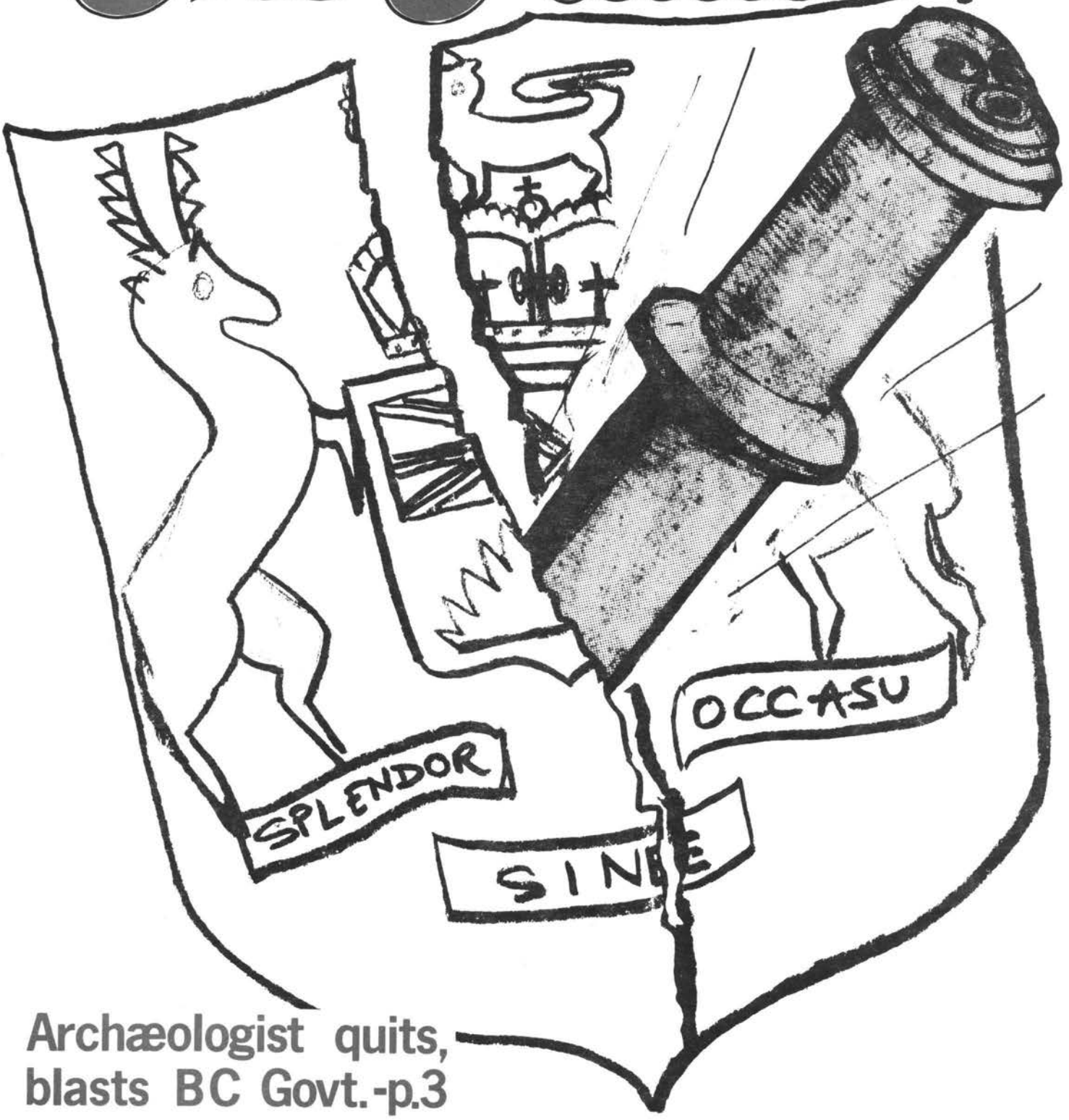
The Mudden



Archæologist quits, blasts BC Govt.-p.3

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THE MIDDEN

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Submissions and exchange publications should be addressed to the Editor, P.O. Box 29, Whonnock, B.C., V0M 1S0. Contributions on subjects germane to B.C. Archaeology are welcomed. They should be relatively brief, with no footnotes and only a brief bibliography (in necessary at all).

Subscriptions ($5.00 a year) should be addressed to the Manager, Ms. H. Braches, 1020 Lillooet Road, North Vancouver, B.C., V7J 2H8. The next issue of THE MIDDEN will appear February 1982.

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LOVE THOSE SPARE COPIES!

Back issues of The Midden are in great demand. New subscribers, especially libraries, often ask for several -or even all- back numbers, and as ASBC membership fluctuates, it is sometimes very hard to estimate the number to print.

THEREFORE....if you now have any spare copies, or if you turn up any while spring-cleaning, would you please turn them over to the Society?

You can mail them to the Editor, and we'll gladly pay the postage...or you could bring them in to a regular monthly meeting.

Many thanks, NR

FORMER PROVINCIAL ARCHAEOLOGIST EXPLAINS WHY HE QUIT

Bjorn Simonsen, who quit as B.C. provincial archaeologist this summer, says he needed a break anyway --but a major reason for his leaving was lack of government support for his department.

"After 10 years in the job, I needed a change," he told the Midden.

"But there were other reasons.... I didn't feel there was any real commitment on the part of the government for what the Branch was trying to do: Heritage is just not a big thing for them.

"It was a very frustrating job: The legislation was totally inadequate, and we were not given the resources to enforce the legislation.... I saw so many sites go under, it was a farce."

Simonsen, in an outspoken telephone interview, said that although B.C.has specific heritage legislation which has been hailed for its innovation, "when it came to the crunch, we simply didn't get the back-up."

"In a number of cases police simply didn't know what to do, and crown prosecutors didn't want to press charges.... It all boils down to a lack of (government) commitment."

Simonsen has remained busy since leaving his government job (where his official title was chief of resource management for the B.C.Heritage Branch). In addition to advising B.C.Hydro on heritage issues as a consultant, he is doing a project for the Alberta Heritage Resources Foundation, examining its projects and priorities, preparatory to its applying for a provincial endowment fund grant.

The former chief archaeologist is also deeply involved with planning the 1983 International Congress on Archaeology. As executive secretary, he has to set up the event, which will take place in two segments, one in Quebec City and one in Vancouver.

More than 5,000 delegates are expected to attend, from some 100 countries.

Simonsen said he also will be helping the provincial heritage branch to develop a province-wide heritage plan.

Art Charlton, a former assistant in the branch, has recently been appointed to replace Bjorn Simonsen.

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GLUB GLUB: EXPERIMENTAL ARCHAEOLOGY IN A FRESH WATER RESERVOIR IN SOUTHWESTERN BRITISH COLUMBIA

By

M.J. Wright and J.H. Williams
Department of Archaeology, S.F.U.

(Highlights of a paper presented at the annual meeting of the Canadian Archaeological Association, April 1981, Edmonton.)

INTRODUCTION

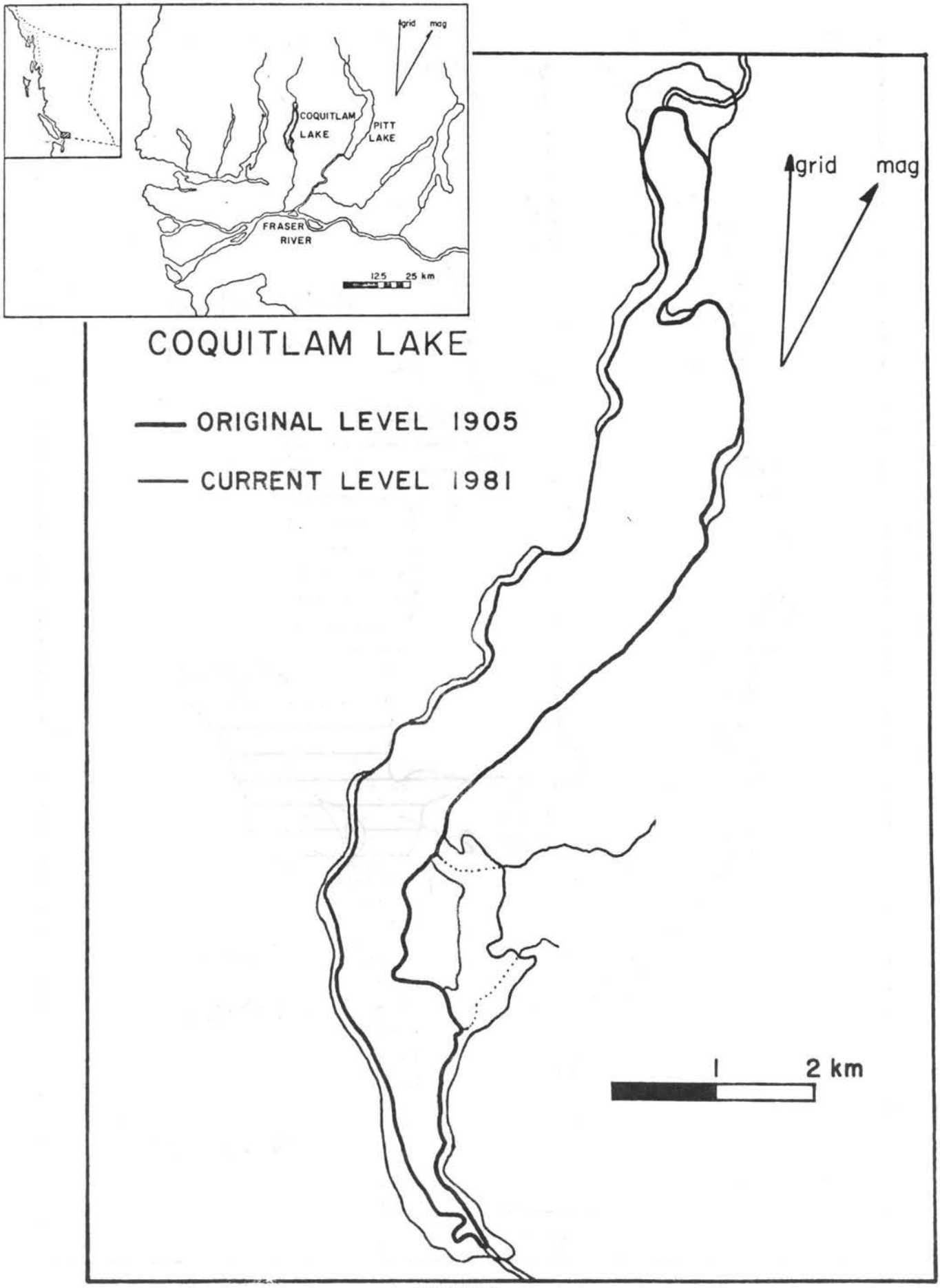
The need for conservation of heritage resources is acknowledged by most of the archaeological community, and its virtues extolled by culture resource management advocates. While researchers may agree on the merits of resource conservation, there is not always consensus on how best to achieve these goals. Similarly, agreement is lacking on which agencies cause the greatest impact to heritage resources, and what measures constitute the most beneficial mitigative actions.

In part, this inability to arrive at a common agreement derives from a lack of understanding regarding the nature of impacting agencies on heritage resources. The inadequacy in basic data is particularly evident when considering the impact to heritage resources from dam construction, subsequent pondage formation and inundation. It has been variously assumed that inundated sites are either completely preserved within the pondage for purposes of future investigation, or totally destroyed through erosional agencies associated with the reservoir environment. Before these polarized viewpoints can be reconciled, a good deal of empirical data must be assembled from field evaluation studies. This report describes one such experiment to record the mechanical effects of wave action on selected materials placed within the active zone of a fresh water reservoir in southwestern British Columbia.

The experimental site is located on the surface of DiRq-5, one of a series of prehistoric sites situated on the east shore of the Coquitlam Lake reservoir (See Figure 1 and Figure 2). The inventory of six prehistoric sites and three historic habitations within the lake basin was compiled during a heritage resource assessment, completed on behalf of the Environment and Land Use Committee Secretariat, during the summer of 1980. Coquitlam Lake has been utilized as a fresh water supply since before the turn of the century, and following 1905 as a source for the generation of hydro-electric power. But despite the fact that Coquitlam Lake is a drowned lake basin, it retains much of its original configuration.

EXPERIMENTAL DESIGN

The overriding objective of this continuing experiment was, and is, to determine the impact of mechanical forces on the active reservoir zone, that is, to assess their ability to displace materials on and within a matrix observed over a prolonged period of time. It was important that a range of material


grid
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COQUITLAM LAKE
PITT LAKE
FRASER RIVER
12.5 25 km
COQUITLAM LAKE
ORIGINAL LEVEL 1905
CURRENT LEVEL 1981
grid
mag
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Figure 1

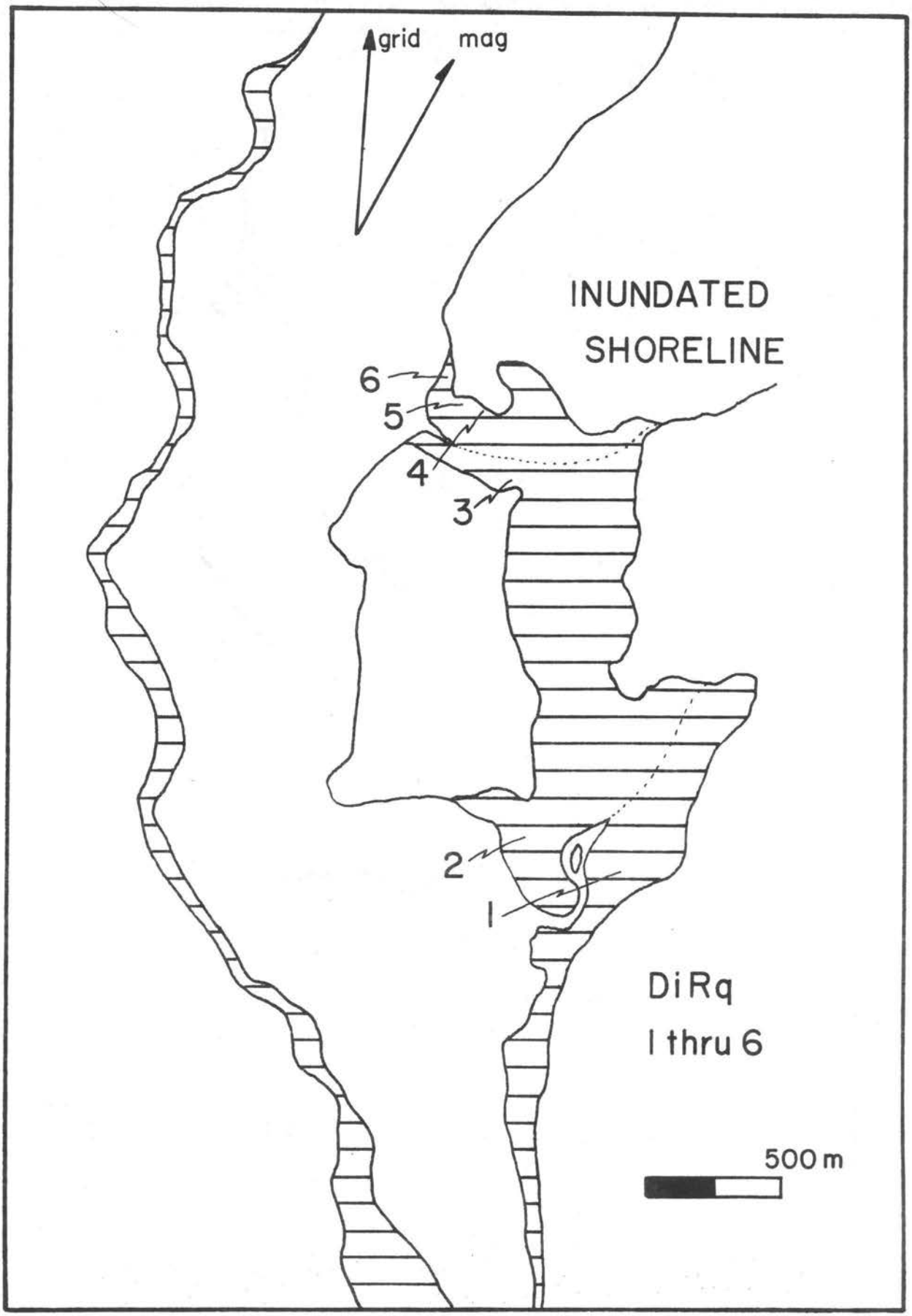


Figure 2

types be employed in order to obtain some indication of differential transport based on material type, as well as the more traditional aspects of weight, size and shape. As these materials were being placed on and within an actual size matrix it was also important that they be distinct from the artifacts known to occur at DiRq-5. This motivated the use of bottle glass, ceramics, exotic lithic material and faunal remains.

In order to illustrate the rate of matrix erosion occurring, some of the objects were buried below surface. This procedure was deemed important as not all areas of the site surface were likely to be down-cut at the same rate. The placement of the objects - in 1980 - within the grid was determined by a random number draw. Even-numbered objects were buried five centimetres below the surface, while odd numbers were placed on the surface. This type of placement ensured that varying material types, sizes and weights would occur randomly over the site surface. Utilizing the existing grid network of DiRq-5, all but two of the 37 objects were placed on the site on Nov. 15, 1980. Two objects were not placed within the grid (items 20 and 31, Table 1), because of the high reservoir level which had partially inundated the site area. The elimination of two items does not affect the reliability of the results of this experiment.

Table One

Material	Wgt	L	W	Material	Wgt	L	W
1) Glass	19.7	64	32	20) Chert	3.6	37	24
2) Glass	9.2	58	25	21) Chert	2.7	43	27
3) Glass	5.0	33	29	22) Chert	8.3	38	24
4) Glass	4.3	45	25	23) Chert	12.6	41	28
5) Glass	7.3	49	27	24) Chert	79.5	71	48
6) Glass	7.6	53	36	25) Chert	3.2	38	27
7) Glass	6.9	55	26	26) Chert	2.6	33	24
8) Glass	4.8	47	27	27) Chert	0.2	17	7
9) Glass	4.0	49	23	28) Chert	0.4	31	7
10) Ceramic	21.4	70	50	29) Bone	82.0	222	36
11) Ceramic	16.5	57	43	30) Bone	71.6	85	80
12) Ceramic	8.1	43	29	31) Bone	8.5	62	29
13) Chert	5.1	43	26	32) Bone	27.0	80	56
14) Chert	16.9	52	33	33) Bone	27.0	128	39
15) Chert	4.2	47	19	34) Tooth	2.4	27	14
16) Chert	15.3	51	37	35) Bone	3.4	65	14
17) Chert	2.2	42	13	36) Bone	4.0	35	19
18) Chert	47.4	57	45	37) Bone	4.5	59	15
19) Chert	3.9	33	24				

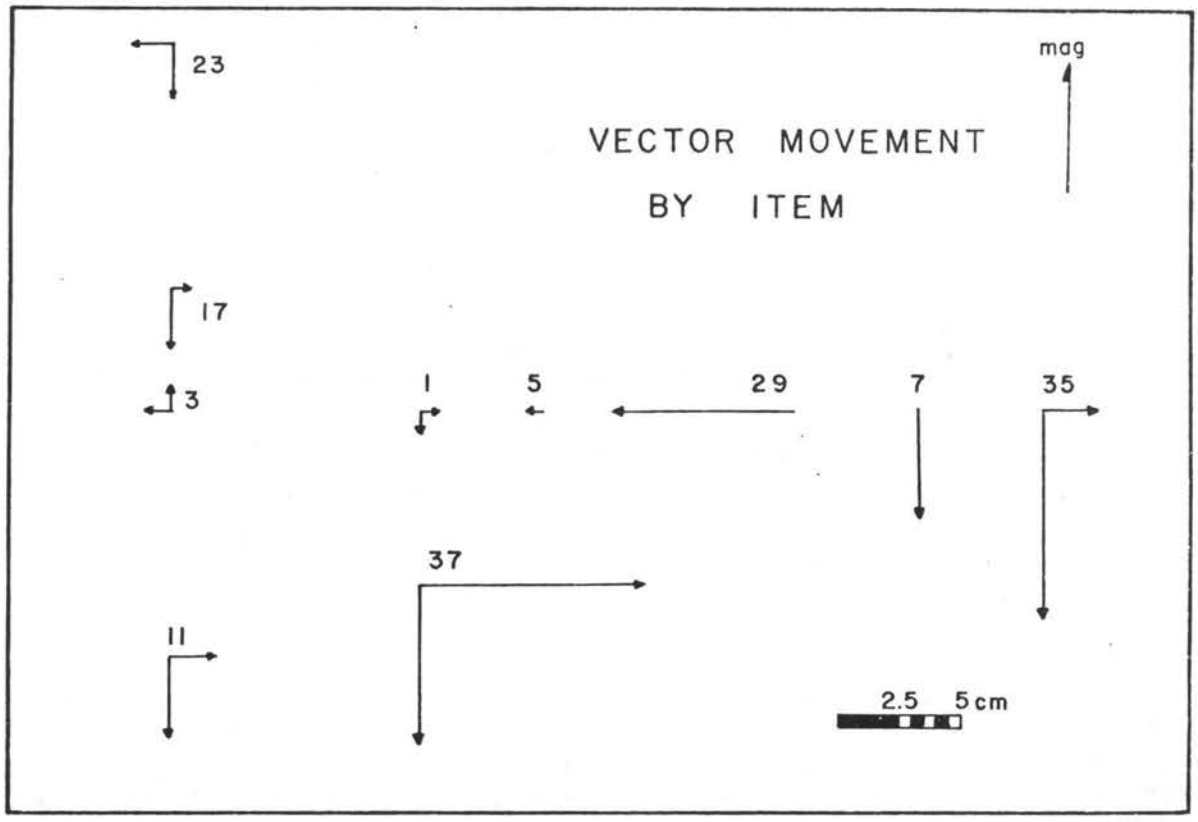
INITIAL RESULTS

A return visit to the site was made about 10 weeks later, on Feb. 1, 1981. Those familiar with the unusually mild winter southwestern British Columbia experienced in 80/81, will recall that record rain and subsequent flooding occurred in the lower mainland. While we had hoped that the materials had been wave washed, so that alterations to the experimental matrix might be observed,

it was never anticipated that such a complete inundation would have taken place. The maximum levels of the reservoir were reflected by the numerous pieces of driftwood suspended in the tree branches, at approximately 2.5 metres above the DiRq-5 site datum (496.4 feet AMSL). The duration of this episode is estimated to have lasted for three days. It is noteworthy that on Feb. 1, the reservoir level was five and a half metres below the site datum, thereby indicating an eight metre fluctuation of the reservoir in less than a month's time. This rapid transposition of the active reservoir zone would have a significant effect on the rate of erosion at a given location. Such factors must be taken into consideration when forecasting the vulnerability of a given site within an inundated context. It is also noteworthy that while the lake is usually subject to freezing, none took place during the 1980/81 winter. The absence of ice rafting as well as shoreline scouring by wind an current driven ice, suggest that the usual agencies of site erosion are sometimes mollified by climatic variability.

OBSERVED MOVEMENT

Not all of the objects placed within the experimental grid moved as a result of inundation. The 17 subsurface plants do not figure in this discussion as none were exposed; however, the 18 surface plants were all exposed to similar mechanical forces yet none revealed similar movement. Why one object moves, while another remains seemingly transfixed, is the result of a complex relationship of object weight, raw material, shape and a host of uncontrolled variables. It is impossible to quantify such variables as wave amplitude, periodicity, direction and driftwood movement in the absence of 24 hour monitoring, and all would have an effect on which objects experience movement.



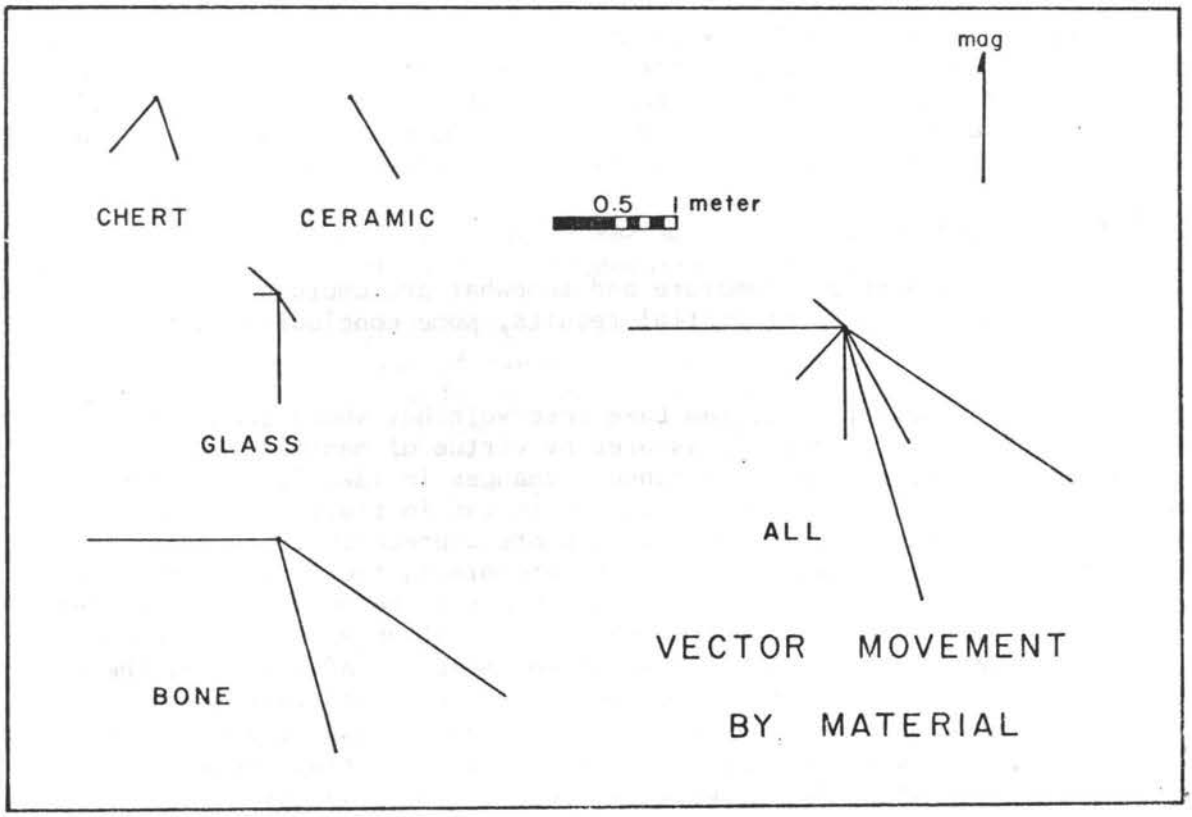
The 18 surface objects consisted of five glass, eight chert, four bone and one ceramic object(s). Subsequent to inundation it was observed that four of the glass pieces had moved, four chert objects moved, three bone itmes moved and the one ceramic piece changed position. The individual movement is broken down into component vector (cardinal directions) movement displayed in Figure 2.

1. Movement according to weight

It was origianlly postulated that weight would be a good predictor of which objects within the grid might experience movement. The initial results tend to support this hypothesis, although it is more correct to state that an object's specific gravity (relative density) is the operative variable, not weight per se. Specific gravity appears to determine the absolute distance an object will move, and is graphically displayed in Figure 3. The least dense material (bone) reveals far greater displacement than does glass, which possesses a greater specific gravity. This does not mean that all objects possessing a low specific gravity value will automatically experience movement before those with a higher value; the experimental results show that some items of each material class (specific gravity value) revealed no movement whatsoever.

2. Movement according to shape

The role of an object's shape is twofold: the long axis of the item will determine the final alignment, in that it will be positioned perpendicular to the direction of wave fetch, or alternately, parallel to the direction on the current, and secondly, that an object possessing a large surface area will be more susceptible to movement by wave action because of the increased surface



area. The initial results do indeed support these observations, in that objects possessing one axis twice as long as another were moved further, regardless of the material (specific gravity) involved. It is cautioned however, that not all objects with a pronounced long axis experienced movement, the exceptions being two chert and one bone object(s). The surface area of an object is related both to its weight and shape, and it is seen from these early results that objects with a large surface area are more likely to be moved by wave action. This is not a simple relationship, for it is self-evident that a sphere and a cube of equal weight and surface area will possess quite distinctly different potentials for movement by wave mechanics. In summation, the relationship of weight, shape and surface area is compelx and, for the time being, only 'rules of thumb' may be applied when addressing the questions of which attribute figures most significantly in differential object movement.

3. Movement according to local relief

It is seen from other studies, and the initial results of this experiment, that local slope and the force of gravity are active variables in determining object movement. In terms of this experiment, the generalized southeast trend of object movement is felt to be reflective of local slope characteristics. This is countered, however, by the movement of one object (29), directly to the west, and perpendicular to the local slope.

Movement synopsis

The initial results from the experimental site are most gratifying, in that they supported some of our hypotheses, while at the same time substantially modifying others. These data indicate that a reservoir environment possesses an extremely complex set of variables to consider, such as: the direction of wave fetch, wave periodicity, wave amplitude and presence of currents, and that none of these can be expected to approach the consistency of the wave and current dynamics seen in stream and tidal environments. This latter array of variables is further complicated by virtue of unnatural (man-made) fluctuations in reservoir levels which result in the rapid shift of the active reservoir zone.

DISCUSSION/CONCLUSION

While it is perhaps premature and somewhat presumptuous to discuss inundation effects on the basis of initial results, some concluding statements are in order.

The case study of Coquitlam Lake reservoir has shown that while relative stability of the lake level is assured by virtue of man-made controls, there can also occur dramatic and near spontaneous changes in lake level as a response to natural events such as flooding. Such events can initiate rapid shifts of the zones within a reservoir, and thereby promote unprecedented erosional events. The study also shows that weight is not THE determining factor in differential rates of movement: rather specific gravity appears to be more crucial to the magnitude of individual displacement. The movement of objects can be both uni- or multi-directional. Direction of artifact movement is influenced by the degree of slope, but this influence is not unimodal. All locations on the site surface are not equally affected by erosional processes, and as a consequence, deposition and erosion can occur jointly within a small surface area. An hiatus in reservoir drawdown or build-up, or an increase in wave energy, will induce erosion on the site.

The presence of driftwood within the reservoir can have a significant effect on sites within the active zone. This latter feature may be of particular importance in terms of future reservoir studies.

The factors that promote erosion of heritage sites within fresh water reservoirs include local slope characteristics, nature of subsoil and site matrix sediments, the zone occupied by the site (i.e. active, transitional, static), the direction and amplitude of wave fetch, presence or absence of a freeze/thaw cycle, and the numerous effects of man, through varying uses of the reservoir. The purpose and scope of the experimental station at DiRq-5 is to provide some long-term detailed empirical evaluations of erosion processes within an actual reservoir. It is anticipated that the initial as well as projected results of this study will assist in making decisions regarding the potential vulnerability of heritage sites within a pondage area. Such information will be of importance when formulating mitigation plans, such as selective excavation, or site protection measures. The initiation of the Coquitlam Lake study has provided a modest, yet not insignificant first step toward evaluating inundation effects for reservoirs within British Columbia. It is likely that such data will prove especially useful in light of the momentous rate of hydro-electric development slated to take place within the province during the next decade.

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(Watch for site report from Coquitlam Lake excavation,
in next issue of The Midden.)

S.F.U. OFFERS COURSES

Simon Fraser University is again offering several courses of special interest to ASBC members.

Under the B.C. Studies Certificate Program, courses are offered at the Vancouver Museum on "Archaeology of the New World" (also available at Burnaby Mountain Campus) and "B.C. and Confederation: Studies in Historical Method."

Under the Public History Certificate Program, a package of courses may be taken in a combination of evening courses, downtown courses, SFU courses and correspondence. Included for the certificate are "Canada Since Confederation" and "Archives Methods and Uses" as core courses. Optional courses include "Documentary Research in Communications", "The Canadian Economy", "Social Geography" and "Geography of Contemporary Industrial Societies."

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look for....

February issue of Heritage Canada, containing a special report on the heritage archaeological and historical importance of the giant Peace River Site C Dam, proposed by B.C. Hydro.

THE FATHER OF CANADIAN ANTHROPOLOGY

Another in The Midden's continuing series
on pioneer Canadian archaeologists and anthropologists.

Text by Don Bunyan Sketch by Hilary Stewart

He was a tiny hunchback, an indomitable, tireless explorer, a polymath, a prolific (if mostly unpublished) poet, an artist and a leader of the Canadian intellectual establishment. He was respected and loved by all who knew him, whatever their walk in life. His portrait in the library of the Canadian Geological Survey carries an inscription proclaiming him as the "Father of Canadian Anthropology." His name is borne today by two northern communities, a creek, a range, a mountain and a species of arctic mouse: Dawson.

George Mercer Dawson was born on Wednesday, the 1st August, 1849, in Pictou, Nova Scotia, the son of James William Dawson and his wife Margaret, nee Mercer. The father, a geologist and educator, was himself a distinguished scholar who became superintendent of education of Nova Scotia in 1850, principal of McGill University in 1855, a C.M.G. in 1881, first president of the Royal Society of Canada in 1882, a K.B. in 1884, and collected several scientific presidencies and honorary doctorates before his death in 1899. Young George's intellect was nourished by bright minds in his youth, and grew precociously in response.

He was an active, sturdy, handsome lad until in his eleventh year he became ill of a fever which stopped his growth and distorted his spine. However, George survived the illness (polio?), his incandescent curiosity undimmed, and pushed himself, in spite of recurrent attacks of pain for the rest of his days, to pursue a vigorous physical as well as mental life. He entered McGill College in 1868 and in the following summer dredged up information on foraminifera for his first scientific paper, published in 1870. Also in 1870, he entered the Royal School of Mines in London, graduating first in his class, with medals and prizes, in 1872. Returning to Canada, he was first engaged in examining some mining prospects in Nova Scotia. Then, in 1873, he was appointed as geologist and botanist to Her Majesty's North American Boundary Commission, which had been constituted to fix the boundary between Canada and the U.S. from Lake of Woods to the Rocky Mountains. In spite of what ought to have been a crippling deformity and despite frequent bouts of pain, he had more endurance on the trail than most of his associates, all fitter and stronger than he.

When the Boundary Commission finished its work, Dawson was appointed to the staff of the Geological Survey of Canada in 1875, becoming its assistant director in 1883 and finally its director in 1895. Most of his field work was in the Northwest Territories, the Yukon and British Columbia, and these areas are the settings of his published anthropological writings. He had been interested in archaeology since his boyhood. During his explorations for the Boundary Commission and the Geological Survey, he always won the respect and liking of the native Indians whom he met and with whom he worked, and he was much concerned with preserving knowledge of their ways. Of his 90 published papers (for a complete bibliography, see Ami 1902) on geology, mining, zoology, botany, agriculture, meteorology and anthropology, eight are anthropological. Although he modestly disclaimed authority in the subject, his ethnographic writings are perceptive, precise and clear. His ethnographies of the Haida (1878-79), the Kwakiutl (1887) and the Shuswap (1891) are all models of keen, detailed and sympathetic observation.

It seems to have been in 1891 that, during his last visit to British Columbia, Dawson met Charles Hill-Tout. Dawson encouraged Hill-Tout, sponsored the latter's first paper before the Royal Society of Canada in 1895, and in 1896 nominated him to the Committee for the Ethnological Survey of Canada, of which Dawson was chairman. Hill-Tout subsequently described Dawson as a "singularly simple and modest man, cordial, very kindly and always ready to help younger and less experienced men..." (Maude 1978). Maude (ibid.) and Van West (1976) both express the view that Dawson's influence might have led to the establishment of a distinctively Canadian school af anthropology, but for his untimely death.

Dawson's honours included a D.Sc. from Princeton, LL.D.s from Queen's, McGill and Toronto, election as a Fellow of the Royal Society in 1891, presidency of the Geological Association of America in 1896, presidency of the geological section of the British Association for the Advancement of Science in 1897. On Saturday, the 2nd March, 1901, the career of one of the most brilliant, energetic and sympathetic scientists of our country was cut short by acute bronchitis, after an illness of only one day.

I am sorry that I could not find a full, critical biography of this engaging, dynamic, courageous and colourful contributor to our knowledge of our land and its people. There may be none. There is an account of his life written in the form of a novel for young readers aged 12 to 14 (Barkhouse 1974) and there is an affectionate "Life and Letters" compiled by his niece (Winslow-Spragge 1962). There are a number of appreciations in learned journals (Harrington 1902, Van West 1976, among others). So far, however, there seems to have been no major, widely available assessment of the life and works of the diminutive genius whom Barkhouse called "the little giant."

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'Great trek' under debate

Associated Press

LA JOLLA, Calif. — Humans may have first crossed the Bering Strait to the New World up to 120,000 years ago, far earlier than most believe possible, a Canadian archeologist said Tuesday.

But a Soviet scientist said his country's experts believe such a trek across the strait between Alaska and the Soviet Union could not have occurred earlier than 70,000 years ago.

Dr. Brian O. K. Reeves of the University of Calgary gave his theory at a four-day symposium on human migration and undersea archeology.

"The timing of entry and subsequent spread of early peoples into the New World . . . is a (subject of) continuous debate," Reeves acknowledged, but he said the evidence indicates humans moved across the Bering Strait during an ice age more than 100,000 years ago when ice bridges and dry land were created. Reeves added humans could have crossed up to 120,000 years ago.

However, Dr. Dikov Nikolai Nikolayevich of the Soviet Union's Scientific Research Institute said Soviet studies indicate the migration started 70,000 years ago. A generally accepted theory has been that humans crossed the strait about 13,000 years ago.

COMING EVENTS

January meeting - joint meeting with the A.I.A. - 13 January 1982

Speaker: Dr. HANNA KASSIS, U.B.C.
Title: "Spain: The Medieval Frontier between Christendom and Islam: Archaeological Survey"

WATCH FOR....

A definitive history of Haida house construction, to be published in spring 1982 by the U.B.C. Press.

The book is the result of 10 years research by Dr. George MacDonald, senior archaeologist at the Museum of Man in Ottawa. The work includes hundreds of illustrations, selected from every available Haida house photograph. MacDonald has also collected mapped villages, identified hundreds of house sites, and done a house-by-house survey of Haida villages.

Publication of the book coincides with Dr. MacDonald's arrival on the West Coast for a two-year stint as a visiting fellow at the U.B.C. Museum of Anthropology.

While on the West Coast, MacDonald will continue his work as director of excavations at the Kitselas Canyon site on the Skeena River near Terrace. That work --which recently identified two important wet sites-- includes analysis of the rich local oral history.

WATCH FOR...

Tours in April and May to San Francisco
- $495 fare, hotel, local transportation and free lecture -
to visit Alexander the Great show.

Feb. 28 and April 1 are deadlines for signing up...
Arrangements through Joy Smith at Capilano College.

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