SIMPLE SIGNS FOR RIGHT-OF-WAY MANAGEMENT

or

ALLITERATIONS ARTFUL AID TO PUBLIC UNDERSTANDING

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Abstract

This paper reviews the change in our society that has lead to an apparent mistrust by the general public of large government bodies, and the methods they employ to resolve operating difficulties. A utility crown corporation, and the impact of its operations in transmitting electricity to urban centres is taken as an example. The process through which critics of the present system accrue and comprehend knowledge is discussed. The accuracy and objectivity of sources of information is reviewed. One facet of the tasks facing an electrical utility in maintaining services against the intrusions of nature is examined in detail using alliteration as a mechanism to convey the simple theme which can enhance public appreciation of the problem-solving process.

Rights, and Rights-of-Way

The complexities of life in our urbanized world challenge comprehension, frustrating the individual and disenchanting the public. It was not always thus. In earlier days Canadian development was predominantly rural in focus. The Church and community hall were the centre-points of social

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life at a time when social values were clear, morality non-secular, and authority respected.

Wise men governed or were thought to govern. The pace of change for the most part allowed men to comprehend their life day by day. Technocracy had nor arrived. When it did, the stable social fabric was rent apart. And the city grew. And the civil servant came. The individual was happy to vest his responsibility to care for aspects of his life in the hands of those who society had judged by education were best able to make decisions for the collective good. In order that collective man could exert his will on the public servant, a democratic process allowed for the appointment of wise, or well-heeled, men from the community to be appointed for a short term to test their ideas on how life should be. Collectively those who thought alike called themselves a "party", and their ideas a "platform". When life was predominantly georgic the citizen knew and could communicate readily with his representative and influence his party manefesto. He could probably grasp the issues of the day and the decisions of those who governed him. Then, the politician <u>did</u> represent and reflect public opinion.

As the 20th century draws to a close we may ask why the present disillusionment? Where has that trust, once unchallenged, lost its full measure? Do we slip towards the chasm of anomy? Should we absturge the slate, bury democracy and wait? I think not. We must find ways to rejuvernate the process which allows simple communication and understanding

backwards and forwards through the three levels of society: political, civil, and individual. We must distill the values, goals, and policies of a specialized few into terms readily understood by all.

Avenues of expression for man's disenchantment with the political and planning processes are beginning to develop. New names have been coined to embrace the philosophy of soliciting feelings from the ordinary man about technology; normally a specific technology which is just about to creep stealthily towards his back door. "Social impact study", "public planning", "public involvement", are terms readily becoming the jargon of those bent on eutechenis.

This short paper attempts to extract a small finite segment from the seemingly infinite complexities of our technology and sift out some germane precepts which will assist in understanding the process, the logic, behind the actions of the faceless fugacious few charged with managing a subtle menacing technology - that of electrical utility rights-of-way.

As the fabric of our society changed and the cities grew, each connubation needed more energy to support the new life; energy to work by and energy to rest by. Electricity, clean and inexpensive, became an attractive energy form to satiate that demand until today it represents about 25% of all energy consumed in North America. Present predictions indicate an increase to 43% by 1990. Thus, energy consumption is expected to increase

by about 280% during the period 1970 - 1990. Sadly any slowdown in population growth will not materially effect the increasing use of electricity. The per capita demand for this form of energy has been growing five times faster than the population. And the depletion of the world's hydrocarbon reserves can only but exacerbate that growth rate. With the growth of load has come, for most utilities, an exhaustion of generation sites contiguous with the urban centres which they serve. As generation became further and further removed from the consumer, transmission corridors stretched. But unlike elastic they became both longer and wider at once in a simple sequence. As distance increased, voltage increased, and consequently structure size increased, and, since electricity has developed the art of hopping from one place to another the clearances between conductor and close associates forced the widening of each right-of-way.

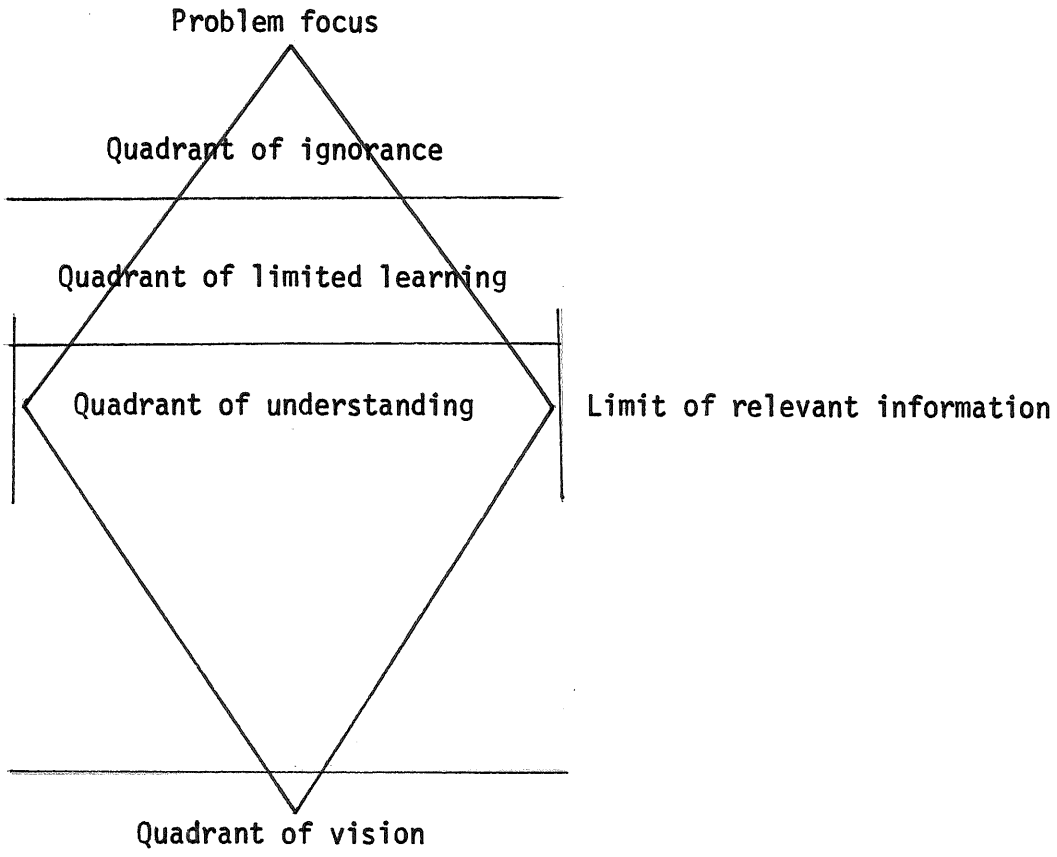
In 1950 in North America it is estimated that there were less than 17 million acres included in urban areas. By 1960 this number had increased to over 21 million acres and that figure is expected to have doubled by the year 2000. With the increase in population and the steady migration towards urban areas, roughly 80% of the population is expected to live in or around the cities by 1980. Rights-of-way which serve these cities are presently estimated at almost 400,000 miles collective length, pre-empting some 4,500,000 acres. Right-of-way width will continue to increase with voltage. 500 KV transmission will rise

from 10,000 miles in 1970 to 40,000 in 1990. 765 KV from 600 to 10,000 miles and 750 DC from 850 to greater than 1500 miles. By 1990 it is thought that utility rights-of-way will approach 1 million miles occupying perhaps 10 million acres. The conflict grows.

Rights-of-way are thus with us and are seen to be with us. And the people are not happy. Those trusted with guardianship of the simple man's domain have spawned some ugly children and strung them out across the countryside for all to admire. And, as soon as nature tried to clothe her wounds with green, she was fought until she turned brown and sullen. The common man comforted nature and was very angry with anyone who would listen, which most utilities did not. So he turned to the politician to change what he did not like, and to argue his case he began to search out facts.

Facts and Falacies

The cities turned to obvious sources of information, the press and quasi-scientific journals. However, before discussing these in more depth it is prudent to look first at how man reacts with information.



Diamond of Individual Insight

In order to graphically illustrate that man attains varying levels of understanding hypothetically stand within the bounds of a diamond. Imagine one end forms the specific problem focus. Our knowledge regarding a particular problem is reflected by our placing it in the diamond. If our depth of knowledge is minimal we may place ourselves in the quadrant of ignorance. As our breadth of knowledge increases we move towards the quadrant of vision. Here a few may understand the limits of pertinent information and the diamond's placement relative to other issues. The more complex the problems the few minds embrace the quadrant of vision. The

diamond has a central axis. Deviations from this axis are reductions in our objectivity in viewing facts. Each brings biases and

Learnt Values

Ego

Past Experience

Greed

Prejudice

Faulty Reasoning

Righteousness

Complacency

Expediency

Use of Trivia

Etc.

In examining a problem and in communicating the selection of solutions, account should be taken of these deviations which form every man's character in varying degrees.

Not only does man warp his information, he readily forgets it. Typical memory curves show that within two days people forget 20% of what they have learned. Within four days 40%, nine days 60% and in a month 75% is lost.

Upbringing and education form the basis of each man's catalogue of information. Inate ability, experience, and learning will shape his

retention and colouration of facts. In adult life, reading, watching, talking, and employment, play principal roles in the receipt of information. Information will be forgotten, discarded or retained depending on interest, form of presentation, and for some deductive reasoning.

For the most part people will believe what they hear. And for the most part it is provided by the media. However, only 12% of those surveyed felt that the press was very honest in its reporting. 59% expressed doubts about the quality of information they received, 79% assumed press to mean newspapers.

For Canadian news individuals relied 48% on television, 19% on radio, and 29% on newspapers. About 50% felt that television was credible in presenting Canadian news compared with 17% for radio and 26% for newspapers. 55% of those surveyed felt that the newspapers required the most energy and concentration to understand. It is not reasonable to draw specific conclusions from this data. However, the aggregate of these observations allied with our differing abilities to comprehend the intended meaning of words, aptly summarized in this conversation

> 2/ ' "When I use a word," Humpety Dumpety said, in rather a scornful tone, "it means just what I choose it to mean - neither more nor less."
>
> "The question is," said Alice, "whether you can make words mean so many different things."
>
> "The question is," said Humpety Dumpety, "which is to be the master - that's all". '

2/ Carroll, L. Alice Through the Looking Glass, pub. Kingsport Press.

has meant that many critics of utility operations came armed with an array of dubious information with which to challenge the status quo. The opposing forces met head on and open confrontation often grew from corporate silence or inertia. The critics became more insistent and marshalled more "facts". Few, however, would grasp either the administrative or technical process which even from within are complex and often intimidating. Slowly a pattern of dialogue has thankfully evolved. Belatedly democratic reconciliation replaces mistrust.

Simple Signs

A simple portrayal of the factors which influence tasks is the fundamental thesis of this paper. But to assist those in the quadrant of ignorance and those in the quadrant of limited learning, we must set the stage before we bring on the individual characters. There is no obfurcate mystery to this. It is no more than a logical progression through the administrative process which culminates in staff in the field employing a technique to overcome a problem. What we must convey to those who watch the play is that we have no desire to leave a bitter aftertaste when the work is done. We must show that we have considered the impact of our duties on man and his environment and denegrated neither. A simple model may be drawn which shows the principle Elements and Functions of the electrical utility.

For example, I have taken one element of utility operations and listed some of the tasks which evolve from the functions of routine maintenance.

Element: Transmission

Function: Maintenance

Tasks:

Re-clearing

Bulldozing

Scarifying

Stump removal

Burning

Seeding

Right-of-way inspection and policing of easements

Multiple land user supervision

Erosion observation, control and maintenance

Stream observation, control and maintenance

Water crossing construction and maintenance

Water crossing repair

Helicopter landing site clearing and maintenance

Road crossing screening

Road crossing pruning

Selective cutting maintenance

Chipping of debris

Recreational facility servicing

Tower inspection

Tower painting

Insulator washing

Rubbish collection and disposal

Sign placement and maintenance

Fence and building grounding

Fence and gate construction and repair

Danger tree determination and removal

Woody brush cutting - machine

Woody brush cutting - hand

Woody brush spraying

Woody brush chemical treatment - other

Noxious weed spraying

Noxious weed chemical treatment - other

Grass cutting - machine

Grass cutting - hand

Grass growth control - chemical

Pole treatment

Liaison with property owners

Applied research and development
- material
- equipment
- techniques

Let us take one major task and examine it in greater detail. I have chosen vegetation control.

Vegetation has some endearing and some dubious characteristics in the eyes of the utility manager. Phanerophytes, the tall woody plants, may either

Endanger

or

Enhance

utility operations.

The problem of hazard intensifies depending on the rate of growth of the vegetation which is governed by

Species

Season

Sustinence

Sun

Site

Soil

Slope.

That vegetation is a problem to the utility should be clearly developed into a Task Rationale. In this way, the layman who does not know may come to learn why a particular job is necessary. The assumption that a vegetation problem exists can be determined by identifying the

Source
Sign
Size
Severity
Significance
and
Solution.

If we use Predictive Planning in management it is possible by experience to predetermine the problem factors and move to treat them properly before the Sign is a service interruption or an angry customer, probably from the quadrant of ignorance, berating the powers-that-be to get out and do something.

The resulting tasks to control the errant vegetation will have five task needs

Men
Methods
Machinery
Materials
Money

Each will have some components which will influence the choice of alternatives within each need.

METHODS

Legality
Admin. complexity
Interperative simplicity
Safety
Efficiency
Flexibility
Alternatives
Guidelines
Standards
Records
Presentation
Communication

MEN

Education
Training
Qualifications
Experience
Rank
Job Title
Job Description
Salary
Mobility
Aspirations
Affiliations
Creative Freedom
Working Conditions
Morale

MACHINERY

Suitability
Proven Reliability
Safety
Cost - Capital
Cost - Operating
Depreciation
Design
Maintenance
Adaptability
Efficiency
Availability
Utilization

MATERIALS

Hazard
Public Acceptance
Cost
Form
Dependability
Supply
Packaging
Efficacy
Availability

MONEY

Fiscal Controls
Wages
Capital Available
Borrowed Cost
Cost Sharing
Priority Of Tasks
Budget Requirement Trends
Amortization Period

Method is the crutial factor for it is here that the dichotomy of understanding between public man and the managing man is crystalized. Here is it incumbent on the problem manager to clearly identify his alternatives and to lay out the reasons for his choice of a particular solution. The public man can then see if the rationale justifies the end. For vegetation control on rights-of-way the alternatives are simple

Cut

Chemical

Cultivate

Combust

or

Combinations.

As the use of chemical vegetation control has been contentious and vexatious it may help to expericate the basic decisions which should underlie the choice of this technique.

Herbicide Categories

selective growth regulation non-selective

Task requires - selective woody growth control = Selective Herbicide

Technique used -
dictated by: environmental consideration, safety, public pressure, aesthetics, crop proximity, time of year, density, % and height of undesirable vegetation, accessibility and topography, equipment availability and operator skill, experience and cost.

Dormant | Stem Foliage | Pellet

Specific chemical choice -
dictated by: weed species, label recommendations, Provincial recommendations, cost, packaging, toxicity, climate, applicator training, equipment available, chemical characteristics, past research and experience.

Type -
dictated by:
formulation, active ingredient %, need for additives or carrier, odor, effect of temperature, efficacy, resistence solubility, experience.

active ingredient %, size, type of carrier, shape.

Rate
dictated by: label recommendations, Provincial recommendations, own research and experience, cost, density of undesirable species, % of resistant species, % control desired.

Application technique used -
dictated by: weed density, size of area, topography, line protection priority, equipment and operator skill.

Spot | broadcast or spot | broadcast or spot

Application method -
dictated by: weed density, availability of equipment, operator skill, the preceeding criteria.

broadcast

hydraulic sprayer, mist blower, knap-sak sprayer

air or ground

thickened or microfoil boom

hydraulic sprayer invert emulsion sprayer

broadcast

air or ground

centrifical venturi

mechanical or hand centrifical throw bar spreader mist blower

spot

mechanical or hand mist blower

hand backpack dribble bar hand sprayer

spot

mechanical or hand mist blower

hand shaker measure

Once we have finally reached our decision as to the alternative which is chosen for any particular task, the logistics of approach must be defined. Again a simple alliteration suffices to show the questions a manager must ask as he plans the execution of a task.

Who

What

Where

When

and

Why.

Summary

For those whose retention curves follow the pattern which opened the section on Facts and Falacies, I trust that within nine days you will have forgotten almost all of this paper. However, the paragraphs are merely here to tie one alliteration to another and provide a perspective in which to place the concept. I have used vegetation control as a vehicle for simplicity. The same idea may assist you in painting your picture for the layman to see and understand your problems. Allow your critics the tools to be constructive. Listen carefully to your fellow man. Replace today's emnity with tomorrow's agnation.

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