears were fairly primitive and ineffective long thrusting poles with barbless trident-like tips. Following came ‘Hawaiian Sling’ type spears. Fred Rogers described these:

Well it is - you have a long shaft, about eight feet long ... with maybe a single spear or a trident on the end of it. ... And you’d have a surgical rubber. Good strong surgical rubber, or some kind of powerful elastic. And it was tied around the butt end. Fastened around the butt end of your spear, you see. And you would take this, one hand here, and you’d slide --- get your hand around this rubber, and slide it [your hand] up the shaft, a considerable distance. Maybe three or four feet. And you’d be swimming around in the water anyways like this you see, looking for a cod....You’d have to reasonably close to it. And then you just suddenly release your hand and schooooooooww! Your spear would shoot out! Like that, you see. And hit it. And the elastic would still be around your hand. Otherwise you’d have to swim after it to grab your spear again. Because if you did spear a cod, the thing would swim away, if it was a big cod. ... And you’d lose the cod and you’d lose your spear both. So you’d always make sure that ‘lastic was still on your hand. ... It would go straight, because of what’s happening. You see the elastic is lying along side your shaft when you pull it up ‘cause you hand is still on it. ... It’s aligned up to the butt, like that. ... So its not going to flying off to one side. You just release it, like that. ... But you still have the elastic around your fingers. And it just goes... Oh it goes straight! Yeah. It goes straight.

Croy wasn’t satisfied with his initial levels of hunting success with his thrusting and Hawaiian spears. His solution:

[We] had spears almost immediately. I tried making a spear gun - sling-gun with a reel on it - which - I don’t even know what happened to that. But I made an all wooden one after that and that was quite effective. ... I’m surprised I don’t have a picture of the all
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wooden one that I made - other than the spear. But it was quite effective - just like a cross bow in that the bolt lay in a groove in the top of the wood? It was all carved out and looked like a big wooden pistol. An’ I manufactured an all stainless aluminum trigger mechanism, and uh built the housing over the top of it - all made of wood.

I: How did you do that?
N: Just - well I carved it! Heh - heh! Always been a wood carver and a modelor!

I: The all metal trigger that you manufactured?
N: I filed it out of sheet stock and riveted it together, and uh you know - sides and internal trigger mechanism - simple trigger mechanism - you just uh a little spring loaded device. The - the force of the rubber bands kept the pressure on the detente - with a little half-round groove in the bottom of the arrow which was - I forged it square on the end where it went into the - the trigger mechanism on the top of the gun.103

On his return from Mexico, Croy brought an Arbalete, a French made rubber band powered spear thrower or spear-gun, the first of this item in Canada to the researcher’s knowledge, but rapidly followed by many more once the local sporting goods stores agreed to order them in.

Gordi Moore bought his in BC:

But I bought an Arbalete. I had two rubbers on mine, and I modified to a certain extent because I didn’t find it powerful enough. And I had shorter elastics on it. They were round, I remember. And then ultimately they came out with two elastics. To increase the speed of the spear. But mine had only the one [originally].104

Snorkels and Knives

Next came snorkels and knives. The fact that George Croy and Don Francks dove for at least a season and a half, and Gordi Moore probably for half a season without snorkels, is worthy of note for two reasons. First, breath-hold diving without a snorkel is quite different from diving with one, both at the point of diving into the water, and sometimes at the point of emerging from the water. Snorkelors would have had their heads in the water and would be looking and seeing where they were about to go all the way up to the point where they ‘duck-dived.’ Breath-hold divers without snorkels could only see where they were about to go an instant before they dive. Emergence might have differed as well.

I: Oh, I’ll ask you about that..... What um, so again - the first snorkeling - the very first time you stuck a snorkel in your mouth was where?
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N: I think I must have practiced with it before we left Vancouver -- I definitely had it before we left Vancouver, going to Mexico. And I see a picture of it in one of these photographs here....
I: Then you were diving without a snorkel - previous to this?
N: Oh yeah, we didn't know about snorkels. Lift your head out of the water - pull your head up to breath or lay on your back ...
I: How long did you dive without a snorkel.
N: Maybe like two summers. Something like that.
I: Oh? OK. What was it like for you the first time you used the snorkel?
N: Oh, another piece of freedom-making equipment - absolutely. They uh, — without a snorkel you're constantly - you can’t be a spear fisherman without a snorkel.....

Secondly, when there was ambiguity in testimonies by divers as to when they began to dive, 'start-time' could be 'dated' before or after 1952 based on their snorkel use at the beginning of their diving activities. Croy said:

We didn't even know about snorkels until 1952. And then there was a red plastic creation with a flapper valve extension under your mouth and a recurve in behind you - [the] top of your head with a Ping-Pong ball in a cage? That was the first thing that we encountered. And when we went to Mexico in the fall of '52, people were using just simple - tubes - uh mouthpieces and flexible arm shoved underneath the band of your mask on right or left hand side, whatever suits you. The other one didn't permit air to come in - on the other hand if you’re in wavy action and breathing in and the wave lifted the ball up into the cage when you’re breathing in it gave you a heck of a jolt. It had quite a little snap as the ball - shut off your air supply while you’re sucking in air. It was better actually to have the straight snorkel - you could hear the water going in it, and stop your breathing in a more gradual manner. We encountered those first in Mexico.

Gordi Moore corroborated with regard to time and type:

I: When did you do your first snorkeling? Can you tell me what that was like?
N: It would have to be either ’51 or early 1952. And my first recollection was buying - I still have my first snorkel - and uh, still use it. At that time it had a curve on the top, and a basket with a little Ping-Pong ball in it. I had one of those. But I subsequently cut it off because it was a pain. [It was b]lue with a red mouthpiece.

An comparative example of this dating would be the following.

I: Do you remember using a face mask prior to snorkeling at all? Or did they start simultaneously?
N: Not using a face mask by itself. Not as such. Uhmm. [Unintelligible ] Face-mask with a 'C'-type snorkel, with a Ping-Pong ball. I remember starting that way. Uh, yeah. I remember starting that way.
Here it became clear that Gino Gemma’s ‘start-date’ was post 1952. Terry Swean, on the other hand, did not start out with a snorkel, which he remembered purchasing later at Sparlings on Granville. “Yeah I had the equipment, I just hadn’t uh, used it in the ocean. [I] had used it in pools and things like that - out in Trout Lake - you know? Fart’n around in places like that.”

Additionally, Swean didn’t like using a snorkel. He had difficulty adapting to it, he said. “When I thought I was pulling air on it, I was pulling water.”

Bert Mona, like Swean, breath-held for only the summer and early fall or 1953, and didn’t recall using a snorkel at all, even later as an Aqualung diver. Nor is there photographic evidence to the contrary.

Knives were considered fairly essential equipment for various reasons both romantic and practical. Knives cut one loose from fishing line, bull kelp and at least give one the comfort of feeling armed against the unknown underwater predator. For some, being able to ‘afford’ a ‘proper’ knife required some hard work.

Yeah we manufactured our own knives before we went to Mexico. Uh, I manufactured and hand filed them out of old saw blades, and uh, manufactured a sheath that was U-shaped to fit the blade - folded over and pinched tight - and the blade - it was galvanized uh metal, and the slots in it for a belt [ unintelligible ] and the - the knife didn’t slide out, it broke out the side of this - the clip? The spring clip. And the uh, steel never rusted because it was in the - in the galvanized metal holder. So the - we didn’t have them as sharp as they could have been but they were y’know, good enough for prizing shells off of rocks and uh pointed for - er - psychological [ reasons ] then anything I guess. To have it there. Yeah we did. We both carried matching knives. We used them around camp for other stuff too so far as that goes.

I: Where did you carry them? On your waist?
N: Yupe. On the waist at the back. And we didn’t have any suits to puncture or anything. Uh, the clips - the spring-clipped scabbards worked perfectly. Never lost one - they never fell out.

Gordi Moore’s solution was similar. “I made my first knife - to take underwater. I made it out of a piece of old steel, and sharpened it, uh wrapped rope around the handle of it. I don't know
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why. I guess I couldn’t afford one and then I sharpened it and then I made uh - something to strap around my leg and I had it - I carried it that way.” Then of course, there were the ‘store bought’ knives.

“Suiting up”

The next challenge divers began to deal with was the cold. Up to mid-autumn 1953, and excepting George Croy, the divers wore only swim trunks and the occasional T-shirt or sweatshirt for warmth or protection. They knew about rubber drysuits. There were advertisements about selling dry-suits in magazines such as Popular Mechanics. George Croy bought a ‘shorty’ Perrelli drysuit: green, with short legs and arms.

Heh! That’s why you see me with a suit! Heh - heh! Shortly after coming back - [I] bought the first suit that was available - that came my way. And it happened to be a short sleeved and short-legged Perrelli. ... Yeah, the people who make the tires. Black [green] rubber drysuit with a funny locking ring between the top and the bottom with a big rubber band around it. It was a real uh nuisance. It was pretty snug and it wasn’t all that effective as far as keeping warm, as far as I was concerned. ... I used it - but it was sucha pain in the neck to put it on and take it off - I got to the point where I’d just as soon abandon it and I think I did, and just jump in the water. And it seems to me that it didn’t last very long anyway. It started to tear pretty quick. It was such an awkward thing to get into - and stretching it and that - and very thin. And just the - the work on pulling and tugging on in - on gettin’ into it - I think it sorts self-destruct[ed] if I remember correctly. I got the price right here. On this picture. It seemed to me it was pretty expensive at the time - [Reading back of picture] ‘Sixty dollars - Perrelli suit, 1953.’

Cost was a real factor. The question to be answered was ‘how did you keep warm?’

Moore: “Temperature - hypothermia if it was cold. Umm, once you’re down ten feet it’s the same temperature all year around and uh, we found that to be the worst of our problems because you’d get really, really chilled - with no ...suits because we used to use just our longjohns or our pajamas to keep us - heh - heh! Some warmth around the body which we learned at later dates.” Historian Fred Rogers corroborated “But previous to that 1952, or whatever it was,
Long-johns diving was only a temporary solution. In the fall of 1953, several divers followed George Croy's earlier lead, and acquired first Bel Aqua, and later Voit and various other brand name dry-suits. Bert Mona and Bill Thomson were first. They were followed by Gordi Moore, Cam Porteous, Jim Willis, Pat Molony, and still others. Even George Croy switched from his 'shorty' to a full body dry-suit. Dry-suits introduced divers to the notion of comparatively 'dry' diving; diving with warmth. Bill Thomson:

Then we had uh, we experience a lot of problems trying to get a proper rubber suits. They didn't have the neoprene suits in those days. They just had the rubber ones, eh? And we had to wear all this underwear and sweatshirts and you know, they're so easy to tear and once you've got a little perforation in them well they just filled up with water and that was it pretty quickly. They were an awkward thing. You had to climb in from the front, and then you had to bundle it all up into a knot and then you had to tie it with surgical tubing. And then you had to slowly go into the water to kinda deflate it, to get the air out of the damn thing! What a monstrosity that thing! And everybody experienced the same thing. They were always, y'know, ripping an elbow or a knee or something. Especially in the winter. That was awful, once you got a little hole, that was it.118

Bill wasn't alone with regard to his concern over getting the 'right' suit. Gordi Moore:

I wanted a neck entry - I didn't want a waist entry suit. Don't ask me why. I can't tell you why. I don't know. But I made a conscious decision to get a neck entry suit where the others went for 'mid-entry' suits. And it seems to me, that George got his suit before I did. And it seems to me that the first suit he got was a short-legged and short-armed. Uh, vest-typed suit. And then he went to a longer suit at a later time. ... Yeah. Uh, some of the suits, I remember, didn't have a rubber O-ring type of a seal. They had a collection of rubber that they sort of put a rubber band around. It seems to me George had that. And they're a pain and didn't - weren't really the right answer. From my recollection. They had this big entry and then there's this big pile of rubber you have to collect up and put a rubber gasket around [it].119

Obtaining a suit wasn't the easiest of tasks. One could order it in and hope that the manufacturer's notion of 'medium' was similar to one's own. Or one could travel south to
California, and after summer of 1954, Seattle, and buy it there. Or one could get one’s buddy to do it. Graydon Baker:

Fred was going down to Seattle to buy - no I guess he was buying his drysuit. And I had a mask and I figured I am going to start this too, type of thing. I asked him approximately how much it would cost [the drysuit]. ‘Somewhere’s about fifty bucks,’ I remember. Well I had fifty bucks saved away in my ‘tire’ allowance - bike allowance for the ‘54 Games eh? Which I didn’t ride in and which I could [unintelligible] that eh? So it was just about the same gig so I had lost my friend and uh, so.... Fred went and bought me my rubber suit. In Seattle - when he bought his own. And uh, when he went across he said he bought it for his wife. Huh-huh-huh!! ‘One for me, and one for her!’ And uh, it was just about Marge’s size you know? Marge is about my build so it was not that much of a little white lie.

Next came putting on the suit:

Yeah, it was quite an experience, just getting into the suit. It was an experience!! Just the complexity of it. Putting on Longjohns and then the suit and sealing it, and - it was exciting all around. Neck entrance. With a rubber seal. We sat down on a log, as I recollect, and pulled it on. Just pulled it on and put the hood on. Y’know? And sealed it at the neck. It took a few minutes because we were novices at it, but uh, then after that it went easy.

Different styles called for different approaches:

Well you’d put on your longjohns and your woolly socks and uh, and then you’d get in through the front entry and you’d put your feet on, just like putting on a pair of pants. And then you would reach one arm in - just like putting on a jacket and get one arm in this way, and then the other arm on that other way and then you’d pull the head over the top with way, and then you’d have this big pile of rubber out in the front and you’d start twisting it around. And you had the surgical tubing and you’d wrap it around and around and around and it would make the seal. And you’d tie it off. So you had this big thing sticking out the front of you here. Heh!

N: The Bel Aqua’s were very loose and sloppy. They were -- the Voits were more streamlined, and uh, they fitted your body much better and yet the rubber was stronger. Much stronger. Almost twice as strong. The first rubber was terrible. It was so thin, Like one barnacle just - just trying to get down on the rocks. The first barnacle you hit you had a hole through it. Then later on we got uh, boots like a - they came out with some boots that you could put on like they were umm almost like a high-topped boot. You could slip it over and it was like a sole on them. It helped alot once we got those. But once the wet-suits come out that solved that problem.
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It wasn’t simply having a suit. It wasn’t just being able to get into it. It was being able to actually get down into the water and enjoy the dive, without popping a little hole, without getting squeezed, without getting really wet! Fred Rogers:

Dave and Sheila LaClerk opened up a little diving shop in Union Bay in Seattle. So in 1954 I went down there with a chum of mine and we bought our first Bel-aqua diving suit down. And that’s very, very thin rubber eh? Very - extremely thin rubber. Waist seal. With a band ring. And uh some of them are front entry. Some of them are back entry, where you role it all up in a big knot, and tie it with-a rubber elastic. Things like this. But these, those suits were a damn nuisance, you know. They’re prone to snagging on everything you touched. If you popped a little hole in it, why of course it just sucked in the whole ocean. And that was all your underwear was wet, and that was the end of your diving! Because you can’t go diving with a bunch of wet underwear. And the another thing they were bad for too was pinching. Because these wrinkles you see, as you get down deeper, the air in it gets compressed down and the seat is starting to wrinkle up, gathering your skin, in these folds, and pinching to beat hell! And this is painful. And after you’d had a day diving like that, when you diving down to any depth, say fifty feet or more, you come up and you have all these here marks all over you, know what I mean?

Gordi Moore:

When we had our drysuits - that the -- in the air getting out of the drysuit, you had a flutter valve on top of your head to allow the air to come out through - escape from inside the suit so that you could reduce the buoyancy IF he was on the top. Because after all that’s where - some of them were around the back and some of them were on the top. And you could hear them Thbbbb-b-b-b as the air’d go out as you’re going under. Um; but I recall that as the pressure of the suit, forming around your body - while the suits weren’t tight like wet-suits are today. They were loose fitting. And they would collect around your body in folds. And they would trap your skin and pinch - when the pressure..... you’d end up with it hurting - generally around the crotch area. And uh, trying to figure out how to make that less of a problem when we were going. I [unintelligible] how we solved it but I remember it being one of the problems. An uncomfortable situation. And the rubber of course was cold. Even though you kept the water away from the body - having rubber against your skin was cold. So we had to figure out ways to - to either wear scarves or put garments on that helped trap the warmth. You didn’t have the warmth of the air trapped in the rubber cells of the wet-suit. And you still got cold underwater. The suits were very, very thin. They would open up and you had to reseal them. The sleeves in particular were very-very thin where they snuggles around you wrists. And you’d get water in and then the water would get down into your socks. And then your feet would get cold.
Cliff Donovan recalled a partial solution to the wear and tear. "Yes we used to yeah - wear T-shirts and jeans a lot of the time to protect the suits from barnacles or foreign objects. ‘Cause they used to puncture very easily." Gordi Moore was one of those divers who learned that "we didn’t dare jump in because we’d pop the suit. Because too much air would come flooding up through the suit, and so you had to back in and uh, get into the water off a beach, usually off a rock." Moore’s response to this rude awakening was fairly typical of the innovators that made up his peer group.

"In the drysuit I modified the flutter valve. I remember doing that. Because it didn’t allow enough air out for some reason. That just pops into my mind that it was not adequate. So I had to remake it or add another piece. It just didn’t let enough air out. ... I don’t think I moved it. I think I added one."

Equipment was terribly important and valuable to divers in those days. For the most part divers were young men, without any major source of income. Most came from none modest income or poor families. Cameron Porteous said: "I now had a rubber suit. My first suit was a brown rubber, front entry, very fine but not strong enough for the rough terrain of the coast. It shredded itself after 2 years. I replaced it with the popular Bel Aqua that Jim and Phil owned. Most of the photos I have are with the Bel Aqua. We were a poor club. None of us had money. When we could scrape up enough cash it went to the necessities. Rubber suits, masks, fins." To give the reader some perspective, as Cliff Donovan pointed out, “back in those days sixty bucks was a payment on a house. And that’s what my ... drysuit cost.”

The Re-breather Period

Technology and Safety

To complicate matters, beginning in 1953 oxygen re-breathers slowly became available in the Lower Mainland. Oxygen re-breathers in those days were fairly 'simple' contraptions
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designed to ‘scrub’ the CO$_2$ from a specific body of air passed through a carbon dioxide absorbent material, while additional or ‘new’ O$_2$ was re-introduced into the closed system from an O$_2$ reservoir. However the introduction of re-breathers added a technical facet to diving, as well as complicating safety. Pat Molony had a homemade re-breather.

[ Pat was ] A Police Officer. I knew he was in the service. But he had made his own oxygen re-breather. ...- uh Bill Thomson had his stuff first. And Pat came along at a later time. And ... He showed up first of all with diving. And uh at a later time he decided to make one and he made it out of a - a hot water bottle and a tank he had bought and the chemicals and uh ... Gee, I can’t remember how he got the chemicals that took the carbon-dioxide out of the air. And, but I remember it had a small oxygen bottle as part of it, with a hand operated valve. There was no other features. You wanted air - more air - you just had to turn the valve manually. [His ] chemical package - his scrubber ... was outside. It was in a package of some kind and I can't remember how he made that package. It's just too long ago to recall. ... it was a real Rube [sic] Goldberg affair I know. He wore it on his chest, yeah.131

Fred Rogers concurred:

Well Pat had this little re-breather he’d built himself. Well he got lookin’ through diving books an’ he seen how the, y’know how the old uhm, Davis Submarine escape apparatus looked. They had a little thing you could put on y’know for escaping out of submarines. ... A closed oxygen re-breather. So Pat looked at some diagrams of this and you know - really wasn’t a technical things to do. You just y’know, study up on it a little bit. And he made one and it worked. But the trouble is yer on pure oxygen. Yer restricted to about - - extremely dangerous going below thirty feet. Y’know? Anyway he’d read all this. He knew what the danger was, so it just used it for curiosity y’know? I mean around the 15 to 20 feet? maybe twenty-five feet of water. That’s as far as he went. I never ever tried the thing.132

Several divers purchased re-breathers. Thomson’s memories about his re-breather were “Actually it was the same type that this Hans Haas used in the movie. And uh they used it because it enabled them to get so close to the fish without scaring them. But you’ve got to know what you’re doing with it.”133 Others emulated Molony. Graydon Baker recalled that Fred Rogers built a contraption:

And we were diving on pure oxygen. ‘cause that was available at the welding shop.” They were using “a surplus uh, war regulator ... Yeah, that the navies used. I don't know if it was a single or a twin tubes. Whatever they used. ... regulator single stage ... There
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was two hoses coming out. It was exhausting at the back. ... There was just two [tanks]. ... Two small ones. He did have one with three or four. ... He built this, yeah.\textsuperscript{134}

Then, towards the end of 1954:

All the sudden BAM!! They're on the scene. Three Vets, on Main Street, were selling War Surplus Mark V, British Navy re-breathers, in their original case - for something like a hundred bucks or fifty bucks, or something like that. A ridiculous situation.\textsuperscript{135}

Buoyancy

Long-john diving, drysuits, and re-breathers had pushed the divers into a further change: weight-belts. The buoyancy found in layers of underwear and/or ski-suits created a need for divers to artificially increase their own weight in order to compensate for all the thousands of tiny air bubbles. Gordi Moore:

\textbf{I}.... So you learned to counteract buoyancy because you put the clothes on?
\textbf{N}: That's right. And so you had to do something so you could stay down more readily, and then of course as soon as we went into our rubber suits - it was - you're like a cork. You couldn't do anything .... As soon as you turned to go down, the fact that whatever air was left in the suit went into your feet. And of course you'd go back up like a balloon. And uh so you had to do something. And uh so I think I wore, I'm going on memory. It seems to me I wore about 16 pounds of lead to keep me down when I had a suit?\textsuperscript{136}

Additionally re-breather equipment had wooden components and an air-bag half-filled with air, intended to in effect extend the size of the diver's lungs but in practice lending him considerable additional buoyancy as well. Weight-belts and weights became\textit{de rigour}, and there were a number of ingenious and yet practical approaches to fulfilling the need. Gino Gemma:

And uh, and we had a good time. We uh, poured our own lead weight in meat paste cans. Hah-hah-hah!! Bought war surplus - cartridge, gun cartridge belts. Made our own weight belts with a quick release pin. ... Well the cartridge belt had two brass eyes that had clips, but we took them out and then we'd bring the two brass eyes together and put a pin down through the four eyes, and tied that piece of brass with an eye in it with a - piece of wire to - on the side of the belt - and when we wanted to drop it we just - pulled the pin just like a grenade. And of course these meat paste cans had uh, pieces of
rod bent so that they’d clip into the webbing on the belt. And you had these round weights all around your body. And uh, it was very - very effective for many years - this type of belt was being used by a lot of people.¹³⁷

Gordi Moore remembered: “Yeah, they were just fishing weight probably. I remember cutting up round lead weights that I found somewhere. And putting them into the pockets of the webbing. It was an army webbing belt for ammunition or something.”¹³⁸ Cliff Donovan had an again different solution:

We used tuh, we uh, some of the fellas used to get sheet lead, and wrap it around belts. We used to get the old second world war army belts, and flatten out the buckles so that they made a quick release. They just a matter of pulling a pin and the belt would fall off for safety reasons. And then after a while we were able to buy molds, ‘un being a plumber, well, lead was no problem.¹³⁹

And Fred Rogers still again:

I had a mold, and I used to make weight for weight belts. And, and uh, I made up this steel mold I make weights for people. But uh, I didn’t do this as a business. See, I already had a good - belonged to a good union. I had a good job. I didn’t have to rely on diving to make money. So I didn’t really push ‘em. But some of these other guys jus’ grasp on to some’pin like this and they’re really eager beaver to make a lot of money offa some’pin. I loaned this weight-belt mechanism a one guy. Instead of making fer himself he’s making these things by the dozens, and selling them to everybody! As soon as I got wind of that, well I, course I went up and I [was] madder’n hell an’ I took the thing back from him. ... He didn’t even like to give it back to me. ‘Oh,’ he says. ‘I’ll make my own then.’ I said ‘Well OK, go ahead, but’ I said ‘ you’re not gonna damn well use my equipment to make money for yourself,’ I said.¹⁴⁰

The Aqualung Period

Acquisition

When Bill Thomson and diving buddy Bert Mona approached Keith Carter in August 1953 for advice on diving gear, at the time both were unmarried, living with their parents, and faring quite well as retail salesmen. Carter and commercial diving partner Al Trice had been using Aqualungs themselves by this point for about a month, and Carter recommended this
alternative over the $O^2$ re-breather. Accordingly, they ordered themselves each a complete set of Aqualungs, single stage regulators, depth gauges, weight-belts and rubber diving suits, called dry-suits, through the Woodward's sports department. While waiting for the equipment to arrive, the two learned and practiced their breath-holding skills through the summer and early fall of 1953. In early 1954, finding their own interests in Aqualung diving diverging from the then twin mainstreams of breath-hold diving and re-breather diving, and Bert Mona and Bill Thomson formed the Blue Sharks. The Blue Sharks were immediately distinguished from the earlier club as being a strictly scuba group. Cam Porteous recalled: “At this time diving had caught on and the other divers began to surface. The Vancouver Blue Sharks were created. These guys had great equipment. They had Seal (black) diving suits. Waist entry and real Aqualungs.”

Modification

Re-breather and breath-hold diving continued on through 1954 unabated and with little change, other than the introduction of depth gauges and a few new members to the Vancouver Skin Divers Club including young Phil Nuytten. However in 1955, having first purchased a two stage regulator in Seattle, Fred Rogers first built himself a twin set of scuba tanks, and then a set for Cam Porteous. “Oh, I got my first scuba diving outfit in 1955. Yeah. That’s the first, first scuba gear. And what I did is I went down to Seattle and bought my regulator down there and things like that. Before that – Previous to that I had a suit, you know what I mean? The Bel Aqua drysuit, and the mask and flippers and all that. But umm, in ‘55 I got my first Scuba gear.” As a journeyman pipe-fitter, and welder, Fred was well suited to the task. He said:

Well I started making quite a bit of equipment later on. I was making weights you know for our club, and different people, and uh, selling, not at a profit you know, but just makin’ em, you know what I mean? For mostly for around the club and some of the other divers around. I did quite a bit of, made quite a few set of Aqualungs fer the divers.
And uh, Cam Porteous. I made a nice little set fer him. And I got a photograph of Cam Porteous with uh, with that little set I made for him. What I used to do was go around the junkyards on a Saturday morning, around there, and there was a lot of old junkyards around Vancouver at that time. And a very interesting product too. There was all kinds of war surplus stuff down there - and they had little carbon dioxide fire extinguisher tanks and other carbon dioxide tanks from aircraft, you know that were no longer been in use?¹⁴⁴

Later in 1956, Fred passed this knowledge on to Cliff Donovan, a new diver and apprentice plumber, who in his turn built still more rigs for himself and friends.

We made our own. we used to buy what they called the bridge. That was the part that took the regulator. We could get that. We had access to that from down in the States. And um, we'd get two Oxygen tanks - they were from Three Vets. They were second world war surplus store, and they were oxygen tanks out of airplanes, fighter planes and we used to join them together with this bridge we'd buy and uh order our regulators in from California, and uh, they had no reserve on them. They were just --- we used to get them tested up to 2000, or 3000 psi., I remember that. Get them cleaned yes and checked out, and then it was safe to use them. [[I]n fact I think I've got a set kicking around somewhere still, and Fred - I remember Fred making a set at the shipyard out of these tanks. And he made his own bridge out of high-pressure pipe. Hah!]¹⁴⁵

Still later Dennis Thulin also built a two tank set for his wife Edith and several other sets. "Oh yeah. Sure. Yeah I uh, put a lot of tanks together. ... I’d get them up for friends."¹⁴⁶

All this, Cam Porteous noted, because: "The only diving store was in Seattle, where we would buy our equipment."¹⁴⁷ Need encourages invention.

With the coming of the Aqualung, and other scuba-type gear, one of the more aggravating difficulties encountered by divers was getting their tanks refilled with air. Other than the various 'liquid air' companies, there was no where to go as far as was generally known.

Bill Thomson became aware of this in the fall of 1953.

...and then finally when these Aqualungs started to come out on the market the only one we could get it through was Woodwards, but they could only get a limited supply so we had to wait such a long time. Then when we finally did get it then the next problem we encountered was getting the damn air tanks filled.¹⁴⁸
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Bert Mona concurred:

Then you know, this problem of getting the compressed air was tough. We could only get it through Canadian Liquid Air. And they if they didn't have a sufficient charge then you only got to part fill up your bottle. It was a lot of fiddling around, and then we always had the problems of transportation. It wasn't too easy to do. 149

Their problem was partially solved through the generosity of Keith Carter, who offered to let them use his manifold system:

[I] remember going to his [Keith Carter's] place to get the bottles filled with air. Because he had a bank of these - like they were commercial divers - him and Al Trice. But we got [unintelligible] and he said 'Sure, you can come down and fill your bottles up when you can't get any air at Canadian Liquid Air.' 150

Fabrication

Carter's generosity was a partial solution, but Mona remembered how the Blue Sharks solved the problem more fully:

Well when we first started there was no place in Vancouver where we could get it - that we could find, so we finally got a'hold of Canadian Liquid Air. And they designed a system of uh, topping off our tanks, by first going to one big tank, and then, when the pressure dropped in that one, to the next one, until you know, you got it pretty well topped up. But even then, they could never get to uh, where we wanted which I think was twenty-one hundred pounds per square inch in those days. But we could never get much more than seventeen or eighteen in our tanks. And then one of the guys designed a manifold system and he built a - he had a trailer, and he built a system where he could put about six tanks on the trailer, hooked together by a manifold and we could hook it up to a trailer [car] and take it with us when we went diving. And we brought our own air supply with us. .... You opened all the tanks at once, through a common thing, and then if you topped your tank, the pressure didn't drop much in one - you know, the whole bank of tanks. If you filled with ONE tank, it dropped a lot in that one tank that you know yer tank filled up [ that filled up your tank.] But if you had a manifold there wasn't too many problems that way. So we could fill up, maybe spend an extra half hour in the water, or three quarters of an hour. 151

Fred Rogers expressed similar disgruntlement with regard to obtaining air-fills in 1955. His solution was similar as well.

What we used to have to do, around Vancouver, it was very very tough getting any air. An' nobody had any air there. What we used to have to do - we used to have to take our tanks down to Dominion Oxygen Company or Canadian Liquid Air, or some of those
places. And they wouldn’t fill it immediately right then. They wouldn’t interfere with their work. What you had to do, you had to leave the tank there. An’ then, come back say Friday afternoon or something like that, and pick it up. An’ then they charge you $5.00. Now, way back in 1955 - 56, that was a hell of a lot of money, to have to hand out $5.00 for a little tank of air, and you only put 2,000 lbs in it. So this was very, very costly - to go scuba diving. So anyway, I decided well, we gotta do something different about that -- and uh, and uh, so I made a manifold system. [out of ] S 244 cubic cylinders of air. I used to get from Dominion Oxygen company. I’d run down my truck and pick it up. Bring it back to my garage, and set up a manifold. Six of these tanks were all hooked up together you see. And depended air in to the, into our, the ... [tanks]. that way I could cut the cost down to about two bucks a fill. Which was a hell of a lot better than five dollars. So I kept that for a while, for two or three years, and then a chap by name of Denny Thulin took and set up, quite a big air compressor, and big three stage uh, Ingersoll-Rand compressor on the back of a truck. He used to position himself of near Whytecliff, out there on the highway. For years and years - he’s there every Sunday. An’ you could go diving. If you didn’t have any air he’d fill up your tank in about ten minutes. Stuff it up to about 2500 lbs. Hah! And uh... which was all the tanks would carry in those days, they didn’t have the 3,000 lbs ones.  

Innovation

A curious event took place in 1955. While breath-hold diving, Graydon Baker began to lose consciousness. Fred Rogers described the episode in the following manner: “During a Sunday dive at Whytecliff on Sept. 25, ’55, Graydon Baker suffered a blackout spell, while diving fifty feet and deeper. He was discovered floating unconscious and floating face down and pulled ashore by Phil Nuytten and Cam Porteous.” Cam Porteous vaguely remembered the near tragedy as follows: “One winter I pulled a diver skin diving (I think it might have been Bill Thomson) out of the water after he passed out at Why[te]cliff.” However, Graydon Baker remembers certain other details which make this personally dangerous episode a type of personal triumph. Some time before the incident, Graydon had fashioned a safety device which several of his diving buddies had dismissed as useless.

I: Now that safety device. What did you call that?
I: And again, why would you make it?
N: Because, uh, I had a concern about the [unintelligible] what could happen. Realizing, uh, OK. The problem is you’re gonna drop your weights your dropping
merchandise eh? OK. With that I don't [means ONLY ] have to spend a - uhm, a .10 cent CO\textsubscript{2} cartridge eh? So there should be no question. If you're gonna drop your weight-belt and it'll go down a hundred feet and be un-retrievable or whatever - you're gonna question whether to drop it or not eh? Because you've got X number of dollars or X- amount of work on it. And so I wasn't prepared to drop that just because I thought I was gonna get into problems. I'd rather - what's a .10 cent CO\textsubscript{2} cartridge.\textsuperscript{155}

As a standard practice Graydon had begun to wear the device around his waist while diving. On this occasion, Graydon remembered realizing he was in trouble and activated the device.

That's a good way to be. And what all cynicism I received for having this didn't matter. Because Fred wanted to have one. I think I may have offered to even make him one of them. Nobody else had one. But uh, I think that next summer or two summers later there was things similar on the market.

I: Did it work? ...
N: That's what kept me on the surface! Yes!
I: 'cause you see you told me that you didn't have the strength....
N: Yeah I had faded. I didn't have the strength to get my hand off of the thing. The pin had had to come back out of it. In other words BOOM! At fifteen feet I hit this thing - My God the pin - I couldn't get my hand off!! So instead of going SHOOM! [inflating quickly], it went sssssssssssshhhh. [inflated slowly]. Hand wouldn't come off. I felt basically - I have no energy. Nothing was on. I couldn't believe it. What happened? ...... Yes it did work!\textsuperscript{156}

While certainly grateful for the assistance rendered him by his friends, Graydon also felt that his invention had been vindicated; What's more he remembered that Fred Rogers then asked him to build Fred himself a similar device. And, as Graydon pointed out in the course of his narration, buoyancy-type devices became available on the market approximately a year later.\textsuperscript{157}

Up until July 1, 1956, breath-hold diving, O\textsuperscript{2} re-breather diving, and Aqualung diving existed side by side. Most experienced divers took part in at least two of the activities. With the oxygen re-breather related death of Jimmy Willis, however, the O\textsuperscript{2} re-breather essentially vanished from diving over night. Cam Porteous remembered: “Once we were able to get our hands on uhm these - the regulators from Seattle quite easily, we uh, overthrew the Hans Haas system - that was the system that killed Jim. I got rid of my uh, US Navy uh re-breather for
submarine escape." Gino Gemma concurred, and noted: "...once we had it pointed out to us that what we were doing and what we were using were totally you know -- against all rules we - we destroyed our equipment ... re-breathers ... but when we got into scuba diving of course that was just like -- being reborn. Uh, and allowing us to pursue our - our love -- our sport that we held dearest to ourselves."  

The tragic loss of Jimmy Willis forced change on the young diving community. Institutions which had heretofore ignored the sport of diving now took great interest. The Provincial government ordered an inquiry into diving activities. The Coroner’s Office investigated the circumstances related to Willis demise in great detail. The BC Safety Council began to examine diving practices and considered the question of whether divers should be licensed. More locally, Pat Molony, well respected and a senior member of the diving community itself began the development of an informal, but ‘more formal’ diver training program which soon became the basis of the BC Diver’s Examining Board, and would eventually lead to the institutionalization or commercialization of British Columbian diver training in 1958.

99 GC1/30/22
100 GC1/1/17
101 TS1/2/26
102 FR94/36/46
103 GC1/13/36
104 GM1/20/22
105 GC1/12/36
106 GC1/2/19
107 GM1/5/7
108 GG1/26/11
109 TS1/1/49 ... on the other hand Terry didn’t immediately have swim fins.
110 TS1/2/20
111 BM1/19/17
112 GC1/18/28
113 GM1/3128
114 GC1/14/42
115 GC1/32/24
116 GM1/6/11
And you can see our depth gauge [s]. They weren't round in those days. It was just like a thermometer.
CHAPTER 6

HOW THEY LEARNED

The early British Columbia divers/narrators interviewed during this study have several dominant features or characteristics as learners. Not all narrators shared all characteristics, but a substantial number shared in each of them. What follows is not so much an analysis, that is a dissection, of the information given by the group of narrators during their oral historical narratives, as it is an effort to create a "picture" gained from the narrators themselves describing 'how they learned,' as well as the other evidence obtained during the course of the research.

The first portion of this chapter examines the narrators as learners in the formal education system of their time, and simply by way of the experiences described by the narrators themselves questions the effectiveness of the context in which the formal system sought, presumably, to promote their "becoming all that [they, individually had] the potential for." The researcher, however, is of the mind to explain the formal system's efforts as those wherein the system itself sought to "modify behavior [of 'others'] as a result of [their, the 'others'] experience [within the system] producing relatively permanent behavioral changes."

The second portion views the narrators as learners in the informal experiential settings surrounding learning to dive in BC in the 1950's, moving forward through the three general periods as outlined in both the equipment and narrative chapters. A hypothesis is posed, that much of the energetic effort and activity of the narrators in their informal learning environment is driven by their "innate drive for growth and self-actualization," and that this effort is made so strenuously by them in an effort to offset the 'learning' imposed on them by the what I will refer to as the socio-educational system of their times. Further, the narrators in effect sought through
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their efforts to achieve a sense of balance in their respective world views, to enable them to, in
effect, re-integrate themselves such that they feel themselves to be "an integral part of
the generative social practice in the lived-in world".160

Formal Learning

High School

The first most obvious feature noticed by the researcher when considering all of the
narrators’ stories as they related to learning was their formal learning experiences. Six of the
fourteen narrators, or forty-two percent, attended either Britannia or Vancouver Technical
Institute, as their high school. Fred Rogers, Don Francks and Graydon Baker each attended
Britannia, though with a number of years between them. George Croy and Gordi Moore went to
Vancouver Technical School (Van-tech) together, while Dennis Thulin attended the same school
a little later. As narrator Bill Thomson never attended high school at all, fully forty-six percent
of the narrators who attended high school, did so at these two institutions. The remaining
narrators each attended high schools other than Britannia or Vancouver Technical School, and
none of them attended the same high school. Excepting Gordie Squarebriggs whose unhappy
high school days were spent in Ontario, each narrator attended school on the eastside of
Vancouver or in Burnaby.

The question arose as to why these narrators had attended these eastside schools. The
most obvious possible explanation was simply that of location. A second was the notion of
systematic ‘streaming,’ due to the students’ socio-economic class. Britannia graduates possessed
a high school diploma which encouraged their university or college attendance, however none
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did so, while Van-Tech graduates emerged with the skills necessary to find work in the blue collar sector of the economy. Croy indicated he was streamed internally to Van-Tech into university preparation, and that he had wished to attend university, but that resources for this were not available. Both Croy and Moore described the reason that Don Francks attended Britannia as opposed to Van-tech as being due to his being very bright, whereas individually they describe themselves in less glowing terms. A crucial point to note nevertheless, is that the schools invariably were east side institutions.

High Schools Attended

<table>
<thead>
<tr>
<th>Attended which High School</th>
<th>-14 divers</th>
</tr>
</thead>
<tbody>
<tr>
<td>britannia</td>
<td>8</td>
</tr>
<tr>
<td>Van-tech</td>
<td>6</td>
</tr>
<tr>
<td>Other high schools</td>
<td>4</td>
</tr>
<tr>
<td>No high school</td>
<td>2</td>
</tr>
</tbody>
</table>

Figure 7

Nine, or sixty-four percent of the narrators, completed high school, and of the nine, eight narrators recall enjoying their formal school years. Al Trice’s fond memories of school centered around his being able to read “all the diving books and submarine books and underwater stuff and it’s just somethin’ I enjoyed. Umm, I was also gonna be an aeronautical engineer and go off and do that type of stuff. But I went the other way, for whatever reason. Heh.” George Croy was very happy to be at the Vancouver Technical School.

Marvelous broad-based place to gather practical, useful information. Marvelous school. Print shop - full scale print shop capable of doing commercial work - and I’m a printer now - I wasn’t at that time. Umm, big machine shops, wood-working shops. Uh a full scale foundry, auto mechanics, airframe, diesel. The amount of shops that were there.... big electrical lab. Ummm, the school built a house each year with the students and the teachers doing everything themselves. Manufacturing the doors, the window frames..... Uh -- boys were allowed to build boats in the woodworking shop, if they had the
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capability. So if you were going on to a trade, you could eliminate a lot of your apprenticeship, in the four years by taking shops. In the university entrance course you only took some of every shop. And - but then you took a language which the uh - the other students didn't take, and you took um, what? More math, more chemistry, more physics, than they did. They started to spend, as the years went by -- more and more time in the shops and only take English and math and if your were in the university entrance course you could take commercial art. And the other students didn't. The uh, drafting was big there. So that I took commercial art as soon as I could. Took drafting all four years. Got some exposure to sheet metal work, which I still use. Uhm, I know how a steel lath works and I wouldn't be uncomfortable with one after a few days. Woodworking lathes - I worked in a foundry after I came back out of the Air Force. And I worked in a lab there for a while and I was not uncomfortable with that. We had good labs at Vancouver Tech. [You] just learn quite a broad spectrum of useful stuff, heh - heh! That stood me in good stead my whole life in terms of using - doing things with my hands. Excellent school, I felt. 162

Croy’s friend and classmate Gordi Moore also remembered enjoying his experience, and he said: “I had the great advantage of being dragged along by guys better than me, more intelligent. Heh! Well, at least IQ’s that were higher than mine. And uh, it encouraged me to be a better student. There’s no question about that.” 163 Croy and Moore’s mutual friend, Don Francks, excelled in high school. Both men remembered Francks as “pretty bright.” Gino Gemma’s most important memories associated with high school were those of his athleticism and the fact that he met his future wife in that high school. 164 Bert Mona’s memories were pleasant. “Well, school was great. Uh, I never worked at it, but I accepted it, and got along fine. I didn’t do the home work I should of, so I just got an average marks I guess. But I graduated no problem.” 165

Narrators who did not complete, including non-attendee Bill Thomson, had varying reasons. Fred Rogers, who attended school during the Depression, was forced to leave in order to help his father in the family coal and sawdust business. “I entered Grade Nine but I never couldn’t get any farther - it was the depression era. An’ a lot of, all my chums that were my
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age, why, ... usually left school when they were Grade Eight, an' they had go-out an' do something that helped their father earn a liv'n.  Fred later elaborated with regard to his feelings about schooling. "NO! I hated school. I wasn't a dummy in school. My interest wasn't really in school. My mind was always thinking of things beyond that point. y'know?"  

Graydon Baker, who completed, nevertheless had less than positive memories of formal schooling from beginning to end. His lack of enthusiasm seemed to be for two reasons. Graydon had great difficulty relating to the level of the content of what the system sought to teach him.

I: How did you feel about formal education then?  
N: Biggest disappointment of my life. I figured the high school subjects should have been in elementary school and university subjects shoulda been in high school.  
I: This is what you figured then?  
N: Then and now. [unintelligible]  
I: How did you arrive a that thought?  
N: Well first of there was a big argument about who made the earth, and then we're gonna read stories, and we have these animals with clothes on them, and we have these two kids named Jerry and Jane, and somebody's running up a hill and broke his crown, or ran down the whatever. Now how does that relate to a kid that's had five or six years of previously discovering the environment - the way things function, describing the structure of various things --- tuh that. You just tell me. 

However, it was more than content. Graydon didn't fit into the system. "I just thought I was stupid"  He did well at sciences and mathematics, but poorly in areas such as reading and spelling. And clearly, even forty years later, Graydon was still angered by his memories of that time.

N: Well, I did what they were telling me. I must be stupid. If you came up [to] a high school teacher - you get this guy getting second class marks - OK? First time in his life! And you look at all his other marks and you think - tell him he's stupid. Because he wouldn't butt into the system. OK? He had difficulty in reading. He had difficulty in spelling. OK? And yet [unintelligible]. Naturalmente at the university - are they gonna really - "Hey look at this!! Eh, uh, elementary error." You know its [the] best engineering students out there [ bangs pencil on table for emphasis]. What's wrong with them?!!
Cliff Donovan was also one of those who remembered not doing well at school. "I didn't like school. I was bounced out of school. They told me they didn't want me there anymore because of my bad attitude." Any positive high school memories Cliff carried into adulthood revolved around sports.

I: Would you describe then your experience at school as something that you enjoyed?
N: No. Only sports.
I: Sports .... what kind of sports?
N: Running.

Dennis Thulin, "hated" school, and particularly high school. He saw it as interfering with his ability to get out and participate in the lifestyle he coveted. "Uh, it was a logging community, and uh, I hated school and I wanted to be a logger. And uh, my Mother finally hadda send me away to boarding school in Qualicum, uh, to get me away from the logging. And uh, as you can see I'm still interested in logging 'cause I'm building a logging railroad out here. Heh - heh!" It should be noted here that the school Dennis attended in Qualicum was one whose purpose was to deal with boys who were 'problems,' and not those who might be thought of as scholastic 'stars.' Next Dennis attended Vancouver Technical School, where he took courses specific to welding, because, as he re-iterated several times, he hated school and he wanted to get to work "as soon as possible."

Terry Swean left high school early and "held a few different jobs down." Several years later Terry did return to, and complete high school. He also spent two years in university. However, Terry's view with regard to university reflected his opinion concerning schooling in general: "If you get an arts degree that almost disqualifies you from getting anything." The fact that the majority of these young men were uncomfortable within the formal educational system, or were prevented through various circumstances from advancing through
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the system may provide a partial explanation for their intense interest in learning outside the system. Are we by nature learning animals? Is there an innate drive to achieve? Is self-actualization by its very nature synonymous with learning? If so, then the need for satisfaction not found within one social learning environment, may require us to seek it elsewhere, even if we have to invent the alternative learning experience.

Apprenticeship

Fully eight narrators (fifty-seven percent) participated in apprenticeship programs of various natures. Fred Rogers was involved in welding, as was Graydon Baker. Cliff Donovan went through a plumbing apprenticeship, about which he said the following: “You become an indentured apprentice, sign a contract, and they sign a contract. It works both ways. And back in those days it was uh, quite strong. The government really made sure you did your part, and the company did their part.” He added that things were more lenient today in his view. Al Trice apprenticed as a commercial diver, and Dennis Thulin apprenticed through Finning Tractor as a marine diesel mechanic.

My father knew a salesman down there that used to come to around in the Finnings boat. And so he’d said, “Go and see him.” So I would go down every chance I got. And I would bug this poor guy, and after about eight months he got so sick of me coming in there bugging him that he said, “Well, you better come to work tomorrow” and that’s what I did. So I left Vancouver Tech and I started my apprenticeship there.180

Gordi Moore was involved in an apprenticeship program to become an electrician, but: “I never became a formal journeyman, no. Because I gravitated into the office and started doing the administration work.”181 Gordie Squarebriggs became a marine engineer through a quasi-apprenticeship process. George Croy was involved in an apprenticeship program related to the coffee industry, and a second program concerned with metallurgy.182
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From a total of fourteen, three narrators attended Vancouver Technical School, and two attended Britannia High School. This was thirty-six percent of the study group, which in turn was a significant portion of the early population of divers in the Lower Mainland. Additionally, sixty-two percent of those narrators who later apprenticed originally attended one of these two schools, perhaps due to the educational system's interest in streaming, but the question of family economic status also arises. The chart immediately following graphically illustrates the relationship of this very high percentage of apprentices to the population of narrators.

![Apprentices in Population by %](Image)

Precisely what the significance of such a large proportion of the narrators having been involved in an apprenticeship or apprenticeship-like process has not been determined by this research. There are a number of possibilities, including socio-economic restraints, streaming, efforts by the narrator or his family to resolve an 'education' issue with a practical career choice. Or perhaps simply interest or self-interest. However, this research did not delve into this question during the course of the interviews.
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Post - Secondary Education

Only two of the narrators ever attended University at all, and of these two, only one, Cam Porteous, continued through university to a completed degree. George Croy indicated that there was no support from his family with regard to his attending university, and his inability to proceed into the Air Force officer training due to inner ear problems eliminated his attending university or college through the Air Force. In his interview process, Gordi Moore commented on this at one point relative to his high school and diving friends. "Just the whole group of them were intelligent people with good heads on their shoulders and just nice people to be with. So we had a lot of fun together. But uh, unfortunately none of us -- I guess none of us went on to university." Terry Swean's thoughts relative to university were made clear two pages earlier in this chapter, where he suggested that certain types of university education precluded the possibility of employment. Again, precisely why university was not the popular choice was not a question examined with particular detail in this study. What is known, however, is that somewhere between the time that the narrators began to attend school, presumably beginning that process with at least neutral feelings about it, and the end of the formal educational process in each of their cases, learning of a sort must have occurred, since a "relatively permanent change [had] taken place" within the psyches of about half of the narrators, as indicated by their ongoing choice not to participate in long or short-term formal learning.

While university might not have been the educational direction for the narrators, about half of them did indicate that they had continued their education in their adult years in some fashion. This included upgrading or specialty courses related to trades, history, writing, the use of plastics, real estate and insurance, decorating, book-keeping and administrative, psychology, plant methology, entomology, community planning, and one narrator, Gino Gemma, studied for
and became one of the first Canadian N.A.U.I.\textsuperscript{184} diving instructors. George Croy noted his personal involvement in a number of other educational interests:

... within Scouts Canada, I'm what's called a National Trainer Three. Which means that I have acted as a trainer on a national training course, that's extended seven-day in-residence course for other candidates. As well as having been a candidate on that course previously. Uhm, in a mouthful I've taken an awful lot of training through Scouts Canada. An awful lot heh - heh! Massive amounts. Hundreds and hundreds of hours! I think I have my Ph.D. in Scouting by now at least. And that's it though! Never did get the degrees or anything formal.\textsuperscript{185}

Among other educational or learning activities, Dennis Thulin took a correspondence course over a number of years:\textsuperscript{186}

And then after I got married and uh, we had our first couple of kids or just the one of them, I uh, I took a correspondence school course, from ICS, on - International Correspondence School? - On mechanical engineering, which uh, I was very interested in. And I thought I was going to pursue that goal, but uh, I didn't - I kept on with my mechanics. And I -- I uh, I enjoyed working on the boats.

N2: But your marks were top and you got your certificate.
N: Yeah - top marks and I got the certificate - yeah..... [not enthusiastic]
N2: Took him YEARS....
N: It helped me - it helped me a lot, because it's like a university course - which I hadn't done and I - I felt that I needed some more mathematical background. So I didn't have - I used to go every night after uh, supper I would go down and work, so I - I didn't spend as much time with the children as I should of. But it was something I had to do, and they understood that. But I, it took me quite a while to struggle through that, because it's - I don't know if you've ever taken a correspondence course, but it's a tough way to do it!
Hah! Heh - heh!\textsuperscript{187}

While many of these learning activities could be directly attributed to individual efforts toward one or other of the lower four areas of Maslow's pyramid, some such as a writing course, a history course, and Scouting courses, could be taken into the realm of self-actualization. And indeed, if, as I believe might be shown, individuals attempt to self-actualize, that is "actualizing one's potential, becoming everything one is capable of becoming," (Knowles, 1980) through their work, then perhaps much of these efforts could be seen at least as efforts to self-actualize.
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On the other side of the coin, half the narrators were fairly insistent that they had not continued any form of education, even with regard to job training. Bill Thomson, for instance, asserted that he had never taken any courses related to training or formal or informal education in his adult life. Bill’s former diving partner Bert Mona also declared firmly that he did not continue his education in any manner whatsoever after high school.

I: Did you take any further formal education after high school at all?
N: No I didn’t.
I: You never took any college courses, technical courses, [a] special course of interest to you in any way?
N: Nothing whatsoever.
I: Never went to take an art course or a basket weaving course ... nothing at all?
N: No, no. N-o-o-Ho! No.
I: Any military training or job training?
N: No job training. I was in the militia oh, for quite a few years. I was still in [high] school though. ‘48 I guess.

Cliff Donovan stated that he was a reader by nature and, as well, had taken one “Power Squadron” boating course at some point; however, other than that he had been involved in no further educational activities. Still other narrators remained fairly insistent they had not been further involved in anything educational, even when an example this of type of activity was pointed out to them in previous portions of their testimony. One narrator, for example, participated as a student in a scuba diving course when he was in his mid-thirties, yet would not acknowledge this activity as being “educational” in any way. Generally narrators were very resistant to associating any of their own learning activities which took place after their formal experience with the word ‘education,’ as though they viewed ‘education’ or the process of ‘getting educated’ to be an institutional driven rather than a learner driven process, whereas the learning activities they participated in were personal efforts intended to achieve personal goals,
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and thus what an adult educator might view as efforts along the path towards self-actualization.

Following is a chart providing a profile of the learners as a group.

**Schooling 'Profile' of Study Population**

![Chart showing Schooling Profile]

**Equipment Modifier/Creators**

The second most noticeable feature of the narrator group, and of particular interest to the researcher, was the number of narrators who indicated through the interview process that they had modified or created equipment for their own use and/or for the use of other divers. In this research the researcher referred to these individuals as 'Modifier/Creators.' Both modification of or creation of equipment requires certain knowledge of equipment and/or skills with tools. Additionally one would anticipate an ability in the modifier/creator to conceptualize the outcome of the change. Ten narrators, or seventy-one percent of the study group, modified or created diving gear, from fairly complex works such as constructing a carved wooden spear gun with an
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all metal hand built trigger mechanism, building or modifying an oxygen re-breathing unit or sets of scuba tanks, to fairly “simple” things such as making a knife by grinding it out of an old saw blade, or modifying a flutter valve in a dry-suit. Graphically the populations looked as follows.

![Graph showing populations of creator/modifiers in different schools](image)

Interestingly, although Vancouver Technical and Britannia High School attendees made up less than half the study group, they made up exactly half of those narrators who are modifier/creators. There is the question of whether they became modifier/creators because they went to these schools, or perhaps that the school system knowingly or unknowingly streamed modifier/creators into these schools. Due to the fact that other modifier/creators also attended other schools, and not based on any intentional inquiry into this area at the time of the research, my feeling is that it was the latter. That said, it would be worth looking into at a future date.

While modifier/creators actually made up the majority of the narrators in the study group, modifier/creators who were also involved in apprenticeship programs make up only fifty percent of the group. Following is a graphic chart which highlights the division of modifier/creators and modifier/creator/apprentices in the study group.
Again, to emphasize, one hundred percent (three narrators) of the attendees to Vancouver Technical school (column one) and sixty percent (two narrators) of those who went to Britannia (column two) are both modifier/creators, and apprentices. Compare this to ‘Other’ (column six) where only thirty percent are involved as both modifier/creators and apprentices. Did the Vancouver Technical school environment foster inventiveness among its student population? Alternatively, was the streaming system within the educational system designed to place creative individuals into a tool user environment? Or still a third possibility, does the system force creative people to seek satisfaction outside the system itself, particularly those individuals coming from less advantaged neighborhoods?
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Informal Learning

Diving Specific Learning

If, as Dale and Conti (1992) suggest, adult educator research ought to be focused on “the how and what adults do to learn and what other real-life factors enter into the strategy of adult learning,” a study of divers in the Lower Mainland is an excellent approach to doing just that. The experience of learning to dive among divers varied among groups, as did the availability and type of equipment, and by time and experience. While it appears that true breath-hold, and later other forms of recreational diving, truly took off as activities only when two or more individuals began to practice the activity together, individual efforts did take place separately.

Cam Porteous described his solitary efforts:

...I was given a pair of swim fins and goggles and for the first time I saw underwater. ...I would motor about on the beaches picking up sea shells and always looking for the gold ring and watch. No luck. I even tied a jack knife to a broom handle and tried to spear small fish under the pier at English Bay.\(^{191}\)

Cliff Donovan also used fins and mask solely on his own.

White Rock’s a big flat sandy bottom and I used to swim parallel to the shore line - go out to approximately six to twelve feet in depth. Not having a mask a lot of the time when I first started, I didn’t want to go any deeper ‘cause I couldn’t see any deeper than that. But after having a scare a few times of seeing large flounders and things that would scare a young man of twelve...\(^{192}\)

A younger Fred Rogers also had earlier ‘diving’ experiences. In the summer of 1934 or 1935, he built a diving helmet, based on Bebee’s description of a system in *Beneath The Tropic Seas.*

I shouldn’t have done this because I didn’t have any theory of diving then. None. And I was around about sixteen ... I had no theory of diving. I didn’t know anything about embolism or anything like this.... How I got the idea about it was reading something in the old newspapers about it. Some other guys had built these things, or were building it, and experimenting around. So I decided I’d get one too. ... [This was ] when I was about fifteen sixteen years of age in Vancouver .... yeah they were local Vancouver people. [year would be 1934-35] And I started to build one of these things. And I cut off the top of an old range boiler. The old twenty-two gallon galvanized range boiler? heh - heh! Bunch of screws and bolts and fitted in thing on it, and a wooden front on the...
thing, cemented it on and bolted it through - put the glass in it. And I put some rubber hosing - hose, around the sharp edges of the metal so that it wouldn’t scrape your shoulders you see? And I had two lumps of lead on it. Two blocks of lead ‘cause it was quite buoyant. Enough air in it so it was buoyant. I had to get something so that it would sit there heavy enough. I had a piece of lead on the back and I’m not sure whether it was on the front or not. Kinda forget that. Anyway it would sit there. And we had a just a little truck, automobile pump. Hand pump? One you see for pumping up flat tires? ... It was a double action pump. It had two cylinders eh? And that would supply plenty of air if we weren’t down too deep. ... Well we didn’t go down very deep because the water was too damn cold. We were just in yer bathing suit eh? An’ you get down beyond ten or fifteen feet and it’s damn cold. So it was just a mere matter of getting in the water and groping around y’know? Just the fun of it eh? The thrill of being underwater and breathing the air, y’know an’ that?

[We used it in] Places like Second Beach - down [in] Stanley Park. Any place where there’s beach. But was kinda embarrassing ‘cause an awful lotta people come around and they’d all wanta try it. So I did, I tripped and fell over. With this thing. I lost my balance - tripped and fell over walking ‘round some rocks and stuff like that and uh, around a wharf, and I flooded the damn thing. And lucky I only had about five or six feet of water up ahead of me. But - God - 1 - the mistake I made an’ it coulda been fatal, was that instinct just to hold your breath.193 When you’re going up? With no training? The instinct is to hold your breath. And I did that, an’ I remember I felt tremendous pressure in my chest you know what I mean? And I exhaled just as soon as I got to the surface, but if I hadda been down any deeper I woulda killed myself. Just luck I had maybe four or five feet of water over my head. That was dangerous enough as it was.

I: How long were the hoses you were using?
I: And they were working off a boat or a dingy?
N: Off a row boat, yeah. When we first tried it we worked off a float y’know? In English Bay there used to be floats going out? Just a little narrow float. We used to stand there with a hand pump y’see and he’d be down a the bottom just walking around with this silly thing y’know? And your chum was pumping air down and every time you moved he’d have to come along the way with you! heh -heh!194

The story itself was exciting and fortunately had a happy ending. What was also important, however, was that the activity required two people at a minimum. While Fred’s reason for needing his buddy along differed in the sense that the buddy on the surface was the other fellow’s air supply, he or she was also the other half of the adventure, the friend with whom one shared ideas or found enlightenment. This advantage in having at least one other participant in learning along with oneself showed up again and again. Cam Porteous:
Learning Strategies of Early British Columbia Divers

...In the early summer ... a young man came to the pool side and introduced himself as Jimmy Willis. He also swam every week, and had watched me dive and stay under water for longer than was usual in a recreational swim. My father liked Jim and I ended up one Sunday at Horseshoe Bay where I met George Croy and Don Francks.195

First Generation/Wave/Pod

George Croy was first introduced to swim fins by a friend in the US Navy. Croy tried the fins out once in Trout Lake, but didn’t actually do any further development in diving until he, Don Francks, and a short time later, Gordi Moore undertook the activity together in the salt water. When the three first began to approach their new learning environment, they did so with extreme caution. Croy described how they cautiously entered the water, laid down in six inches of water with their masks in place looked for potentially harmful objects such as broken glass, nails in sunken boards. Next they would advance with equal caution further into the water, masks in the water at all times - just barely in, so as to allow these snorkel-less adventurers the ability to see into one environment, while continuing to be able to sustain themselves with oxygen at the same moment, from another environment.196 Croy stated “we were totally self-taught” and in the sense of ‘we’ being a community, he is correct. However, evidence suggests that were Croy to suggest that he was totally self-taught, that would be in error, and Croy appeared to recognize this. He used ‘we’ when describing his diving learning process. “Doing simple skin diving techniques and tooling around. We did most of it in the Whytecliff area. Anything that was meaningful.”197

These and later efforts by Croy, Francks, Moore and all the remaining narrators would appear at first glance to fall outside the Bonham Inquiry Model of Self-directed Learning referred to in Chapter Two, in that in the sense that they are not solitary learning activities. However, at second glance, this model doesn’t require the individual to exist in a solitary state.
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Rather, to recap, the model requires the individual to be involved in a "personal learning activity," that he "begins with a general need to know, finds resources as they become available" and "does most of the planning as learning is in progress." In this light the Inquiry Model seems to be one appropriate lens through which to view diver learning strategies and activities.

At the same time much, indeed most, of the learning undertaken by the divers as they progressed took place in groups of two, three or more persons. Thus ongoing learning was also a socially situated activity. "[E]verything we developed was from scratch. We didn't know if we were doing stuff right or wrong. Heh - heh! We just - keeping safe and enjoying it - enjoying the experience was uh, and we persisted in it - even though it was colder than hell an' you know?"¹⁹⁸ "We knew nothing. All that - the only information we had seen and read was all about the Mediterranean and the Red Sea."¹⁹⁹

The first group of divers approached their learning environment with far more trepidation and caution than did those immediately following them. There was a certain amount of inventiveness in them, driven by the need for equipment, the lack of capital, and a known lack of knowledge.

We were making conscious effort and working very hard at becoming what we thought we needed to be to function - under water which was - uh, practicing endurance skills, uh surface swimming skills just in case, and uhm, under developing you were talking about direction? You know the uh- uh - we spent a lot of time underwater in pools, and that - just learning to tell which way is up with your eyes closed for instance. You know your natural buoyancy tends to - y'know respond to the element -and the feel of it. Uhm, developing agility underwater.

But then we never practiced things like taking off our masks and dropping them to the bottom of the pool. You know, and try to put them back on. We never - never tried that at all. The uh - having started out without the snorkels and having had to stick your head out for air - it never really bothered us that much. If we lost a mask we'd just go to the surface. And uh, we had a strong aversions to getting UNDER things, fer instance. The uh, where you couldn't go directly to the surface if something went wrong.... The swimming through wrecks - like there was an old wrecked barge in Horseshoe Bay for many years, which you could swim through, but by gosh, the - it was
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unnerving with all their ragged metal edges and all that. And you - one minute goes by awful fast when you’re expending energy and moving around...

Learning was driven both by curiosity and adventure, plus a healthy consideration for safety. However, with this first group of divers, the notion of ‘safety’ was not founded on any formal ‘body of knowledge’ concerning the activity. In fact then, the divers were often unknowingly ‘unsafe.’ As the divers experienced incidents or near accidents, they incorporated their new found knowledge of what to avoid into their activities, thus incrementally becoming ‘more safe.’

Ummm. It had a lot to do with the unknown. There wasn’t anybody to tell us what to do, and we just ... I don’t know how we got to know about the buddy system - as I say - it may have been from that film again. From the Hans Haas film. Because they talked a lot about safety and diver safety I think .... Yeah. Well mutual regard as well. Concern for each other.... We were friends as well as diving buddies and had been all through our school life. So we were concerned about each other welfare.

It made, as Gordi Moore put it, “common sense” to learn in this fashion.

Because we certainly didn’t know very much in the early days. And you’d try something and it worked. So you shared it.
I: What sort of things would you try?
N: Well stopping the mask from steaming up. Originally we didn't know how to stop that. And we learned that originally it was - if you cut a potato and wiped - I don’t know where we heard that - cut a potato and rub it on the mask it would stop the thing from steaming up. And then finally we realized that spitting on it and wiping it and washing it off and putting it on would be the same thing.

The alternative of learning alone was readily available; however, the results associated with this alternative often served to re-enforce the notion of learning together. First, learning together tended to be safer, and second, learning with others often meant it was unnecessary to learn something ‘the hard way.’ Gordi Moore learned about the necessity of pressurizing the mask through the nose the ‘hard way.’

I remember diving down once at Horseshoe Bay, off the dock. And some little kid said “How far can you be - how deep can you dive?” And I said “I don’t know.” So I jumped off and I swam to the bottom, where they had a mark on the piling at the dock, and I swam to the bottom at fifty feet, but I didn’t pressurize into my mask, and I ended up uh, with a blown eye. My eye went all red and there was blood out of my ear every night.
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when I went to sleep and I remember quite clearly. So those were the things. This lack of knowledge of what pressure would do to you. .... I came home and my Mother was deathly afraid I was gonna lose my eyesight. 'Cause I had this great big red eye - at least one red eye, the other one bloodshot. ... And I think I learned more about the problems and the dangers in the time when I did that fifty foot dive without knowledge of what I should have done. And suddenly realized “Hey I gotta do something more than just Do this. I’ve got to learn about it.” And then I read somewhere that I should have pressurized and never had the problem again. 

George Croy also experienced learning the ‘hard way,’ that is by himself. In Croy’s case perhaps this particular lesson was simply an affirmation in practice of something he was well aware of in theory.

[O]ne time I did what I swore I would never do and that was - I wandered off from my buddy - and uh, diving. Too far away from him you know like two hundred feet or something like that. And I was cruising down over rocky bottoms, and I found an old boom chain. So ah, I went back to shore which was not too far away -- it was only a couple a hundert feet. An’ I’d already been diving for an hour. And left my gun or sling spear there and came back - and I didn't have any gloves even. Uh, went back to the area I thought where I would be over the boom chain. Up-ended and went down ah, to the best of my knowledge straight down, but when I encountered the bottom I encountered a slightly different place than I had been following before and it had quite a tilt to it, about forty-five degrees. And for a second there I lost my equilibrium as to which way was up and down? And, but I looked up and saw the surface and got that again, and carried on down to the boom-chain. Swam straight down on it - reached out, grabbed it , pulled my feet down and place it on the bottom, and at that moment everything went black.... And I’m guessing the depth at around --wasn’t very deep - twenty-five feet maybe. But that’s plenty deep enough for skin-diving in cold water. And it might even - I’m just thinking of the roof of the house.... it was probably twenty to twenty-five feet. And uh, everything went black - yeah .... my eyes were wide open....and I went totally black [slaps had on desktop for emphasis] And I CLENCHED together and I GRABBED the boom-chain and squeezed the barnacles and everything..... I - I couldn’t see t’all -- and then I closed my eyes I couldn’t see an’ I squeezed that barnacles so I that I could - sensation of pain came through my hands and I opened my eyes and I could see again. Right; .... I pooped out when I did get to the surface that was it I was done for the day. That, that may be another thing too that scared me and you see I’d wandered away from my buddy - if I’d a passed out that’uhd been game over for me right there. I - nobody woulda found me because the thermoclyne was so - dark y’know that murky green color in the top ten feet or whatever it is. I was well below that into the real icy water. YEAH that was a scary one. 

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This first ‘wave’ or generation of divers had acquired substantial knowledge and understanding of the breath-hold world by the time the next ‘wave’ or generation approached them for edification. The new arrivals generally sought both the friendship, or society, and expertise of the ‘old-timers,’ while at the same time they began their activities with a personal “need to know,” originating outside the diver ‘society’ into which they were entering. Given the criticality of context, the more recent arrivals in effect chose to enter into a context wherein they might maximize their personal level and degree of knowledge and skills change. The old-timers generally sought to share their knowledge and to learn further with their new companions, thus maximizing their own change as well. In particular Croy, Francks and Moore promoted a respect for the water world, particularly with regard to safety. More generally, the three were ‘the’ fountain of information for the new divers.

I guess the uh, in terms of my personal learning process, I learned to use the mask and snorkel without getting water in it, I mean that was the earliest problem, was how to cope with water in the mask and remembering - heh! - we used to smile to let the water out. Stick your head up under the water. Smile. The crinkles would form around your eyes and the water would drain out. And then it would reseal when you stopped. Uhm. we learned how to clear the snorkel by spitting into it - splitting the water out of it - got rid of the stupid little thing on the end of it - which was useless. Umm, learned to relax underwater, so you didn't bite the end off of your snorkel. Because you know, you tend to become tense in that kind of situation. You learn how to drop silently into the water, so you wouldn’t scare the fish away. That I remember.

All of those things we tried to teach the others. That’s the area that I personally learned uh, through just brainstorming among friends we would talk about those things and uh, you know “Drop over and slip straight into the water.” and “not kick until your fins were below the surface - breathe out a little bit. It makes you stay under a little bit easier.” Uhm, I’m just trying to put the memories together as they come to mind an that was the essential learning process for me. And then of course as we all got into it more deeply we read books, and heard things that others did and we wanted to try.204

The gateway to knowledge was open to anyone who wanted to swim through it. The three original divers placed no restrictions on whom they would show their science to.
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We just taught people that wanted to learn. We taught 'em what we knew and they tried. That's all you could say. It wasn't - it was because of the fact, I guess, that we didn't uh, have Aqualungs and we didn't have that problem, we didn't have that much to teach them. We just gave them the basic information- how to keep your mask clear. How you used it. How you put it on, cleared it. How you used a snorkel.  

Moore's humility, while polite form, was pointless. Today, any diving instructor will tell you that one of the easier tasks an instructor can do is to teach the use of the Aqualung. What is difficult is teaching the very things these original three sought to ingrain in the next generation. Their teaching or co-learning techniques were flawless in all but one area - safety. In this area the trio sought in instill information or understanding which by and large was either rejected or seemly at least ignored by the newcomers, much to their regret a while later.

Well in the YMCA it would have been. We might have taught through the winter and then started diving in spring and summer. So, I mean we were swimming and diving in a sense - all year long. Because we'd start in April and go through to October. Uh, out of the cold water and then in the winter time we would go to the YMCA and swim ... [We would teach them] Oh - how to get underwater and stay underwater. It's a skill that people seem to have to learn. They seem to bob up like a cork if they're not aware how to do it. How to drop below the surface and get down to the bottom, and how to put up with the pressure and at that time I guess we'd probably learned how to pressurize a little bit, and a little bit about the gear and where to buy it. Uh, how to use a snorkel and how to drain a mask. I mean, really nothing. When you look back on it, it was nothing. But it was all new to everybody in those days.

Of course, there was more.

I remember one thing we always concerned ourselves about each diver - as they rose back to the surface, that they watched upwards. I can remember teaching them that - you always look to the surface so you don't; come up underneath something accidentally - that I remember doing.

We taught people to become accustomed to the mask because you tend to go into the water at that time - without any knowledge, and as I said to you - I tore mine off the first time because it filled with water and I didn't know how to stop that at first and the masks weren't as good as they became later. And uh, ours were really like the children's masks you buy at the toy stores now - almost to be begin with. And so I guess we just taught people how to get the water out of the mask. Keep it out of the mask. Uh, how to use a snorkel. How to hold it under the rubber strap of the thing. It seems to me in later days they did other things, with the thing to hold it up. We just refined the year that we had been able to dive. And sort of showed people how to make use of it. That was all.
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We’d learned the hard way and we were trying to make it easier for those coming along behind us.\textsuperscript{208}

One of the other areas that we did teach them was the use of the swim fins. Instead of thrashing away with them, we taught - we had learned by that time to use the power of the fins beneficially rather than just on a trashing basis to go. And we tended not to use our arms. We encouraged them to just use their legs because it used less air when you’re underwater or if you were diving without fins then we used only our arms rather than - kept the legs still. And I remember doing that and I still do that today and I can stay down longer using just my arms instead of arms and legs, and or if I have fins on using the fins as opposed to using the arms or than just a directional aids. And how I’ve learned that I have no idea. Just practice.

Probably - the way the initial situation of the legs would be because the things of course, tire your legs severely if you’ve got’em and swimming for a long period of time and if you - if you don’t use sort of a gentle bicycle type - I uh, I can’t describe it properly now because I - but showing someone was easier. Uhm, probably, if you just tried to thrash your legs it didn’t work very well. You didn’t get anywhere. It was just very tiring and you ran out of air quickly.

And so we realized that and just encouraged them to use the fin to move you along underwater and of course if you’re carrying a spear or an Arbalete or something of that sort in your hands, you had nothing to swim with at any rate. And so I’m sure it was just a matter of a logical process that we realized - “you can’t do this” or “Gee, that works better” - as I said before - conservation of air or gaining more air through hyperventilation. We learned that...\textsuperscript{209}

Second Generation/Wave/Pod

The second ‘wave’ was seemingly far less cautious and far more competitive than had been the original ‘wave,’ their teachers. Or perhaps they were generally cautious; but experimenting and learning within boundaries that had been greatly stretched by their predecessors. Learning continued to be driven by curiosity and the spirit of adventure, and now by the spirit of competition as well. Cam Porteous remembered:

These were the early days. We were taught by George and Don, more George than Don, for Don Francks was starting his career in the world of Show Biz, where I ended up many years later. We learnt the basics of skin diving. Clearing the mask. Exercised in breath control. How to knuckle and thrust and reach the bottom (16-20 feet) quickly and cruise to conserve oxygen in the blood cells, and surface. Hypothermia was a threat. We were diving in the coldest of water with no dry suits. I remember that George Croy may have had a rubber suit that was a mini-suit. Covered chest, thighs, neck and head. It was short-sleeved and green. We all would dive in long underwear or sweatshirts. The early wet suit. I never caught a fish nor did Jim in that early dawn of diving, but we
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Sure had fun. Every weekend, in the evening, during the winter months, Jim and my friend George Gordon would end up at the pool where we started some serious training programs. First aid and mouth to mouth. Safety and equipment and care of one's equipment. Some rather superficial thoughts about the oceans we were diving in. The technique of improving our skills as divers. Underwater races, (4 lengths) underwater time trials (3 min. the magic number) and equipment exchanges (what equipment)

George Croy:

Well they - everybody was pretty much in the same boat learning new skills. Uhm, a lot of them that we talked to initially when we formed the Skin Divers Club that came along - and goodness knows how we made contact with them - I don't remember - we were able to take them places that we'd already explored, like Horseshoe Bay Harbour and the old sunken barge that was in there, and uh give them - information before they went in about the what the bottom looked like and how deep it was approximately and where you might find fish and so they had a much better idea just from what we told them - what to expect when they got underwater....

Well telling them about thermoclyne for instance and what they might - or how little they might see below certain depths and in certain places, even if the visibility was poor, if they pressed on. And they had the ability to dive deeper - that they would encounter clear water in most circumstances, and they even - if I went into Horseshoe Bay for instance, and swam fifty feet of shore and then upended and dove and came back again and said, "I've been to the bottom and it's approximately this deep." Then they wouldn't worry about encountering cables, or wires, or God knows what was liable to be strung along the bottom from all the years that place has been used.

Thus the tentative picture the Inquiry Model embedded within a socially situated model still holds. Initially new divers tended to rely on the information they were obtaining through Croy and friends. The three were looked upon as teachers and old hands. "We were, you know, the earliest divers and uh I certainly wasn't the first but we were among the earliest divers and learned some things and passed the knowledge along and as I said - because George and Don are bright guys - they dreamt up things on their own - that helped me - and I learned quickly, and uhm, then we were able to pass them along to other people."212

Terry Swean remembered Croy and Francks as older and "grown-up and they'd done these things and they'd done a lot of extensive sort of free-diving in the Gulf of Mexico." He
said they "explained things ... they were pretty good guys. Well they were a bit older than we were. They were worldly - obviously." Croy recounted the following:

Cam Porteous and the fellows ... [t]hey were just getting started. So we certainly were experienced relative to them, And we were a couple of years older as well. And uh, it didn't take long to teach them all we knew! Heh. We didn't know all that much because there wasn't that much technical aspect to skin diving. An' if you knew how to keep your mask pressurized and you knew how to pressurize your ears, and what else is there? Avoid getting cramps and over exertion, taking life easy under water while you could? What else is there to teach 'em other than trying to get 'em to practice the buddy system rigidly?

And therein lay the problem. Efforts at teaching the new divers "to practice the buddy system rigidly" didn't seem to work. Croy became concerned over the lack of discipline in the group of new divers with regard to safety, particularly relative to the buddy system. Where Croy, Moore and Francks placed particular emphasis on staying with, and staying aware of your buddy, the new divers, as they became more confident of their own prowess, tended to hunt or dive in groups. Where the original three tended to dive two or three at a time, but with each other, the newer divers were unwilling to display this particular discipline. Swean recalled: "Oh there'd be a bunch of us swimming around, and just, there was nothing uh, --- we weren't in any uh danger, that we would need a buddy. I mean the other people wouldn't be very far away. .... And everybody was just free-diving - so you know - you can't stay down that long anyhow."

Narrator Bert Mona, who with his friend Bill Thomson briefly snorkeled with the club in the summer of 1953, was oblivious to the notion of the buddy system. "Well the buddy system wasn't invented either in those days. Everybody just went any way they wanted to. We never thought of staying two together, I mean why should we? We didn't anticipate any problems. So we just went our own way when we went diving." The rapid move by the newer group of divers away from the buddy system so rigorously championed by Croy disconcerted him. "We
had practiced absolute rigid buddy systems when we were in Mexico. At all times. In fact we
never got out of sight of each other unless we actually switched diving partners and somebody
will verbally agree to be your partner." The situation eventually became untenable for Croy.

Actually what happened was that Don and I dropped out of the Vancouver Skin Divers
Club because we found that WE felt that they weren't practicing adequate safety rules.
They weren't having strict buddy systems. They were swimming three at a time, and
four at a time? And it's not possible to keep track of three other people. In my opinion,
in OUR opinion, we felt that one on one was the ONLY way to do it. And actually we
got extremely upset and nervous when people didn't stick by that system. They started to
swim in three's and they were not paying attention to each other.

...[I]t wasn't a case of disagreement. It was simply a case of I observed them, in my
opinion, not practicing safe procedures. And I didn't want to be - ah - part of it. I didn't
want to be around when somebody lost his buddy and somebody died - I had close
even when my buddy was close by. And I knew how close you
needed to be in that water to keep track - of a buddy. If you've ... if you're on the
surface and the - water is cloudy - and you can't see to the bottom to see how your buddy
is doing. And we had a strict rule that you never dove again until your mental count
- knew that your buddy was due to come up. And you check each other's presence at the
surface FIRST - before you dove. And we would dive in tandem - close together.

Croy, Moore and Francks did not simply evaporate away from the diving scene. Croy was
President of the Vancouver Skin Divers until he left the Club, and was replaced by Jim Willis.

Don Francks was actually getting quite busy with his entertainment career and could spend little
time diving. Gordi Moore continued on with the club, albeit less frequently, and sporadically.

Gordi was actually living in Alberta for a while, also in the entertainment business. In the
meantime the learning continued. The more divers there were, the more opportunities to learn
something new there were: hyperventilation for instance, which is a natural human thing to do
while running perhaps, but not while floating in the water. Gordi Moore remembered the group
'putting two and two together.' "All we knew was if you're starved for oxygen, I suspect we
just ... I was fortunate to be associated with some nice people. ... If you're starved for oxygen uh,
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you could also gain too much air. And so we tried to do that and we did it and it worked. Heh-heh! That’s we way - we - trial and error - more than anything else.220

Suddenly change occurred. Basil (Pat) Moloney joined the Vancouver Skin Divers Club. Moloney was in his early thirties and married when he joined the group, as compared to the majority of divers who were in their late teens or early twenties. Moloney was a Vancouver City policeman. His police colleagues respected him greatly. One peer noted that Pat was famous in law enforcement circles for his four fingerprint identification system, which he invented on his own back in the fifties, and which became the North American standard.221/222 He had been diving on his own for at least a year prior to joining the club.

Pat’s entry into the Vancouver Skin Divers Club had two fairly major and immediate impacts. He brought with him his homemade Oxygen Re-breather system, a device enabling him to remain underwater for extended periods time. Re-breathers were a known phenomenon in the small Vancouver diving circle; however, to this point no amateur other than Bill Thomson had owned one, and none, including Thomson, had used one.223 Money was a factor. The club members were far from affluent. There was a reluctance of ‘leaders’ within the club, like Croy, to use such a device:

... Never even tempted. Because somewhere I’d already read about the potential hazards of those re-breathers that were available. ... If I remember correctly but uh, somewhere I had books of information about them, an-n-n-n-nd it indicated there was lots of potential hazard with them. And, being -- I’ve always had this fear -- being a skin-diver from the beginning - you HOLD your breath --- all the way down - and ALL the way back up. Right? You don’t let any air escape other than maybe to pressurize your mask a little bit through your nose. And I’ve always had this fear - if I used -- uh, because I seem to be a creature of habit - it LOCKS on to me? I’ve always had this fear that if I was using uh - breathing equipment, that I might hold my breath coming up, and uh unconsciously - without being aware of it uh phuuuttt! (noise meant to describe the bursting of the lungs or a blood vessel) I’m not keen [on] suffering embolism. And I’m just not that interested in going down that deep anyway.224
Now, however, club members saw someone - a 'responsible' someone - using and modifying a re-breather safely, and a homemade re-breather at that. "Pat - came to us with more experience than the others had. And he was already interested in creating a re-breather. And almost, when we met him, he was also immediately ... he was 'creating' it almost, when we met him. And modifying it along the way 'cause he couldn't get it to work well." Fred Rogers commented on Pat's inventiveness.

Pat started off with making his own flippers out of a pair of running shoes, nailed to some plywood. He cut it out like a fin, took an old pair of running shoes and nailed them on the plywood. And that was his fins. He was, Pat Molony was very ingenious. His full name was Basil. But he was quite inventive, Pat was. Yeah. He was always come'n up - he was more or less the early, the early nucleus of uh - I don't know when he joined the group, but when I first met them, why, he was there...

Although not all members of the club immediately obtained re-breathers, and in fact although some never did so, O₂ re-breathing systems quickly became a part of main stream diving, and the learning experience.

The second major change to come to diving upon the arrival of Pat Molony was Pat himself. He was a fountain of knowledge, or so it seemed. He was enthusiastic. One coworker, who also grew up with Pat in Saskatchewan, described him as "a real brainy type, who went in a straight line. He made up his mind to do something and then it happened." He knew things, or he found out about them. He experimented. He was a leader by example. Gordi Moore: "Pat Molony was certainly a leader in the sense that he had an understanding - at least - and an oxygen re-breather unit. And to my recollection he was the first that I knew with that. I would say he had been working on it but hadn't perfected it."
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Pat's example encouraged experimentation by others. Jim Willis, who all along had been experimenting with underwater related photography, now also obtained one. Phil Nuytten had the use of one of Pat's earlier models of re-breather. Cam Porteous bought a re-breather. "What was it like to take my first breath underwater. Sheer terror. The freedom to go where the fishes only go was thrilling. We all have the same emotions, then and now. That first dive with air, or in my case oxygen."229 "I still have the article that got published on me using an oxygen re-breather."230

Fred Rogers, Graydon Baker and still others joined the club. Learning to dive was somewhat different for this newer group of divers. In contrast to the very step by step, extremely conservative approach exhibited by the original three divers and additionally their combined pool and saltwater training approach, the new approach to learning was more casual.

Well you didn't get this all in one bundle, you know what I mean? It would come in pieces and parts at a time? You just learned the basic functions of snorkeling you know what I mean? Things like this an' then of course you'd pick little scraps of information - maybe talk to somebody else, uh, [like] what some of the other guys are doing. You just come along slowly. There wouldn't be anything outstanding - like somebody'd tell you something - OHHHH! IS THAT RIGHT? Y'know? There's nothing like that. Y'know? It's the little things you picked up here and there. An' they just come along slowly and gradually, and in its stride. Yupe. But the most of it - most of our knowledge - we'd get it out of Skin Diver Magazine. That was one great source of information. Yupe.231

There was less to worry about. By this time divers knew how to enter the water and what was underneath the immediate surface. 'Older' divers were able to transfer this knowledge to the newcomers, relieving a good deal of the stress of learning this new activity, and allowing the newcomers to focus on other aspects. "I really had no fear of the water actually. I don't clearly remember. I think it came pretty naturally to me. I just remember starting off snorkeling and
having one hell of a good time. Looking down at everything, and I got one or two little gulps of
water and then I could pretty well regulate - I knew not to tip my head too far. You know?"\textsuperscript{232}

... And then my ears would hurt. I couldn't go any further. I didn't know how to
equalize. But they ... told me how to do that. They said "when you get under the water
you just push your mask up under your nose ... and try like as if you're blowing through
your nose. It'll pop your ears - yeah they told me how to do that - how to equalize. But
y'know, takes a little practice. [The fins] came natural to me. Not a problem at all.
Really it all fell into line so natural. I could feel the thrust you know? When you get the
maximum thrust. It felt natural to me. I just got right in the grove right away...\textsuperscript{233}

Graydon Baker's first impression was less immediately favorable, but still his learning process
was by far simpler than had been those of his predecessors. His first experience with a mask and
fins wasn't very successful. It took place in a pool. Graydon, whipcord thin and muscular, had
trouble floating. There was also the problem of a leaky and probably a mask which was too
large.\textsuperscript{234} The next occasion for learning was at Horseshoe Bay and this time Graydon was
wearing a drysuit for the very first time.

It was with my rubber suit. I had positive buoyancy. And my first day it was the scuba
club out there. Down in Horseshoe Bay and uh, this scuba club is out there. They took
off and away they went. Fred went motoring on, and uh, y'know - I did not really have
my swimming skills were not that good. 'Cause one reason, I never swam that much. ...
but I could float! ... OK! I could float (Slaps hands) to hell with the weight belt!
Y'know? Get up there and float on your back. ... I got rid of that pretty quick. And I
went ... and they said - 'Oh! get the air out!' I had no experience in this y'know ... So
that was my introductory period. Swimming back and forth in the water getting used to
my flippers - getting used to all this encumbrance around you? Y'know on your arms
and bubbles going in there - water going in here...\textsuperscript{235}

Graydon's introduction wasn't particularly easy, but the focus of his learning was quite different
from those who preceded him.

When Graydon Baker and Fred Rogers came into the club, Fred was a couple of years
older than Pat Molony, making him the oldest in the group. He and Pat got along famously, and
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their combined ‘maturity’ created a natural basis for continued leadership. They also brought new information sources into the local diving community.

When I was down in Puget Sound and bought my first skin diving outfit down there, they had Skin Diver Magazine on the shelf. ‘An that was what the divers all used - we would read Skin Diver Magazine. Now I don't remember what year that magazine came out but however it was going good in 1954. So I bought the issue right there. ‘Cause Dave said ‘Look if you’re be diving you should subscribe to this - it has all the information on it. It'll help you along. You'll learn a lot from reading that.’ An’ I says that’s what I want. So I took and brought my first issue home. And I just wrote a letter down and from then on subscribed to it. So that’s where we learnt a lot of things. Fella by the name of E.R. Cross had uh an article in there - not every issue - not every month. But he had a lot of articles there. Technical articles about diving - you know what I mean? And so we learned an awful lot from the magazine. That was our main source of information.

It wouldn’t necessarily be the case that they introduced the new information. It was more that due to their respectable ages, the two rapidly gained influence in the community. Graydon Baker:

Pat was a very knowledgeable person. We used - we respected his opinion. If he said something, we better check it out. Not because he thought he was the manager. No! Because it was useful information. The only time we ever got together was on a dive. There wasn’t really a place where we could [meet]. Anybody who was interested or showed an interest were a friend. ... Fred Rogers was older and I had a very - I always thought him very refreshing and uh, Pat Molony seemed to very knowledgeable. He had a bit more education than Fred did but, hey - Fred was right there. We came to Pat for stuff uhm - Fred was very wise uh, you could say with you could say, geometry - Fred would figure it out. Now if you’re algebraic he’d be lost. Whereas uh Pat Molony would uh be able to uh, solve the geometry or the algebra. Whereas Fred Rogers would drawing it in geometry eh? That’s the difference Fred had ‘cause of his education. Not that he didn’t have the intelligence, but that’s what he didn’t really work in.

Cliff Donovan remembered things similarly. “I used to chum around a lot with Fred not only for diving, but he became a personal friend when I was younger. He was sorta a mentor --- too --- I didn’t learn from him like I learned from Pat but I uh, went diving a lot with Fred.”
In early 1955 Fred Rogers built himself a set of scuba tanks, purchased a regulator and began his scuba-diving 'career.' He very quickly came to be known as the diver who knew the most about the various shipwrecks which had occurred 'locally.' He was introduced to the very notion of shipwreck diving by none other than Pat Molony.

And uh, then of course in 1955, why, how I got interested in Shipwrecks, up to that time we were just diving and looking at the marine life, you know. Spearing cod and things. Guess we had the first little spear fishing derby - 1995. I've got a photograph of 'er here - I won that competition - uh with a seventeen pound lingcod. ... And then in 1955, uh., a friend of mine wanted to take me over to uh, the Gulf Islands. One of my diving buddies, that's uh, Pat Molony, he was, well a Vancouver policeman. And uh, he had a friend who had a commercial fishing boat and he took us over to Portlier Pass over there to dive on this old wreck of the steam tug, the Point Grey. So we had a three day, Easter weekend over there. And we had a, quite and adventure. It's the first wreck I'd ever seen. And it was quite a, quite a daring event for us, because Portlier Pass is a kind of a -- wild spot anyway. Y'know what I mean? It looked terribly treacherous to us guys 'cause we'd just been diving in a nice quiet bay. But here this vicious tide was boiling around the wreck, y'know what I mean? Great big whirlpools and eddies and things 'n I thought sure in hell this is a, ha! this is a death program, y'know.\(^{239}\)

As a welder and steam-pipe fitter, Fred's services were in demand all over the province, and he often took his equipment with him. In doing so, he introduced scuba diving to what were then comparatively remote portions of the province.

I was the first scuba diver to ever show up around Campbell River. And the word so got around that I was up there. And in the mean time, I got Stan Volmer's -- uh, he was one of the early snorkel divers. Stan never had any scuba gear, but the was a good snorkel diver. You know what I mean? And uh, and then there's Eric Petersen. He wasn't a diver at all. But he wanted to try it. So I loaned him my equipment, and uh he, he was a Danish fella. Electrician. See he tried my outfit. And he finally ended up buying some equipment for himself. Not the Aqualung. No. Just snorkel. Uh-huh. And Stan Volmers wasn't an Aqualung diver. No. He was just a snorkel diver. Yeah. Spear fisherman. Yaupe. Yeah. Yeah the three of us went out. Yeah. I, I helped them quite a bit, you know what I mean? I taught then a little. Things that they didn't altogether know.

And I taught another fella how to scuba dive up there. Captain John Humphreys. He, he's retired right now. But he had a tug an', tugboat and salvage company up there. And he heard about me. And he wanted to learn how to skin-dive. And he had a hard-hat outfit. So, we went out one Sunday. And went across to Quadra Island. To a nice little bay over there. Where its nice and sheltered. Nice clear water. And he wanted me
to put his hard-hat outfit on and go down, but I didn’t like to try it. Cause I didn’t really know enough about ‘em. And I thought, ‘No I won’t worry about that John. But if you want to learn to scuba-dive, OK, we’ll go over this carefully.’ And I went over it carefully, you know what I mean? He, well he already had some knowledge about diving anyway. And uh, so I warned him, y’know, about uh, if you get your mask full of water, or something like that, don’t panic and hold your breath and come to the surface, ‘cause I said, ‘if you do you can get an embolism and kill yourself,’ I said. ‘That’s fatal.’ I said. ‘If you can’t remember anything else,’ I said, ‘Don’t hold your breath! But I said, ‘Promise me one thing. Don’t go down any deeper than about twenty feet. ‘Cause I said, ‘cause I wanna be able to see what you’re doing down there. An if you go down too deep and something happens,’ I said, ‘I might have trouble trying to go down to find you. ‘Cause I haven’t got any gear!’ So he stayed within fifteen feet of water and I just watched him swim around. You know, he just wanted to get the feel of it. He loved it! Then he turned around and bought his own gear. Hah-hah-hah!!

Pat tended to be more readily available than Fred was to the divers in the Lower Mainland, as Pat, a policeman, normally worked in Vancouver. As well, Pat continued to dive with his re-breather systems well into 1956, while experimenting frequently with Fred Rogers’ second set of scuba as well. New, or potentially new recruits usually happened across the divers in such places as Garrow Bay, Horseshoe Bay, Sandy Cove, and Whytecliff.

Well if new people wanted to learn to dive ..... Well what they did - they happened to watch us eh? Spectators? And they’d look at our equipment, and ‘Uh, where do you - where do you do this, where do you get your equipment y’know? Uh. How can I get started in it?’ And we’d say ‘Well if you’re really genuinely interested - OK - if you want to join us - OK...’ And we like to keep them all under our umbrella eh? ‘Cause that way you could monitor what they were doing. Take them out. Take them easy. Show them how to do it. Take them down in just shallow water y’know and get them familiar with it, before they go down to any depth at all? Just sorta make sure that nothing - no bad publicity! Try to prevent accidents and police your own ranks. And -- We would show them how. Once they’d get equipment we’d take them - we wouldn’t take them [to] buy them - if there was a dive shop we would if they didn’t they’d have to go to the States. Down to Seattle and buy the equipment from there.

Thus, the relationship between the self-directed Inquiry Model and the socially situated learning continued within the diving community, albeit the relationship between these two point of the continuum changed somewhat for a time, with what might seen as the agenda of
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“proactive self-directed learners” (Knowles, 1980) temporarily superseding the community learning style of the original three divers. Still, learning within the club, both for new and older divers, remained “an integral part of generative social practice in the[ir] lived-in world” (Lave and Wenger, 1991).

Bert Mona and Bill Thomson choose a different route. Initially they had learned the breath-hold approach to diving with members of the Vancouver Skin Divers Club. Breath-hold diving didn’t appeal to them so they sought another approach. They were persuaded not to try Oxygen Re-breathers by commercial diver Keith Carter, and encouraged by his example to begin using Aqualungs. Graydon Baker noted that, unlike Carter’s fairly major influence on Mona, Thomson and through them their club, the Blue Sharks, “he wasn’t a source of information for MY group” the Vancouver Skin Divers Club. Perhaps having a different mentor made it inevitable that their approach to learning and the results would both also be different. Certainly there were attitudinal differences. An example highlighting this difference was raised by Fred Rogers.

They [the Blue Sharks] were spear fishermen, but they used to spear fish with an Aqualung you see. And we used to debunk them because of that. We’d say well anybody could go down with a damn Aqualung and spear a cod. Let’s see you guys do it without an Aqualung you know what I mean? And [there was] a bit of hassle - rivalry amongst us you know. Jim, Jim Willis used to really raze ‘em about that. Oh yeah, he was the worst. He was the one who didn’t like the idea -- of unsportmenship. Not a sport fisher at all. Yeah. He figured tha’s just like shooting pheasant in a cage or something like that. You know? Huh-huh!

For both groups there was now plenty of reading material on diving available. There was Skin Diver Magazine, published in California and containing advice on diving technique, equipment, and ‘reports’ from diving clubs all over world. The information in just the first thirty pages of J.Y. Cousteau’s The Silent World (1953) was formidable. It described: the
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notion of building a 2 stage regulator (p.3), a three tank manifold Aqualung system (pressurized tanks) (p.4), Fernez goggles (p.4), a Glass face mask (p.4), weight belts and the principle of liquid displacement (p.4), the notion of buoyancy (p.4), Le Corlieu foot fins (rubber fins) (pp. 9-10), spears, spear-guns, slingshots (p.9), the snorkel (pp. 4-9), and spear-fishing and crustacean taking (pp. 4-9). There was also information with regard to body temperature relative to the core and surface, as well as insulation of the body, vulcanized suits and drysuit problems (pp. 12,13), re-breathers, oxygen depth limits and O₂ poisoning (pp.15,16), the notion of exertion underwater (p.17), depth limits (p.26), and Narcosis (p.30).

Another example of available information-rich reading was Tom Waldron and James Gleeson's (1954) *The Frogmen: The Story of the Wartime Underwater Operators* (pp. 33-34) discuss in some detail, the Amphibian Mark I "re-breather" (*my description*) which the book said “allowed a diver to work down to a depth of thirty feet for periods of forty minutes to one hour ... this pendulum system has been recognized as the safest and most satisfactory method by divers in the world, and is adopted almost universally for underwater oxygen breathing set today.” Next, the authors informed the reader the about the state of the art diving suit of those war days. A wet suit diver, “underneath his oxygen set he wore thick diver’s woolens covered by a thin rubber suit. The suit was open to the water at the neck, wrists, and ankles, and later it became known as the “free-flooding suit.” Pages 40-41 speak of an improved wet-suit, page 53, the bends and page 55 discusses O₂ poisoning.244

A *Popular Mechanics* magazine scan for that 'era’ revealed the following articles and advertisements related to diving.

- Oct. 1950 - 'Quest for Galleons's Gold.' (British naval divers top side air)
- May 1953 - advertisement p. 327 - 'swimming fins, diving masks'
- Jun. 1953 - advertisement p. 287 - gear (pressure tanks)
No doubt there were additional unseen pieces in this magazine, and there were plenty of other sources. Terry Swean mentioned that Argosy, True and Saga magazines had articles about diving from time to time. Bert Mona:

OK, you uh, don’t go down deep for a long period of time so you get the bends, But we didn’t worry about that ‘cause our tanks didn’t hold enough water [air], we figured. Or air - not water. So we couldn’t stay underwater very long. And uh, never hold your breath coming up. Never come up faster than your bubbles. I don’t know if that’s a rule or not, but that’s what we read somewhere, so we made a point of not doing that. And that was it. And of course how to clear your ears when you went down, by swallowing. We knew that. ... Well, read it in a book. There were a lot of books out. Well not a lot, but were books that tell you all this stuff, y’know.

The problem wasn’t about information availability. As Bert Mona indicated, the information was there. You could read it, or there might be an ‘old hand’ about who could tell you - but you had to listen, and even ‘old hands’ sometimes made fatal mistakes: George Croy had been worried about the nonchalant approach of the newer divers towards the buddy system. He’d also been concerned about the dangers inherent in O₂ re-breathers. Terry Swean remembered George Croy telling him that he, George, was worried about Jim Willis and his use of oxygen. George felt that Jim might do something silly. In the summer of 1956 tragedy struck the
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British Columbia diving community - more than once. On June 25, 1956, Maurice Goodmanson drowned while diving in Prospect Lake near Victoria. On July 3, 1956, Jimmy Willis was killed when his lungs ruptured while using his re-breather in Cultus Lake.

Third Generation/Wave/Pod

Re-breather diving in BC ended within days of Jimmy’s death. Pat Molony did step forward at this time to take on a more substantive role. In effect he captured the learning process of divers in the Lower Mainland. One can only speculate with regard to the emotional turmoil Molony would have been feeling. As noted earlier, when he had joined the Vancouver Skin Divers Club, Molony brought with him the club’s first real opportunity to use O² re-breathers. His status as a senior member of the club, partially based on his age, his position as a policeman, his inventive and exploratory nature, and his interest in and experimentation with re-breathers in effect sanctioned and promoted their use by the rest of the club. No doubt to some extent Molony felt some responsibility for Willis’s death.

Fortunately for the club members, Molony’s reaction to the situation was to become more fully involved in the learning process of divers, rather than to withdraw from the activity. Gino Gemma remembered Molony as a major source of scuba diving information after this point. Cliff Donovan was actually introduced to ‘serious diving’ by Pat as well.

I met Pat - we were in the Anglican church of St. Nicholas in North Burnaby, uh, sanding floors in the gymnasium, to get them ready for uh, varnishing, and this fellow working beside me started to talk to me, and asked me what I did, uh for hobbies an’ stuff, and then he went on to explain that his hobby was skin diving. Well, having an avid interest, but not knowing anybody -who - who could teach me, I --- jumped on the bandwagon, an’ that evening after work he took me down, and showed me his home-made gear, and what gear he had, and asked me if I’d like to go. Well, and I got through explaining this all to my Father, and he allowed me to uh, give it a whirl, and that was it. I was away.
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Donovan also referred to Pat as a "mentor" at one point in the interview. In fact, each of the later group of narrators recalled Molony’s presence as being an integral part of the learning environment. However, Molony now focused most his facilitating *cum* teaching efforts on the ‘classroom,’ actually a firehall mentioned earlier, where he could communicate with larger groups, rather than at the water’s edge. He reserved his water work for one or two divers at a time, often the newest or the youngest of the club. Dennis Thulin’s recollection was quite clear with regard to the importance of Pat Molony to Dennis’ own learning.

Well there was a gentleman called uh, Pat Molony, who used to work for the Vancouver - he was a diver, for the Vancouver Police Department. And he was the one that trained us all. So - and uh, I don’t know where he - learned his diving.

This third ‘wave’ of divers tended to be more conservative than those who preceded them. Molony’s intervention into the learning styles of divers, while well intentioned, can also be seen as the point in time where the balance between the Inquiry Model and socially situated learning within the diver learning community became disrupted. In the sense that an individual still necessarily made the decision to begin the learning process, and ultimately was responsible for his own learning, self-directedness continued. However, how and what the diver learned was now subject to a greater degree of ‘other-directedness.’ Learning was still based in the ‘lived-in’ social world of divers, but the community learning agenda was now far more subject to ‘expert’ facilitation. Certainly diving was still to be fun, but the notion of learning about hazards before one encountered them now took hold, along with the notion of learning how to deal with those hazards. Dennis Thulin, who purchased an Aqualung from someone who was quitting diving, described his first meeting with the divers as follows:

There was just a group of people getting together - diving out there. And uh I told them that I - I met this fella called Gino Gemma, who seemed the kinda the king-pin out there. ... And I was very enthusiastic about using Aqualung. And uh, he was uh - he was a ‘no-
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...no.' He didn't have one so - you don't 'no-no - you can't do that - no.' He said 'you've gotta skin-dive if you're gonna dive with us!' The point here is that at the time Thulin joined the divers, a specific approach to 'how to learn' to dive had been put in place, one that was backed by the community of divers, but put in place by individuals who were both senior members of the diving community and representatives of the authority of the larger British Columbian society as well.

Fred Rogers recounted this time as well. However, as Fred had been diving now for several years, he perhaps had a perspective slightly different from that of newcomer Dennis Thulin. Fred remembered Gino Gemma and the year 1956 because of the great change that had taken place when he returned to Vancouver from a job in Campbell River.

He joined in 1956. Because he wasn't with the group when I left. Now when I left in the spring, to go up to Campbell River, he wasn't there. Nobody'd heard of him. When I got back late that fall, after the job was finished, there had been an explosion with the diving club. It just was a small group when I left. My God. I hardly knew anybody! There was a great big gang of about thirty men around, and some women. And there a little group of us when I left. There was, ah, quite a big surge in '56.

Cliff Donovan also remembered Gino's arrival in 1956, and the new restrictions being imposed on diving and new divers, imposed not by any authority other than the that of personality and the genuine concern for safety that had originally been a part of the sport, and was reborn with the death of a well known and well loved member of the diving community.

Scuba. Uh, no mainly, mainly free-diving, Pat introduced us to. Because he wouldn't allow any of us at that time, to take up scuba diving until more knowledge was acquired. Uh, he was in the Police Force, and I learned just about everything from him, as he acquired knowledge though doctors, through reading. And through sending away for literature. We slowly became a little better in knowing what to do. A few of the divers were killed through not having enough education, and using what they had, uh, surplus oxygen re-breathers from the US Navy. Which they - you could buy them in - I remember in Woodward's having one on sale - I was gonna buy it, and uh they would have sold it to me, without any knowledge I coulda gone out an' killed myself, because any - if I remember correctly, anybody who went below thirty feet with an oxygen re-breather, they wouldn't operate properly. So we did lose - Jimmy Willis died that way.
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Aqualung, or scuba diving was now the only acceptable breathing assisted method for sport divers. Breath-hold diving was still a respectable approach to the water, but tended to now be looked on as either a part of the learning process leading to scuba, or a competitive sport between clubs, and less of an activity that one did for its own sake. It became a side line and showy activity rather than the main event. Even the die-hard breath-hold divers left in the Vancouver Skin Divers Club turned more and more to scuba. Learning became training, and training began to become further formalized.

He, [Pat Molony] he had a manual, he typed up, that he would give us. And it had all the things we have - had to memorize, and he would uh, test us on it. 255 .... [W]e had a buddy system. We could never dive without a rope, without holding hands or a rope between the two of us. And the rope couldn't be longer than eight feet. ...[W]e had a loop and it was wrapped around our wrist. So we knew where each other was at all time. We had a communication through sign language. Not as uh, deaf and dumb people would use but uh, there was a dozen signs, such as ‘out of air’ - going up, going down, wait, let's go, that we cold readily communicate - I mean communicate non-verbally enough to git by. 256

There were definite do's and don't do's: rules for safety. These rules were now considered both common knowledge and inarguable.

Keep breathing, when you come up - if you run out of air and have to come up let the air out so you didn't get air embolism, if I remember the word correctly. Just let the air out so your lungs didn't swell up and burst. Dive with a buddy all the time. Never go alone. It was established to the point that if you were caught doing it without a buddy you might be asked to leave the club. Pat was very safety conscious. 257

The club, that is the Vancouver Sub-Aquatic Club, would meet every couple of weeks to talk about their experiences and to hear from Pat anything new he'd learned as well. Being asked to leave the club would have serious social consequences for the individual, but additionally would reduce the individual's learning opportunity as well in so far as diving was concerned. This would weigh heavily with the divers, as they tended to spend all of their non-work time within the diving community activities.
Fred Rogers noted that while he, Fred, had been “working out of town in 1957,” that Pat Molony “was pretty much the main teacher with our little club. At that time Pat Molony had a bunch of guys training.” Dennis Thulin recalled Molony’s particular emphasis on the possibility of embolism and nitrogen narcosis. He recalled as well the eight page manual which he said described “all the different diving diseases and what you should and shouldn’t do.” Dennis remembered Pat as an “excellent teacher,” a very high compliment from the man who “hated school.”

But we all got a - a we all got this eight page thing, and we could take it home and study it and in every meeting we had it we would discuss it and you know he was very thorough, and he was very sure that we were going to be safe. You know, and that’s one thing about him. He really knew his stuff. But where he learnt diving I have no idea.

Between meetings there was the diving itself, usually without Pat’s or another authority figure’s presence. This, the provision of information to learners for incorporation into existing frameworks of knowledge, combined with follow-up discussions and feedback among peers, combined with ‘hands-on’ application is a typically adult approach to learning, and a currently recommended approach to the facilitation of adult learning as well. “Adults are likely to express their own needs and describe their own learning processes through verbal activities which allow them to negotiate and collaborate in planning their own learning programs” (Mackeracher and Brundage, 1980).

We used to meet in the Fire Hall. Down on - what’s the Fire Hall downtown there? Hornby or Howe ‘er one of those uh down where the Ford Theatre is now. Down around there. There used to be a fire hall there. And we used to meet there. That’s where we used to have all our meeting, uh, ‘cause that’s what was available. Oh! That’s right - there was a man called Len - Len somebody - Len Morrison or something, who was a fireman, who was uh, associated with Pat because - their similar trades, and uh he had permission fer us to have our meetings in the fire hall - see it’s all coming back to me now, heh - heh! Yeah, Len Morrison, that was his name.
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In 1958 the 'education' in the diving community rapidly began to take on even more formality and shortly thereafter became a commercial enterprise. "Well, Gino Gemma took the ladies at the YW.... and uh, we did our - our theory and Dennis helped me with the practical part. It - Gino just took us in the pool and instructed us and went over - went through the book." Shortly afterward Gino also opened a small dive shop in the west end of Vancouver.

Gordie Squarebriggs recalled:

Uh, I was let's see uh, I was about 37 I guess. I started late. Well it was the tank diving ... snorkeling I did some time before that. Tank diving - I was 37 years [old]. Well uh, snorkeling around 1957 and uh in 1958 there was an instructor by the name of Gino Gemma. And he had a tank, a diving tank just near the entrance to Stanley Park. A twenty foot - twenty five foot tank. And uh, so I signed up instructions and that, and then uh our passing test was to ditch and don. You had to go down this tank - and you - right to the bottom of the tank and that and take your gear off and then uh go to the surface and hyperventilate and go down and put your equipment back on, and back up and you've passed your test. If you could do that... It was just like diving down a well - if a person had claustrophobia I don't think he could be very happy with that. It was only about this [wide] (holding arms about six feet wide).

Learning to dive for the early British Columbia divers, were they breath-hold or free-divers, Oxygen Re-breather divers, or Aqualung divers, was an adventure in self-directed learning within a socially situated learning context, and spread out for a period of years. Each spare moment was an exciting time in which to immerse oneself in the watery learning environment and to re-emerge in a state of greater understanding and perhaps wisdom. Friendships of incredible depth were created and perhaps a deeper understanding of self was achieved through this 'learning by doing' than can ever be emulated by the far more formal, profit and institutionally based 'learning by instruction' approach begun in the late 1950's and carried forward through 1958, to today.

160 Relative to the several phrases marked with quotation marks, I refer the reader back to Chapter Two
161 AT1/2/34
162 GC1/24/42
Dennis Thulin - I had poor grades in school and I used to draw logging scenes in all my books. I guess my Mother wanted better things for me. Logging to me was excitement and being able to do what I lived for. It was dangerous and challenging and I craved both, and still do today. Living on the edge.

Fatal, because the air we breath underwater comes to us in a compressed form. Air pressure at sea level is equal to one atmosphere. Immediately upon immersion, air is compressed to two atmospheres. The air in Fred's lungs at five feet under the water is compressed to approximately two and one third atmospheres. When Fred comes to the surface, the air in his lungs expands, taking up two and one half times the amount of space when he was five feet down. Such lung expansion can easily be fatal.
Later on in the second half of the 1950’s and the 1960’s Pat trained the Vancouver City Police and Fire Department divers. He also took the first Canadian snorkel diver team to the Caribbean snorkeling contest.

Thomson and Mona tried out Thomson’s re-breather for a couple of minutes in August 1953, under the watchful eye of Keith Carter, down at Carter’s dock in Coal Harbour, but on Carter’s advice decided not to use it.

Later on in the second half of the 1950’s and the 1960’s Pat trained the Vancouver City Police and Fire Department divers. He also took the first Canadian snorkel diver team to the Caribbean snorkeling contest.

Personal conversation with (Derry) Tex Thorpe, Thursday, October 17, 1996


The book later described as the eight page book created by Pat Molony.

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CHAPTER 7

Conclusion

The learning efforts of the early BC divers up to about the end of 1957 should be looked at as having spanned three periods covering first a period of learning about and establishing a level of comfort within the salt water environment, the second a time in which the diving community incorporated diving technology into their understanding of diving, and the third a period where the safe use of diving technology in the salt water environment was the focus. Each of these periods took place within a social and environmental context. Throughout each period, divers, as self-directed learners as described in Bonham's Inquiry Model, participated in a social learning activity, situated in the lived-in world. Thus here, perhaps, is evidence that the notion of self-direction in learning is compatible with the notion of socially situated learning.

The individuals involved in the activity employed learning strategies through which they sought to achieve a balance within themselves to counteract the imbalance they felt, possibly as a result of their formal learning experiences or environments, and or the implicit messages they received from society with regard to their worth as citizens. Diving provided a forum within which the participants could experiment, adventure and excel in learning thus moving towards self-esteem. In effect, these individuals sought out or developed the means and context within which to move them forward in their efforts to self-actualize, after a fashion not entirely removed from the approach to learning described by Dale and Conti (1992).
Limiting Factors

There are a limited number of divers alive who qualify as narrators for this research and in turn the experiences of these specific divers, while generally reflecting the experiences of their peers, may not specifically reflect the experiences of all others learning to dive in BC during these early diving times. Additionally, the narrators being interviewed for this research all learned to dive in the Lower Mainland, whereas there were also those individuals who learned diving in the Victoria area, the Naniamo area, and apparently the Prince Rupert area in the fifties. Although there is a degree of certainty that the Vancouver Skin Divers Club was the first group of individuals to co-learn the diving activity, exactly when the divers in the other areas of the province did so is not known.

There is also the experience of the other divers to consider. As it is today, Vancouver and its surroundings in the 1950’s was a comparatively larger local economy than those economies of the other aforementioned localities. Presumably, but not necessarily, equipment used in diving was also therefore more readily available in the Vancouver area. This availability or its lack may also have influenced the learning strategies of the divers in other areas of the province. A further influence on de-generalization of this study may have been the naval base in Esquimalt, which very definitely trained naval hard-hat divers and which may have also influenced free-diving in the Victoria area.

A further limitation to the research is the gender of the divers. All of the narrators for this study are males, thus perhaps their approach to learning to dive might differ from a group of women, or a mixed gender group who sought to learn to dive in a similar context. As it happens there is no record or other evidence of female divers directly participating in the Vancouver Skin Divers Club diving activities prior to July 1, 1956, nor in the activities of the
Learning Strategies of Early British Columbia Divers

Sub-Aquatic Club immediately thereafter, to my knowledge; however, this is not to say that there may not have been any. For instance, although her involvement may have been very limited up to 1958 when she participated in scuba lessons at the ‘Y,’ Edith Thulin, spouse of Dennis Thulin, first dived with an Aqualung in 1954, in Mexico. Edith also indicated that wives of other males divers known to her dove, however, these activities appear not to have begun before 1958.

The source of the individuals who narrate in this research must be considered. Many were either referred to the researcher through the initial interviewees, or narrators. While this ‘snowball’ approach was useful in terms of finding narrators, it also tends to mean that most narrators came to the research through the referrals from a single group of divers. Investigation has yet to rule out the possibility that there may have been other ‘pods’ of divers yet undiscovered in the Lower Mainland at that time, and it is known that there were divers in Victoria and possibly Naniamo at least by 1958. Several of the narrators showed a very limited and inaccurate understanding of diving events and personages which preceded them and their particular group of dive buddies, even though some of their group very obviously migrated from an earlier group. This is reasonable considering it has been more than forty years for most since they first dove, and their concentration would tend to be on diving itself, not on the preceding history of diving.

The incomes of the narrators, both personal and their families, should be considered a limitation. The individuals represented by the research generally come from families which experienced lower economic status while the narrator was growing up. Thus the ability of the
Learning Strategies of Early British Columbia Divers

narrators to obtain expensive equipment, with the exceptions of Bert Mona and Bill Thomson, was hampered. This is not to say though, that perhaps another group or groups of divers might not have had far less difficulty obtaining scuba-type equipment more readily, due to their comparative affluence.

Nevertheless, having noted all of the aforementioned, the actual learning strategies arrived at within this group of divers certainly may stand up as an interesting study of the how and why adults choose a learning activity and then how they pursue a level of expertise in that activity. As is readily seen in the quoted contents of this research, the narrators learned their activity most effectively within a group of co-learners. True, there were those whose other activities may have lead them to seek new knowledge through solitary research, and Fred Rogers is an excellent example of an individual who carries on singular experimentation whilst ‘out of town.’ Notwithstanding, Fred considered himself to be a part of the group of learners and exhibited and eagerness to remain within the Club. He not only learned much of his diving within the group, he actively sought to promote learning among newcomers to it.

Possibilities for Future Research

My interests vis a vis possibilities for future research stem from those found within this research, but also two other areas. One area surrounds my own somewhat roundabout approach to learning various activities. For instance computers. I’m certainly not an expert, I’ve been around computers enough now, and used them for my purposes, to have a fairly comfortable relationship with my own. On the other hand, my ‘involvement’ with computers has tended to stem from my involvement in other activities. Back in the 70’s a company I ran had a large desk sized computer that ran lists for us, and played hangman. That computer had 64k memory. In
1989, when I arrived at UBC I found that owning a computer was a part of a survival strategy that, as an adult competing in the Bachelor of Arts world, was a requirement, despite anything the university might say to the contrary. Over the next eight years my knowledge of how my computer works, what software was useful, and how to get it to do the things I wanted it to do, increased dramatically. How?

The other area is the interest I have long held with regard to the somewhat vexing question I often have found myself asking when viewing the expertise of a person or persons in a field, endeavor, craft or project, where that person demonstrates a depth of knowledge, understanding or craftsmanship, yet claims to have had no 'training.' There have been times when I've found myself to be quite irritated with the question of how they achieved that expertise, or 'how they learned.' Responses to my inquiries generally are met with small shy smiles and a 'Oh you just pick it up y'know?' or something of that nature.

In a recent conversation with a friend, Roger Boshier, concerning this very type of individual, Roger mentioned a gentleman in New Zealand, who built an aircraft in his barn, from scratch, and without any formal learning on such subjects as engine casting, lathwork, aerodynamics, engineering, or the plethora of other tidbits of knowledge that one might reasonably expect him to have in order to build an aircraft. How did he do that? What were his learning strategies?

Also along that line, in her study "Using Naturalist Inquiry and Content Analysis as a Qualitative Approach to Conduct Historical Case Study Research" (1990), Lorriane A. Cavaliere investigated the manner in which the Wright brothers built their aircraft. Again, the resources available, including their knowledge bank, could not have had great depth. How did
they learn how to do that? How did the first persons to fly helicopters learn to do it? How did Dale and Conti’s flyfishers learn their activity?

More importantly, what if anything do these and other groups and individuals have in common when it comes to their approaches to informal and non-formal learning? As indicated in Chapter Two, Dale and Conti expressed their view that, “despite the growing emphasis on learning in real-life settings by adults, nearly all of this research has been conducted in the formal setting, and almost no concern has been placed on informal participation in adult education” (1992, p. 52). They continued, lamenting that there is insufficient “research-to-practice application” when it comes time to decide which of the many possible investigations should be undertaken. They noted that one of the areas where adult education is expanding is in the informal recreational learning area, and that this area is one of those lacking sufficient investment of research time and effort.

Additionally, in the course of my seeking out narrators, I came across a number of individuals who do not appear in this study, but whose narrations would no doubt expand on the available knowledge specific to diver learning strategies, and a history of diving in BC. As it happens a number of other individuals also came to my attention, who had learned extensively in a non-formal setting other than diving, who might also contribute to a general theory concerning learning strategies in non-formal and informal adult learning.

Finally, there is the question of the hypothesis that I posed on page 85 of this study, that much of the energetic effort and activity of the narrators in their informal learning environment is driven by their “innate drive for growth and self-actualization,” and that this effort is made so strenuously by them in an effort to offset the ‘learning’ imposed on them by the what I will refer
Learning Strategies of Early British Columbia Divers

to as the socio-educational system of their times. Further, that the narrators in effect sought through their efforts, to achieve a sense of balance in their respective world views, to enable them to in effect, re-integrate themselves such that they feel themselves to be "an integral part of the generative social practice in the lived-in world." There is no lack of possibility with regard to possible areas of future research.

Coppersmith, Stanley. The Antecedents of Self-esteem. W.H. Freeman and Company. San Francisco, p. 29 // "human aspirations and values have an essential role in determining whether we regard ourselves favorably."... "Our self-feeling in this world depends entirely on what we back ourselves to be and do."
Learning Strategies of Early British Columbia Divers

REFERENCES

Interviews


Learning Strategies of Early British Columbia Divers


**Other References**


Rogers, Fred. (1990). *A Brief History of Sport Diving Around The British Columbia Coast*. Unpublished manuscript +(copy available for loan from Underwater Archaeology Society of BC


APPENDICES

Appendix A-1: Guideline Questions

1. Who were the early BC divers and how did they learn their activity?

2. What were the learning characteristics of the early divers and who, if any, were their teachers?

3. What facilities were available to facilitate the learning strategy involved in becoming "successful" divers?

4. How accurate was the information early divers received? Did the knowledge and experiences of these early divers affect the educational environment of BC's scuba-diving community today?

5. When, why and how did the learning strategy become an instructional strategy, and where did the rational for an instructional strategy come from?

6. Were the early divers recreational or commercial or some combination of the two? When did the learning activity involved "split" into recreational diving and commercial diving, or was there always a difference // a dividing line of some sort?

7. Was there a strategy of independent or self-directed learning utilized by the early BC divers?
### Appendix A-2: Sample of Schedule ‘Questions’

<p>| INDIVIDUAL |
|-----------------|-------------------------------------------------|
| 1.              | Where was your home located and what was living at your home like? |
| 2.              | Did the state of the economy at that time have any effect that you remember, on your upbringing? Would you say that your family was, well off or not so well off? Why? |
| 3.              | Were any members of your family involved in water sports? Were you introduced to the water and the notion of diving through your family’s water activities? |
| 4.              | How old were you when you started to be interested in the water and in what was under it’s surface? |
| 5.              | How old were you when you first took up diving? What types of water related activities were you involved in previous to then? |
| 6.              | Where did you live when you began diving? |
| 7.              | How long do you suppose you could hold your breath back then? How do you remember that today? |
| 8.              | How did you first hear about diving? Who was the first person you met that was diving? |
| 9.              | When do you do your first diving. Can you tell me what it was like? |
| 10.             | What were the known dangers for diving in those days? |
| 11.             | Do you recall any codes of practice from your early days of diving? |
| 12.             | Where or how would you say you obtained most of your diving know-how about diving? Was there more than one source? |
| 13.             | How much importance for yourself did you attach to diving and learning to dive back then? Why? |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Source</th>
<th>Title</th>
<th>Authors/Contributors</th>
<th>Reporter</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 27, 1940</td>
<td>Vancouver Province</td>
<td>Local Girl Dives Into New Career in Coal Harbour Waters</td>
<td>Violet Maddison - 28 years old, Fred Maddison, Steve Maddison, Jack Roberts</td>
<td>Peter Inglis</td>
</tr>
<tr>
<td>July 31, 1941</td>
<td>Vancouver Sun</td>
<td>Local Divers Fly 2000 Miles to Repair Dam</td>
<td>Joe Knight, George Knight</td>
<td>Don Mason</td>
</tr>
<tr>
<td>August 8, 1941</td>
<td>Vancouver Province</td>
<td>Paul Armour and His Divers Finish Amazing Salvage Job</td>
<td>Paul Armour, Bert Frankforth, Lorne Shorter, Bill Zess, Ollie Zess</td>
<td>L.V. Kelly</td>
</tr>
<tr>
<td>May 22, 1943</td>
<td>Vancouver Province (Saturday Magazine section)</td>
<td>BC's Veteran Deep Sea Diver</td>
<td>Fred Maddison, mentions death of Steve Maddison in or about Sept. 1940</td>
<td>'J.S.C.'</td>
</tr>
<tr>
<td>July 20, 1945</td>
<td>Vancouver Herald</td>
<td>7 Hour Fight Saves Diver's Life: 64 Year Old Worker Rescued From River</td>
<td>Ben Gilbert, George Unwin</td>
<td>Peter Madison</td>
</tr>
<tr>
<td>July 20, 1945</td>
<td>Vancouver Province</td>
<td>Diver Saved After 7- Hour River Fight</td>
<td>Ben Gilbert, George Unwin</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The table above contains a sample of clippings related to the early British Columbia divers, illustrating their experiences and the challenges they faced in their work. The dates, sources, and titles are clearly listed, along with the main contributors and reporters.*
<table>
<thead>
<tr>
<th>YEAR</th>
<th>DATE / SEASON TYPE</th>
<th>INFORMER TITLE SHIP ACTIVITY</th>
<th>PERSONS, BUDDIES, DESCRIPTION, QUOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1934</td>
<td>October 4th</td>
<td>Fred Rogers says</td>
<td>on page 2 of your book, you mentioned that there was a gentleman who suffered from an air embolism, in English Bay in the 1930’s. Was that from a newspaper clipping? N: Uh, I imagine so. Yeah.</td>
</tr>
<tr>
<td>1934</td>
<td>Diving Helmet</td>
<td>Half Mile Down.</td>
<td>William Beebe</td>
</tr>
<tr>
<td>1935</td>
<td>Hard-hat</td>
<td>Fred Rogers Says</td>
<td>Ballentine Pier I think it was built in the thirties sometime. Yeah. Thirty - 1935? Thirty-six? I have a record of it. I’ll tell you a reason why. Because there was a hard hat diver lost his life there. Uh, which I have in my files up here on divers here. And uh, fella by name of Collins *. Diver, hard-hat diver name of Collins *. And he lost his life there. And uh, if I looked it up, why then I’d have the exact date. But I’d have to search through that stuff to find it.</td>
</tr>
<tr>
<td>1940</td>
<td>July 27</td>
<td>Local Girl Dives Into New Career in Coal Harbour Waters</td>
<td>Violet Maddison - 28 years old - dives Coal harbour for first time (hard-hat) Fred Maddison - her father - dives with her (hard-hat)</td>
</tr>
<tr>
<td>Year</td>
<td>Log</td>
<td>File</td>
<td>Notes</td>
</tr>
<tr>
<td>------</td>
<td>-----</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>1951</td>
<td>3</td>
<td>GC1/12/35</td>
<td>I think I must have practiced with it before we left Vancouver - I definitely had it before we left Vancouver, going to Mexico. And I see a picture of it in one of these photographs here....</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N: Oh yeah, we didn't know about snorkels. Lift your head out of the water - pull your head up to breath or lay on your back...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>I: Then you were diving without a snorkel - previous to this?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N: Maybe like two summers. Something like that.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>I: Oh? OK. What was it like for you the first time you used the snorkel?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N: Oh, another piece of freedom-making equipment - absolutely. They uh, -- without a snorkel you’re constantly - you can’t be a spear fisherman without a snorkel.....</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>I: So it was easy for you to pick up snorkeling?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N: I didn't have any problem. I started with that ugly thing with the red ball which when I - we were in Mexico and California ‘Oh God! Get rid of that! Get an ordinary snorkel!’ You’ll kill yourself with that thing. They really didn't like them. But there was some advantages. You - when you blew the water out the stopper valve at the bottom, and they didn’t gurgle all the time when you’re swimming like a - snorkel frequently does. If you’re diving it’s going ‘Bloop-bloop-bloop!’.</td>
</tr>
<tr>
<td>1951</td>
<td>3</td>
<td>GC1/2/10</td>
<td>Cable Cove is between Horseshoe Bay, and Whytecliff. And then around the corner was Bachelor Cove - that’s where we did most of our diving. This is where we actually trained ourselves was at this little Cable Cove. We would - go...</td>
</tr>
</tbody>
</table>
### Appendix A-9: Sample of Equiptab.doc

<table>
<thead>
<tr>
<th>year</th>
<th>season</th>
<th>comments</th>
<th>Source</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>3</td>
<td></td>
<td>GC1/2/15</td>
<td>that pretty easy if you only have fins and a mask. By the way, under the sun-deck there I have the original sling spear. That I made about that time - around 1951. I still have it and its still functional. Huh! I: Oh yeah, I'd like to take a look at that too. This is an Hawaiian Sling.</td>
</tr>
<tr>
<td>1952</td>
<td>3</td>
<td>1952 - 1953</td>
<td>FR94/35/53</td>
<td>I: Yeah ... umm, on page three again, you mentioned when you purchased your Bel Aqua suit - now you’ve since clarified and said that was the first diving, or scuba ... or rather snorkeling experience you had down in Seattle. But you had previously mentioned -- at least I was under the impression, that people prior to this, and I was under the impression it might have been you - when they went diving, they wore three layers of Long John’s and went diving in the Long John’s alone... N: That’s right. I: Yes. So that wasn’t yourself? You didn’t experience that? N: No, I didn’t experience that. No. But the other boys did.</td>
</tr>
<tr>
<td>1952</td>
<td>3</td>
<td>1952 - 1953</td>
<td></td>
<td>N: And then we were able to go down and buy a proper exposure suit. But previous to that 1952, or whatever it was, that’s all they used to do. They just donned on all this underwear, and in you go. Yupe. That would absorb the shock of all the cold. You know?</td>
</tr>
<tr>
<td>1952</td>
<td>3</td>
<td>this Can't be in 1952 - well the article could be in '52 BUT Fred begins in 1954</td>
<td>FR94/14/11</td>
<td>dissolved that image. But then, getting back to the diving again, in 19-- umm, 1951 or 52, there was an article published in the Vancouver Sun here, about some early skin-divers around BC, and it showed a photograph. It’s in here for that matter. Showed a photograph of some of the first skin divers in - around</td>
</tr>
</tbody>
</table>
### Appendix A-10: Sample of Timeline.doc

<table>
<thead>
<tr>
<th>Year</th>
<th>Date</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td>April 16</td>
<td>Diving Bell</td>
<td>Death Misses Grab At Deep-sea Diver</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- John Pieters</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Tender = Fred Free</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Reporter = Paul St. Pierre</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Pieters company = Pacific Deep-sea Enterprises</td>
</tr>
<tr>
<td>prior to 1950</td>
<td></td>
<td>Gordi Moore says</td>
<td>I know another that comes to mind. The frogmen of the war. Of course I was young and the war umm, always seemed very heroic to me as a kid. And frogmen and the things that evolved around that were quite interesting. <strong>I:</strong> Would they have been interesting before ---</td>
</tr>
<tr>
<td>1950</td>
<td>August 5</td>
<td>SkinKing Neptune Wears Goggles</td>
<td>Garth Quinn - Skin diver - former Vancouverite - note paper shows Quinn apparently wearing longjohns over drysuit.</td>
</tr>
<tr>
<td>1950</td>
<td></td>
<td>Gordi Moore</td>
<td>George Croy, Gordi Moore graduate from Vancouver Technical School together</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Don Francks graduates from Britannia High School</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>None of them were diving at the time according to Gordi</td>
</tr>
<tr>
<td>1950</td>
<td>Summer?</td>
<td>George Croy says</td>
<td>And the first I had ever seen, was this lady's brother, who was in the US Air - no US Navy, stationed in Hawaii, when he came back from Hawaii, which would have been about 1950, he brought fins and mask with him, which was the first I had ever seen. And I got to try his fins, one day in Trout Lake in fact. And - not the mask. And I could not believe it. I was never much of a swimmer until I got fins on and I just felt the power! Couldn't be stopped! They - I really fell in love with swim fins.</td>
</tr>
</tbody>
</table>
### GLOSSARY OF TERMS

**25’s**
Small High Pressure steel tank. Contains 25 cubic feet of single atmosphere air, compressed into about 1.5 cubic feet when filled to legal limit. Usually used in a set of two tanks.

**72’s**
High pressure steel tank. Contains 72 cubic feet of single atmosphere air, compressed into about 3 cubic feet when filled to legal limit.

**80’s**
High pressure tank, usually aluminum. Contains 80 cubic feet of single atmosphere air, compressed into about 3.5 cubic feet when filled to legal limit.

**Air Bottle**
High pressure steel or aluminum tank used in scuba to contain compressed air.

**Air Pressure**
Although it is a gas, air still has weight. At sea level, the weight of air on any object, that is, the ‘downward’ pressure all the air directly above the object, is called one atmosphere. Air pressure is also measured in Pounds per square inch (psi).

**Air Pressure Gauge**
Measures the pounds per square inch exerted by compressed air inside a container.

**Air Supply**
In scuba, the amount of compressed air available in a particular air bottle array.

**Aqualung**

a) The combination of bottle(s) of compressed air, a two stage regulator and hoses system developed by Cousteau.
b) The brand-name for a scuba equipment manufacturer.

**Arbalete**
A rubber band powered spear-gun developed in France.

**Back-pack**
In Scuba, a harness system which holds the air bottle, which is placed on the diver’s back and attached to the diver, usually with arm-straps and a waist belt.

**Barge**
Usually a motorless vessel towed by tugs, used to transport cargo such as coal, lumber, garbage, etc. Often a full-sized ship that had been stripped down.

**Bel Aqua**

a) An American dry-suit manufacturer.
b) A single thickness rubber dry-suit sold in the early 1950’s.
Learning Strategies of Early British Columbia Divers

Bends
When a diver moves too quickly from a high pressure environment to a lower pressure environment, the volume of compressed air inside the diver increases more quickly than it is being expelled from the body. This expansion causes often crippling pain. The expanding bubbles of nitrogen can do serious sometimes fatal soft tissue damage. This pain and damage are called the bends, perhaps due to the bent postures of bends sufferers.

Bent
a) See ‘Bends’ b) A person with the bends is bent.

Blue Sharks
A strictly scuba diving club begun in 1954 by Bert Mona and Bill Thomson.

Boom Chain
A very large linked, thick and heavy steel chain used by loggers to attach individual cut logs into a floating boom of logs.

Boots
Cold water diving suits include attached boots, which can be inserted into the diver’s fins, or used to walk about on the bottom.

Bottle
See Air Bottle.

Breath-hold
Type of diving where the diver has no air supply other than that already in the lungs and throat and stomach.

Breath-holder
Diver who repeatedly and comfortably dives to depth and swims about without an outside air supply.

Bridge
High-pressure pipe which joins the two compressed air tanks together and in turn links these to the regulator.

Buddy
The individual with whom you agree to dive with, and who in theory should be within touching distance of you when you dive.

Buddy-breathing
When any diver (A) indicates to any diver (B) that diver A is running out of air, diver B is expected to share their remaining air supply while the two divers, A and B proceed to the surface.

Buddy-diving
Diving with the individual with whom you agreed to dive. Staying close to and aware of each other.

Buoyancy
When the volume of water displaced by an object weighs more than the object displacing it, the object is buoyant, or ‘has’ buoyancy.
## Buoyancy Compensator
Inflatable objects, usually carried attached somehow to the backpack. These inflatable objects are used to increase or decrease the buoyancy of the diver, enabling the diver to achieve ‘Neutral,’ ‘Negative,’ or ‘Positive’ buoyancy.

## C Shape Snorkel
A snorkel shaped like a “C” and usually had a trap on the top end of the “C” with a Ping-Pong ball in it. When the top of the snorkel was covered with water the Ping-Pong ball snapped into place over the end of the snorkel, preventing water from getting inside.

## Camera Housing
A waterproof container within which the camera can be operated by the diver.

## Chamber
see Recompression Chamber.

## Chariots
Miniature one and two man submersibles used in W.W.II. The passengers rode on the outside of the vehicle, as in riding a horse. The passengers wore dive gear.

## CO₂
Carbon Dioxide, the gas which when accumulated to a particular point, signals the brain to have the lungs inhale.

## Commercial diver
A diver who is employed consistently to perform commercial tasks underwater. The diver may use either scuba or other diving gear. Today a diver goes through extensive institutionalized ‘mass production’ training. In the 1950’s the process was an apprenticeship.

## Compressor
Compressors squeeze compressed air into high pressure vessels or tanks.

## Core temperature
In humans the normal temperature in the interior, or core, of the body is 98.6 degrees Fahrenheit. See also Hypothermia.

## Cousteau - Gagnan regulator
The particular two stage regulator invented in collaboration by Cousteau and Gagnan, which revolutionized free-diving.

## Cressi
a) An equipment manufacturer. b) One major piece of equipment was the Cressi CO₂ powered spear-gun, often referred to simply as a ‘Cressi.’

## D rings
A ‘ring’ shaped like a ‘D.’ The flat portion of the ‘D’ makes the item more functional in association with clasps, belts, etc. Two of these rings, side by side, create a quick release fastener for a diver’s weight-belt.
### Decompress
When a diver is rising towards the surface, the pressurized gases inside the diver, which have been compressed into a volume smaller than their volume at the surface of the water, begin to expand, or to decompress.

### Decompression
As the gases inside a decompressing diver expand, they also are being 'breathed' out of the diver. Eventually the diver reaches the point where the gases inside and outside of the diver's body are equal in pressure. Thus the diver has gone through decompression.

### Decompression Sickness
A variety of negative effects that insufficient or inadequate decompression can have on a diver, such as varying degrees of the bends, a painful sometimes crippling, but seldom fatal effect, or embolism, a rapid generally painless and always fatal effect.

### Deep-sea diver
a) A commercial diver. b) In the context of this research a hard-hat diver.

### Depth limits
a) Different breathing gases impose different depth limits. Oxygen by itself, as in O₂ Re-breather units, imposes a thirty-three foot depth limit after which the partial pressure of pure oxygen is toxic. The O₂ in compressed air becomes toxic at three hundred and thirty-three feet, however, effects may be felt sooner. b) Other depth limits might be imposed by equipment or training.

### Depth-gauge
These work in a fashion similar to altimeters. Descent imposes greater pressure on a diaphragm, which in turn pushes the depth reading needle across the face of the gauge.

### Dive: the Complete Book of Skin Diving
Carrier, Barbara and Rick (first published in 1955 - later republished in 1973). The authors claim: “Dive was ... the first diving book not based on personal narrative but written for the purpose of telling the reader not only about diving but how (their italics) to dive, how to use diving equipment, and what to expect and how to react underwater.”

### Diver
In the context of this research a diver is: a) A person who wears fins, mask, and may wear additional equipment, and who immerses themselves in water for periods of time. b) A diver may be a breath-holder or a breathing apparatus user. c) A diver may forgo swim fins if involved in sea-floor activity.

### Diving Fins
See Swimming Fins.
Learning Strategies of Early British Columbia Divers

Diving gear
Various pieces of equipment used by divers.

Diving Knives
Today, most diving knives are blunted at the tip, which can be used as a shovel or pry. One edge of the knife is sharpened to a blade and the second edge is serrated to create a saw-like edge. In the 1950's in BC, diving knives were whatever the diver had handy, or purchased, or made.

Double-D-rings
See D rings.

Double-tanks
Initially high pressure tanks were limited in size, pressure capacity, and volume. Volume and pressure capacity limited the amount of air available to breath and thus the diver's length of stay underwater. Doubling up tanks by joining them with a piece of high pressure pipe doubled the available air.

Down-draft
Current of water moving rapidly downwards - often caused by tidal action.

Dry-suit
A diving suit designed keep the diver dry. Tight 'seals' at the wrists and, (in the 1950's) around the face. In more recent models the seal moves from the face area to the neck. The dry-suits of the 1950's compressed against the diver's skin as the depth increased. Present day suits are internally pressured with compressed air to counter-act this.

Duck-dive
Facing down, the diver pushes the top half of the body down into the water, and lifts the legs straight up simultaneously. The body is pushed straight down by its own weight. The diver begins to kick after the fins are immersed.

Embolism
In diving, a state where a blood vessel or vessels burst due to the too rapid expansion of gas bubbles in the blood system, caused by too rapid decompression. Embolisms are fatal.

Face Seal
1950’s dry-suits sealed around the divers face using a tight rubber orifice. Thus the 'wrinkled' look on diver faces in 1950’s photos.

Fernez goggles
Diving goggles with a separate lens per eye, and the nose outside the goggle entirely. Invented by Fernez. These work well in shallow water; however, are problematic at any depth as the separate goggles act like suction cups on the individual eyeballs inside them when the diver returns towards the surface, and pressure outside the goggle decreases.
Learning Strategies of Early British Columbia Divers

**Fins**
See Swimming Fins.

**Flapper-valve**
See Flutter valve.

**Flippers**
See Swimming Fins.

**Floatation device**
In contrast to a Buoyancy Compensator. In diving, an uninflated balloon-like object with a hole in it for the head, which is placed around the diver's neck. At the surface, the diver would blow the object up like a balloon, and it in turn holds the diver's head above water.

**Flutter-valve**
A valve which literally 'flutters' open and shut. As the pressure on the 'inside' of the valve increases, it flutters, allowing some of the contents on its 'inside' to escape to its 'outside.' The valve flutters so quickly that the movement of material is ONLY from the over-pressurized inside to the outside.

**Folding over Duck-dive**
See Duck-dive.

**Free-dive**
To dive without umbilicals.

**Free-diver**
The original concept is to be diving without umbilicals to the surface or some other support system. Thus a scuba, or rebreather diver would also be considered a free-diver, as would a breath-hold diver. However, breath-hold divers normally refer to themselves as free-divers, and to others such as scuba and rebreather divers as non-free divers.

**Frogman**
In W.W.II, both sides employed divers to sabotage the other's shipping and naval resources. These divers wore dark rubber suits and wore goggles or masks, as well as swim fins, which in combination tended to make the diver look like a giant frog.

**Gauges**
Generic term for compass, depth, and air gauges. Might also include watches.

**Gear**
See Diving gear.

**Glass face mask**
See Mask.

**Gloves**
Most divers wear gloves both as protection and to keep hands warmer. Gloves also may contribute to the seal around the wrist.

**Goggles**
See Fernez goggles.
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<td><strong>Haas, Hans</strong></td>
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<td><strong>Hans Haas system</strong></td>
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<tr>
<td><strong>Hard-hat</strong></td>
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<td><strong>Harness</strong></td>
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<td><strong>Hawaiian Sling</strong></td>
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<td><strong>Hood</strong></td>
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<td><strong>Hook-harness</strong></td>
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<td><strong>Hoses</strong></td>
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<td><strong>Hyperventilation</strong></td>
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<tr>
<td>Hypothermia</td>
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<td>Ingersoll-Rand</td>
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<td>J Shaped snorkel</td>
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<td>J valve</td>
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<td>Kelp</td>
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<td>Le Corlieu foot fins</td>
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<td>Ling-cod</td>
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<td>Longjohns</td>
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<tr>
<td>Manifold System</td>
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</table>
recipient air bottle. Thus each donor bottle retains its higher pressure longer, and as such is able to fill contribute to more fillings. c) Later manifold systems were also hooked up to compressors to keep them charged. The manifold could be charged all day by the compressor, while the divers air bottles could be charged by the high volume manifold system in minutes. d) The first compressed air system successfully used by Cousteau was a three (small) air bottle manifold system.

**Mark IV**

Mark IV breathing apparatus a type of O₂ re-breather system used by the British Navy in W.W.II.

**Mask**

As opposed to goggles. Diving masks, contain one air space for both eyes, the nose and sometimes the mouth. Each eye may have a separate vision lens, but the air space behind the lenses is a shared space. This allows the diver to increase the air pressure inside the mask by breathing into it. In turn, increasing air pressure prevents mask squeeze.

**Mitts**

Diving gloves with thumb and four finger mitt, or with the thumb and first finger each separate, and the remaining three fingers in a mitt.

**Mudsharks**

Name of the Diving Club in Seattle area in the early 1950’s.

**Narc**

See Nitrogen Narcosis.

**Narcosis**

See Nitrogen Narcosis.

**Narked**

See Nitrogen Narcosis.

**NAUI**

National Association of Underwater Instructors

**Navigation (under water)**

Notice the change in the concept through equipment use. Breath-hold divers did not navigate underwater. They swam about and returned to the surface, took their bearings above the surface and submerged. Later scuba divers followed the shoreline. Fred Rogers used inverted rock to ‘blaze a trail.’ Dennis Thulin carried a small compass. Today divers carry compasses by default, and learn to navigate by the compass, the bottom, the current. etc.

**Neck-seals**

Replace face-seals in today’s dry-suit. The seal prevents water from entering a properly pressurized dry-suit.

**Neptune Skin Diving Club**

The name of a California based dive club in the early 1950’s. Mentioned in an article in the Vancouver Sun, in 1950.
Learning Strategies of Early British Columbia Divers

**Nitrogen Narcosis**
An effect where the diver becomes 'drunk' on nitrogen. The exact mechanism is not fully understood, however may be similar to anesthesia. The diver's judgment is imperiled and the diver may feel euphoric and or drowsy. The effect is not dangerous in itself but the lack of judgment, like drunk driving, could have fatal consequences.

**Octopus**
An eight-tentacled or armed underwater cave dweller, octopus on the West Coast of BC are the largest known sub-species of octopods. They are generally considered to be as intelligent as a smart dog, friendly to humans, and very curious. This curiosity often lead to the killing of octopus by frightened divers in the earlier years of diving.

**O-ring**
A flexible, compressible 'O' shaped ring-gasket which when compressed between to less flexible parts of a valve or compression system, allows the formation of a seal. The most obvious 'O'-ring in the scuba system is the 'O'-ring inside the "J" or 'T' valve, where the valve attaches to the first stage regulator of the diver's breathing system.

**O₂**
Oxygen molecule.

**Oxygen Poisoning**
Where the partial pressure of oxygen becomes toxic. That is, when the number of oxygen molecules in a given mixture of gases becomes toxic at a given pressure.

**Oxygen Re-breather**
A device which recycles the air breathed by the user, scrubbing the CO₂ from the system with a chemical absorbent, and then adds new O₂ from a compressed O₂ reservoir to the otherwise closed system. Re-breathers were limited to depths not exceeding 33 feet, the depth at which the oxygen in air became toxic. Re-breathers fell out of favor in the mid-fifties, but are making a come-back today as modern technology allows the diver to adjust the partial pressure of oxygen in the system.

**PADI**
Professional Association of Diving Instructors.

**Perrelli**
An Italian manufacturer, who in the 1950's made diving suits for Mediterranean diving.

**Pressure Gauge**
See Air Pressure Gauge.

**Pressurize**
An example of pressurizing is injecting air into a balloon at a pressure exceeding the air pressure on the outside of the balloon causes the balloon to expand, as it is pressurized.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Quick-Release</td>
<td>In diving and other activities, sometimes it is useful to be able to release oneself from one’s equipment quickly, while at the same time, the equipment should hold the diver securely before it is released. Divers experimented with a number of quick release systems for tank harnesses, weight-belts, fins, etc.</td>
</tr>
<tr>
<td>Rapture of the Deep</td>
<td>See Nitrogen Narcosis.</td>
</tr>
<tr>
<td>Re-breather</td>
<td>See Oxygen Re-breather.</td>
</tr>
<tr>
<td>Re-compression chamber</td>
<td>A pressurized, usually double set of chambers, which can have their internal air pressures manipulated up or down.</td>
</tr>
<tr>
<td>Recreation diver</td>
<td>A diver who is not gainfully employed as a commercial diver.</td>
</tr>
<tr>
<td>Regs</td>
<td>See Regulator.</td>
</tr>
<tr>
<td>Regulator</td>
<td>Mechanical device for regulating/controlling the correct amount and pressure of air released into the diver’s breathing system.</td>
</tr>
<tr>
<td>Rubber suits</td>
<td>A wet-suit or a dry-suit - pre-neoprene.</td>
</tr>
<tr>
<td>Salvage</td>
<td>Property lost to the sea which is retrieved by salvagers.</td>
</tr>
<tr>
<td>Salvage diver</td>
<td>A diver who retrieves property lost underwater either for the owner or for resale.</td>
</tr>
<tr>
<td>Scrubber</td>
<td>Scrubbers are usually chemically impregnated, air-porous materials the contents of which combine with CO₂, removing, or scrubbing the CO₂ from the general gases being passed through. Thus scrubbers make a re-breathing unit possible.</td>
</tr>
<tr>
<td>SCUBA - S.C.U.B.A.</td>
<td>Self Contained Underwater Breathing Apparatus - The Aqualung is a set of scuba.</td>
</tr>
<tr>
<td>Scuba gear</td>
<td>Aqualung, 2 stage regulator, mask, fins, wet or dry-suit, weight-belt, compass, depth, and pressure gauges and watch. May include a snorkel.</td>
</tr>
<tr>
<td>Seals</td>
<td>Points where body parts extend out of the dry-suit into the water require ‘seals’ to keep water out. Very tight openings were the seals of the fifties. Today’s dry-suits invert the wrist material under itself, forming a pocket, which when pressurized with the inside of the suit, forms a water tight seal around the wrist, or neck.</td>
</tr>
</tbody>
</table>
Learning Strategies of Early British Columbia Divers

<table>
<thead>
<tr>
<th><strong>Shallow Water Diving</strong></th>
<th>Shank and Kendle (1948 ?) A book on diving. I have not seen this book and cannot confirm the date of writing.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin Diver Magazine</strong></td>
<td>Original magazine originated in Lynwood California in early 1950's. An excellent information source for early BC divers.</td>
</tr>
<tr>
<td><strong>Skin-diver</strong></td>
<td>A diver without a wet or dry-suit. Later the term served ambiguously to distinguish between a breath-hold or scuba diver.</td>
</tr>
<tr>
<td><strong>Skin-diving</strong></td>
<td>Originally, diving without a wet-or dry-suit. However diving with a suit is also commonly referred to erroneously as skin-diving.</td>
</tr>
<tr>
<td><strong>Snorkel</strong></td>
<td>A tube. In diving, one end of which is held in the diver's mouth while the diver is on the surface. Air is drawn down through the snorkel into the diver's mouth, enabling the diver to see down into the water while continuing to breath and swim.</td>
</tr>
<tr>
<td><strong>Snorkelor</strong></td>
<td>Non-scuba diver using a snorkel as the means of obtaining air.</td>
</tr>
<tr>
<td><strong>Spear</strong></td>
<td>Long pointed stick used to impale fish. There were several types, including long-shafted tridents, single points, Hawaiian slings, and various spear-guns.</td>
</tr>
<tr>
<td><strong>Spear-gun</strong></td>
<td>A device to provide thrust for a spear, either from springs, rubber bands, or compressed gases.</td>
</tr>
<tr>
<td><strong>Spear-fishing</strong></td>
<td>Hunting fish with a spear.</td>
</tr>
<tr>
<td><strong>Sport diver</strong></td>
<td>As opposed to a commercial diver, and similar perhaps, but not necessarily the same as recreational diver.</td>
</tr>
<tr>
<td><strong>Squally Mask</strong></td>
<td>The type of mask used by Cousteau in Silent World. In turn became the mask of choice of Blue Sharks club members.</td>
</tr>
<tr>
<td><strong>Squeeze</strong></td>
<td>Squeeze occurs after some of the air in some part of the diver's gear, usually the mask, is squeezed out while the diver descends, and fails to equalize the pressure on the inside of the mask and the outside water environment. The mask presses down on the face of the diver leaving pressure marks. In the event the diver continues to fail to equalize the pressure on the way to the surface, the mask may act like a suction cup on the portion of the face inside it.</td>
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<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>Swim-fins</td>
<td>Originally shaped to mimic duck-feet, swim-fins are designed to increase distance traveled by a diver for the same amount of energy.</td>
</tr>
<tr>
<td>Talc</td>
<td>Powder used to create a friction-free surface on the inside of dry-suits (and apparently some wet-suits). The talc was shaken into the suit and covered the entire inside. The diver then put the suit on with ease.</td>
</tr>
<tr>
<td>Tanks</td>
<td>See Air Bottle.</td>
</tr>
<tr>
<td>Thermoclyne</td>
<td>At a depth which varies up and down between approximately ten to twenty-five feet according to season, there is a transitional point between the warmer upper level of the water column, and the cold lower portion. The point of transition is specific and often visible. This point is the thermoclyne.</td>
</tr>
<tr>
<td>Three tank manifold</td>
<td>The earliest Cousteau effort to create a genuine Aqualung involved a three tank manifold system. Incidentally Graydon Baker recalled that Fred Rogers’ first home-made system also used a three tank manifold system.</td>
</tr>
<tr>
<td>Aqualung system</td>
<td></td>
</tr>
<tr>
<td>Trident spear</td>
<td>A home-made six to eight foot long thrusting spear with three to five point on the sharp end.</td>
</tr>
<tr>
<td>Two Stage Regulator</td>
<td>The two stage regulator reduces the compressed air psi in two stages from, for example, a 3000 psi aluminum 80 cubic foot compressed air tank, 3000 psi to a breathable level. The second stage regulator is also a demand regulator, meaning it only releases air when the diver breathes as opposed to constantly.</td>
</tr>
<tr>
<td>Under the Red Sea</td>
<td>Movie: with Hans Haas. Also a book authored by Haas with the same title.</td>
</tr>
<tr>
<td>Underwater Recreation</td>
<td>Skin-diving manual put out in the early 1950’s by the Los Angeles County Department of Parks and Recreation.</td>
</tr>
<tr>
<td>Umbilicals</td>
<td>Rope lines, wiring and tubing which connect the diver to the surface, the tender, the air supply and later the two way radio.</td>
</tr>
<tr>
<td>Up-draft</td>
<td>Up-welling current of water often caused by tidal action.</td>
</tr>
<tr>
<td>US Divers</td>
<td>Los Angeles based diving equipment manufacturer.</td>
</tr>
<tr>
<td>US Navy Re-breather</td>
<td>See Oxygen Re-breather.</td>
</tr>
<tr>
<td><strong>Vancouver Skin Divers Club</strong></td>
<td>The first skin-diving, free-diving, breath-hold diving, and re-breather diving club in British Columbia.</td>
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</tr>
<tr>
<td><strong>View Box</strong></td>
<td>An above the surface box with a glass bottom. The viewer placed the box on the top of the water and now had a clear lens through which to see down.</td>
</tr>
<tr>
<td><strong>Viewing Box</strong></td>
<td>see View Box.</td>
</tr>
<tr>
<td><strong>VOIT</strong></td>
<td>A dry-suit and other diving equipment manufacturer. VOIT dry-suits competed directly with Bel Aqua.</td>
</tr>
<tr>
<td><strong>Webbing</strong></td>
<td>Armed Forces surplus material used for making belts, straps, and harnesses.</td>
</tr>
<tr>
<td><strong>Weight-belt</strong></td>
<td>A belt loaded with specific additional weight, used to compensate for the additional buoyancy that diving gear adds to the diver's own displacement.</td>
</tr>
<tr>
<td><strong>Weights</strong></td>
<td>Attached to a weight belt. See also Weight-belt.</td>
</tr>
<tr>
<td><strong>Wet-suit</strong></td>
<td>Wet-suits follow dry-suits. Wet-suits provide an insulating environment surrounding the diver to retain warmth and at the same time providing protection from the general underwater environment.</td>
</tr>
<tr>
<td><strong>Wolf-eel</strong></td>
<td>Actually a fish, wolf-eels are large, powerful and friendly creatures, five to eight feet in length, who live in crevices in the sea bottom, and in mated pairs. They have extremely powerful jaws, which they use to crack the shells of sea-urchins. They are harmless to humans; however, humans have been known to harm wolf-eels.</td>
</tr>
<tr>
<td><strong>Wrist-seals</strong></td>
<td>In the early recreational drysuit the wrist seals were simply very tight wrist holes in the suit. Today wrist-seals incorporate the notion of a sleeve folded back under itself. Maintaining a positive air pressure on the inside of the fold insures it remains tight against the diver's wrist.</td>
</tr>
<tr>
<td><strong>YMCA</strong></td>
<td>Young Men's Christian Association - building. Usually contains inexpensive living quarters for males and such things as gymnasiums, pools, self improvement courses. In the late 1950's the Vancouver 'Y' began to sponsor scuba lessons in its pools. Gino Gemma was the 'instructor.'</td>
</tr>
</tbody>
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Learning Strategies of Early British Columbia Divers

**YWCA**

Young Women's Christian Association - building. Usually contains inexpensive living quarters for females and such things as gymnasiums, pools, improvement courses. See also YMCA.