

KEYNOTE ADDRESS

RECLAMATION - PAST, PRESENT AND FUTURE

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In this crowded dining room it is difficult to realize the professional isolation of people working in land reclamation even 15 years ago.

It is salutary to recognize that the first reclamation meeting was as late as 1969. This was a short course on the rehabilitation of drastically disturbed land, held at Pennsylvania State University. The intent was to bring together the world's reclamationists. It extended over three weeks and was fully funded by NATO. The organizers searched the world literature and brought together everyone who had written anything on the subject in the previous ten years. They came up with a grand total of 36 names! We were billed by the University as the meeting of disturbed people.

There was bauxite mining in Jamaica; brown coal, atmospheric pollution (this was before acid rain was invented), and regional planning in Germany; pit heaps, open-cast coal and derelict industrial land in the U.K.; strip-mining for coal and phosphate mining in the U.S.; open-pit mining in the Canadian Rockies; the colonization of a new volcanic island off Iceland; and a few other odds and ends. Tin mining in Malaya, the gold dumps of the Witwatersrand, the brown coal of Czechoslovakia and a few old planted coal pit heaps in Belgium were missed. Also, and notably, there were no Australians, for it was not until 1976 that we realized that the extensive Australian literature on sand dune fixation was in fact concerned with the reclamation of mined-out coastal mineral deposits. Such was the state of reclamation as an organized discipline in 1969.

Apart from sizable teams in Appalachia and the American mid-west and in Britain and Germany, most people were working in isolation. Reclamation was largely a concern of a few foresters. Agronomists and ecologists did not really appear on the scene until the change in federal reclamation requirements in the U.S. and the concerns for mine tailings and oil sands in this country.

But land reclamation was by no means a new idea, it has been long accepted in many parts of the world as an integral part of land management. Back in the 1950's I made a survey of some 260 planted pit heaps in England alone. As early as the turn of the century, the Black Country Afforestation Association was already functioning. During 20 years, this voluntary organization, operating on a shoe string, established some 40-odd tree plantations in the English midlands on "tucky" ground and old coal mine, iron foundry, and pottery shard dumps, until it fell victim to the Great Depression. Although many plantations were lost to vandalism when protection was removed, a few of its plantations survive today as memorials to early efforts to make good the ravages of the early industrial revolution. Elsewhere, throughout the European industrial and mining regions, there are sites that had been planted, either as a result of civic concern, as in the Black Country, or in the course of day to day estate management. Particularly in the rural coalfields of northern England, there are scattered small plantations, their industrial origins

forgotten, but identifiable by their configuration, the odd row of old miners' cottages, an old shaft or the foundations of long abandoned buildings. At the Penn State meeting the Germans described a smelter bank that had been planted to trees in the 1890's they were somewhat outcountenanced by a wooded pit heap in England with documentation from the 1840's. Throughout Europe there are quarries, old mine workings, and other once grossly disturbed sites which have merged into the landscape. We have similar situations here in Canada. On our own doorstep there is Queen Elizabeth Park. Not many people who visit this beautiful spot realize that they are looking at an old stone quarry, similarly, the world famous Butchart Gardens near Victoria. In the Kootenays, old mine dumps have revegetated naturally.

Early reclamation efforts were not confined to Europe. Before the end of the 19th century, municipal refuse was being used to reclaim sand dunes at Port Elizabeth in South Africa. Conditions must have been difficult, a major concern was the rotting of the hooves of mules that worked on the site. Today, there is no indication of this tract's original conditions. Successful reclamation is when you do not realize it ever happened.

This morning, one speaker referred to land reclamation by the Romans and the building of medieval towns on garbage dumps. I once lived in the town of Erbil in Northern Iraq which is situated on top of a 300-foot Tell - an artificial mound resulting from the accumulations of 6,500 years of human occupancy - the oldest continuously occupied site in the world. Earlier occupants must have had a first class view of the battle on the plain below when Alexander decisively defeated the Persians, though the Tell surely was not as high then as now.

The bringing of wasteland into productive use has been going on ever since the first stone age man noticed that vegetable waste sprouted on his middens and often produced better food than did adjacent natural soil. The more things change, the more they remain the same. In 1952, I was picking excellent tomatoes on deep mined coal bings in Yorkshire that originated from seed brought up with mine waste from the workings many hundred of feet below ground. They did not have Porta-johns.

Nonetheless, despite this long history of reclamation activity, in the Canada of 1969 such efforts were very few. In eastern Canada, there was concern for mine tailings at Noranda and Timmins, an attempt at tree planting in Cape Breton, and, of course, the bright spot, the work of Tom Peters at Copper Cliff. In the west, there was only a small group of people working in the Crows Nest Pass - like me and a graduate student! We were criticized by a most distinguished dean of graduate studies, a wildlife biologist of world repute, for assisting the mining industry in its desecration of the Rockies. Before turning to UBC, the then Kaiser Coal Company had approached the botany departments of the Alberta universities for advice on the reclamation of their mine and had been turned down flat by each in turn. I had only been at UBC for six months when the Crows Nest controversy erupted, I thought I was unlikely to survive for a

second six months! All this merely because I said that coal wastes could be vegetated. Those were the days when it was an article of faith for many ecologists and foresters that plants required an undisturbed organic layer in which to grow. (It never ceases to amaze me how often intelligent people seem to be unable to use their eyes, or if they do, do not recognize what they are seeing). Just 17 years ago, to be working in mined land reclamation in western Canada was akin to having leprosy - one was expected to ring a bell and cry out "Unclean!" "Unclean!" so that respectable biologists could avoid contamination.

And that was about the total picture of Canadian land reclamation at the beginning of the 1970's. It was certainly a most unlikely place to expect the founding of the world's first land reclamation society.

In reality, the Canadian Land Reclamation Association arose out of a sense of professional isolation. It is also almost certainly unique in that it was in large part founded to provide a vehicle for a professional journal.

For seven years I had been publishing a quarterly international newsletter and bibliography at UBC under the auspices of the International Union of Research Organization. I confess a strong motivation was that in this way, the entire world's output of reclamation reports came across my desk (if anyone wants a complete coverage of reclamation activities, worldwide, for the 1970's, my office has it!). The mailing list increased to about 400 before my dean revolted at the mailing costs. During this time the Ontario Cover Crop Committee, a small study group, was meeting annually at Guelph to discuss land rehabilitation problems and to communicate technical information. Largely formed of seed suppliers, seeding contractors and turf producers, Jack Winch was the driving force behind the group.

We met, and the upshot was the CLRA. At the inaugural meeting there was some disagreement as to whether the new society should be national or international in scope. In the end, the forces of Canadian (or, more correctly, Albertan) nationalism won out, but in typical Canadian fashion, with the compromise that the Association's journal would be international in orientation. (I must confess that I still believe that the decision to maintain a purely Canadian identity was a mistake. The CLRA would have been a significantly stronger organization today, though doubtlessly different in character, if it had cast its net world-wide as the LRA, however, it was not to be).

The CLRA's Reclamation Review was conceived as a professional journal. Unfortunately, it developed early pretensions as a scientific research publication complete with board of review, and there proved to be too few workers in Canada to support it. Eventually, it was hijacked by an ambitious professor from the Dakotas who later moved on to higher things at an eastern ivy league college, and in due course, the journal passed into the hands of Elsevier, the Dutch publishing house, when it was renamed Reclamation and Revegetation Research. Some of our members are on the editorial board. So, although the CLRA was unable to maintain

a journal itself, it did achieve its purpose of seeing the establishment of a well-received international journal dealing with reclamation. Meanwhile, the Association has developed its own professionally oriented newsletter, though the editor still has difficulties in soliciting contributions.

There is a lesson to be derived from this story of the CLRA's venture into publishing. Some academics need to be reminded occasionally that a high proportion of the work of a successful reclamationist, as indeed of any land manager, while firmly founded on an understanding of natural processes, is not based on fully researched scientific orthodoxy. Observation and serendipity have major roles to play, and above all, the successful reclamationist requires the husbandman's instinctive feel for plants and soil.

From the outset the CLRA was envisaged as embracing all aspects of the treatment of drastic disturbances, but we developed early a strong emphasis on mine land rehabilitation. This was unfortunate for it narrowed our vision and we lost a number of members with interests akin to those of the original Ontario Cover Crop Committee. This preoccupation was probably because large-scale open-pit mining was a new development on the Canadian scene, and, as such, attracted attention - people were not used to mining disturbances as they were to poor road construction, raw road cuts, landslides, blocked salmon streams, floods and logged off hillsides, which were accepted as part of the natural order rather than, as all too often, the avoidable consequences of poor management. We also failed to attract a significant international membership to what, because of its title, was seen as a peculiarly Canadian organization.

But if the CLRA was otherwise preoccupied, the public was showing increasing concern for environmental matters - a better term surely is good land management - which brings me to our present meeting. When Paul Ziemkiewicz became President last year, he said he intended to do two things - develop local chapters and extend the scope of the Association. He has succeeded in both his objectives.

At this meeting, through the good efforts of Bill Carr, the CLRA has returned to the original intent of the founding members - a broad-based concern for the restoration and rehabilitation of grossly disturbed environments of all descriptions. Someone said yesterday that reclamation has matured, with that we will all concur. I can recall early reclamation meetings when speakers showed slides of small trial plots of rye grass, fescues and clovers in a moonscape of disturbed land, and were justly proud of their results, and they had every right to be so - they were the pioneers. I myself used to be preoccupied with the need for planning in reclamation - of the need to integrate mined land reclamation with the extractive phase - and went around like a messiah proclaiming the true gospel - today we take all this for granted. We have advanced considerably in our level of understanding and, to a great extent, our early concerns and preoccupations are well on the way to being accomplished.

This meeting is a measure of our success. We have heard from landscape architects about planning railway lines in parks, and rapid transit systems in cities, hydrologists talking about post-logging mass-wasting, stream dynamics and fish, and foresters concerned for the long term productivity that lies at the heart of their profession, and, we have heard about the transformation of municipal refuse and the beneficent use of sewage (surely one of the greatest underutilized resources of our time). Land reclamation is of growing concern, for land managers of all kinds have to satisfy the public concern for the aesthetic values of land while sustaining its productive capacity. Today our efforts extend far beyond turning rock piles green.

In this room are a number of people who have been with the CLRA since its earliest days, but I know they will agree that more important by far are the new faces - there is nothing worse than a professional society dominated by men with gray beards. This has not happened to the CLRA. There has been a steady influx of, what seem to me at least, young people. I do not think I have ever been to a professional meeting before where session chairmen were drawn from graduate students - and an excellent job they did, while, if I may be excused for saying so, the three graduate students from UBC who stepped into the programme gap were products of which any elderly professor can well be proud.

What of the future? What does it hold for reclamation and for the CLRA? The vandals are in retreat from the gates of Rome. Despite present economic conditions, on all sides those with ears to hear can hear expressions of environmental concern and, furthermore, unlike earlier days, these are informed voices. We are seeing a late 20th-century manifestation of the 19th-century North American conservation and forestry movement that transformed American attitudes toward natural resources. Today, as never before, we hear concerns about logging practices, controversies about wilderness preservation, establishment of national and provincial parks, calls for better forestry practices, acid rain, torrent and avalanche control and, in an increasingly technological society, the disposal of hazardous wastes and, most recently, apprehensions about nuclear reactors and the possibility of continent- or even world-wide catastrophe.

The days of the pioneer exploitation of natural resources are coming to an end. Some of us may be impatient at the speed of change - it is the nature of man - but before we can change practices, we must change attitudes of mind. The principles that the CLRA represents will win out. A developed Canada will have a developed programme of environmental maintenance. As we enter into the Age of Sustention, we must ensure that the new environments that will result from the inexorable advance of civilization are both seemly and productive. Certainly, the frontier will be pushed back - we cannot retreat to the nostalgia of the wilderness nor bow down before the Great God Natural Ecosystem, but we do not need to leave a dirty mark wherever we put our hands. Nature is waiting to be turned into a landscape. Canadians will cease to be resource exploiters and become husbandmen, even if working on a scale unimagined by earlier generations.

A few weeks ago, I read an exam script in which the student had written "to restore productivity to deserts it is necessary to irritate them". Only when the Canadian people are sufficiently irritated by such scenes of man-made catastrophy, as we have been shown at this meeting, will they, in turn, so irritate the wheelers and shakers of our society that environmental maintenance, and with it the purpose of this Association, will be adequately addressed. And this will be sooner than we think.

ELEVENTH ANNUAL MEETING

LAND REHABILITATION: Policy, Planning Systems and Operational Programs

June 3 - 6, 1986

University of British Columbia
Vancouver, B.C.



CANADIAN LAND RECLAMATION ASSOCIATION

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TABLE OF CONTENTS

	Page
EDITOR'S NOTE	v
FOREWORD	vi
KEY NOTE ADDRESS - Reclamation - Past, Present and Future J.V. Thirgood	1
LAND REHABILITATION POLICY	
Reclamation Projects Sponsored by the Canada-B.C. Mineral Development Agreement D.M. Galbraith	9
Planning for the Fraser-Thompson Corridor - A Clash of Perspectives A.R. Thompson	13
Rehabilitation - Its Many Facets at Ontario Hydro A.S. Ansell	25
Land Rehabilitation - Policy and Procedures at Two Hydroelectric Developments in Newfoundland G.P. Rideout	33
Forest Harvesting Impacts on Watershed Values L.H. Powell	41
SOIL CONSIDERATIONS	
Guide to SWAIN - The Soils and Water Activity Inventory D.R. Murray and J.R. Hardy	45
Vegetation Response to Right-of way Clearing Procedures in Coastal British Columbia A.B. McGee	65
Heavy Metal Levels in Grasses and Legumes Grown on Copper Mine Tailings C.M. Hackinen	69
The Reclamation of Waste Rock Dumps at the Kitsault Minesite W.A. Price	73
Extraction and Measurement of Oil Content in Mineral Fines (Sludge) P. Yeung and R. Johnson	77

	Page
LINEAR DISTURBANCE	
Visual Implications for Reclamation of the CP Debris Flow Tunnels in Yoho National Park P. Miller	89
CP Rail Rogers Pass Project Reclamation Program D.F. Polster	93
B.C. Hydro Road Erosion Control and Right of Way Revegetation Programs I. Wright	107
URBAN DEVELOPMENT	
Urban Reclamation Plant for the B.C. SkyTrain D. Easton and J. Losee	111
Landfill Areas and its Vegetation D. Oostindie	123
SLUDGE MANAGEMENT	
Oil and Gas Drilling Waste Management Consider- ations by Public Lands Division Staff, Depart- ment of Forestry, Lands and Wildlife in Alberta D.A. Lloyd	129
Forest Soil Amendment with Municipal and Industrial Sludge D.W. Cole and C.L. Henry	149
FOREST DEVELOPMENT	
Cascade Creek Restoration (A Slide Presentation) H. Nesbitt-Porter	177
Rehabilitation of Non-Productive Forest Stands in British Columbia S.G. Homoky and J. Boateng	183
Rehabilitation of Degraded Forest Soil in the Prince George Forest Region A.J. McLeod and W. Carr	197
REVEGETATION - SOIL AMELIORATION	
Revegetation and Reclamation of Ash Lagoon Surfaces in Central Alberta T.A. Oddie	205
Assessment of Variable Subsoil Replacement Depths After Surface Mining (BRSRP) L.A. Leskiw, C. Shaw-Nason and E. Reinl-Dwyer ...	219

	Page
REVEGETATION - PLANT MATERIAL	
Restoration in Northern Environments - Use of Sea Lyme Grass F. Gauthier	251
Cattail Stand Development on Base Metal Tailings Areas M. Kalin and R.G. Buggeln	261
Economic and Biological Feasibility of Native Plants for Land Reclamation in Western Canada C.E. Jones and B. McTavish	277
APPENDIX I - List of Registrants	297
APPENDIX II - Co-sponsors, Organizing Committee, Executive and Session Chairs	301

FOREWORD

The British Columbia Chapter of the Canadian Land Reclamation Association was formed in 1985 to provide a local public forum for the exchange of information and experience in land rehabilitation. Comprised of professionals from a wide range of backgrounds and interests, this organization pulled together quickly to host the 1986 Annual Meeting. The diverse membership in the B.C. Chapter was realized in a program that expanded the scope of the conference to include many fields that have not been represented in past programs. The quality of presentations and range of topics kept audience participation at a spirited level. It is our hope that we have initiated a trend to widen the scope of the annual meetings so as to not focus on traditional mining or energy development issues.

I wish to thank all speakers and attendees for making this first formal function of the B.C. Chapter a success. The enthusiastic support of chapter members in the planning and administration of the conference demonstrated a strong desire for a quality meeting. This drive bodes well for the future of our chapter.

A great deal of effort went into the publication of the proceedings of the 1986 Annual Meeting. Care was taken to accurately reproduce all papers, however minor errors may have escaped the review process. We hope that this will not detract from the information presented by the authors.

May the CLRA and all local chapters continue to grow and function as a focal point for land rehabilitation.