# "TRADES CAN BE RIGHT..."

workshop presented at the

# National Consultation on Career Development Conference

January 27, 1993

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# **Objectives:**

□ to provide up-to-date trade occupation information:

• trade descriptions

• characteristics and skills of tradespeople

• education levels of tradespeople

• advantages of trade occupations

trade occupation choice influencers

trade occupation satisfaction levels

• women in the trades

to increase your ability to identify people who would be "good fits" in the trades

# The Nuts and Bolts of Apprenticeship

# What is Apprenticeship?

In Alberta, Apprenticeship is a training system in which individuals develop skills and acquire knowledge leading to competence in specific designated trades. Mastering proficiency in a trade consists of on the job training under the direction of a journeyman, and technical training obtained from a college or technical institute. Apprentices who successfully complete their training acquire journeyman\*\* status.

### The Benefits of Apprenticeship

#### Earn competitive wages while you learn

As an apprentice, you are also an employee, so you earn while you learn.

#### Future job security

Highly skilled workers will always be in demand, and apprenticeship is a time-proven method for developing skills.

#### Learn new skills

As an apprentice, you receive up-to-date, quality training because of on-going input by industry into the training programs. During regular periods of technical training, you will learn the "why" and "how" of the skills and practices of your trade. Journeymen in Alberta also have the opportunity to keep up to date with new technology and techniques in their trade through the Journeyman Updating program.

#### Advancement opportunities

Some journeymen enter management positions or become entrepreneurs who operate their own businesses. Others enter the educational profession as industrial arts or shop instructors, or work with government and industry as advisors and consultants.

#### Work in a variety of locations

In certain trades, you can write an inter provincial standards (Red Seal) exam after receiving your journeyman status. Journeymen who carry a Red Seal are qualified to work in their trade in any participating province in Canada.

\*\* journeyman refers to both men and women

## **Apprenticeship Trade Clusters**

Because of common work elements, the trades can be grouped together into the following occupational clusters:

#### **Building Trades:**

Bricklayer Cabinetmaker Carpenter Cement Finisher Crane and Hoisting Equipment Operator Elevator Constructor Floorcovering Installer Glassworker Lather-Interior Systems Mechanic Painter and Decorator Plasterer Roofer Tilesetter

Industrial Trades: Instrument Mechanic Insulator Millwright Sawfiler Water Well Driller

# Pipe Trades:

Boilermaker Gasfitter Plumber Sprinkler Systems Installer Steamfitter-Pipefitter

### **Electrical Trades:**

Communication Electrician Electrical Rewind Mechanic Electrician Electronic Technician Power Lineman Power System Electrician

### Metal Trades: Ironworker Machinist Sheet Metal Worker Structural Steel and Plate Fitter Tool and Die Maker

Welder

Service Trades: Appliance Serviceman Baker Cook Hairstylist Landscape Gardener Locksmith Printing and Graphic Arts Craftsman Projectionist Refrigeration and Air-Conditioning Mechanic

# Vehicle and Related Trades:

Agricultural Mechanic Auto Body Mechanic Heavy Duty Mechanic Motorcycle Mechanic Motor Mechanic Partsman Recreation Vehicle Mechanic Transport Refrigeration Mechanic

# **Exploring the Technologies**

### What is Technology?

Technology is the application of scientific breakthrough to improving products or processes or to the development of new products and services.

### What is "High-Tech" or "Leading-Edge" Technology?

These refer to the most recent applications of research in the information, biological and physical sciences, especially where these applications use machine or artificial intelligence. In Alberta, some of the "leading edge" technologies are in the following areas: medical products; biotechnology; electronics/microelectronics; advanced materials including plastics; cold region engineering; advanced design, processing and manufacturing source; computer and software; telecommunications; and energy.

### What Do Technicians and Technologists\* Do?

Technologists and technicians provide the specialized technical assistance required to carry out a project or run an operation. They focus on the practical elements of a job, carry out a project or run an operation, usually leaving the policy, design and theory aspects to others. They are usually part of a team, for example, engineering technicians work with engineers. Examples of tasks that technicians and technologists may perform are:

- operating testing and measuring equipment in a laboratory.
- determining the cause of equipment malfunction and making repairs.
- maintaining detailed records of data, analyzing and preparing reports.
- installing, servicing and designing computer systems.
- manufacturing and installing specialized items such as computer circuit boards, and robotic systems in automated manufacturing plants.
- installing, inspecting, modifying, and testing equipment.
- analyzing existing procedures and recommending improvements.
- monitoring equipment, reading dials or digital displays, analyzing and recording readings.
- preparing drawings, and building models of new designs.

### What Training is Required to Work in the Technologies?

Because of the diversity of occupational fields, training requirements vary widely. A high school diploma, with a solid foundation in mathematics, English and the basic sciences (physics, chemistry and biology), is usually a minimum prerequisite. Most jobs require specialized post-secondary training which is offered at community colleges, technical institutes, vocational schools, and extension divisions of colleges and universities. These programs usually emphasize "hands-on experience" and practical courses. Post-secondary programs are normally one or two years, however, for some occupations training may take longer.

\* There are no clear-cut rules for the definition of technicians and technologies.

### **Technical Job Clusters**

Because of common work elements, the technologies can be grouped together into the following occupational clusters:

#### Agriculture:

Agricultural Engineering Technologist Animal Health Technologist Beekeeping Technician Turfgrass Equipment Technician

#### Architecture:

Architectural Technologist Engineering Design and Drafting Technologist Interior Design Technician

#### Arts:

Photography Processing Technician Print Management Technologist

#### Aviation:

Aeronautical Engineering Technologist Aircraft Maintenance Engineer Avionics Technician

#### **Computers:**

Computer Service Technologist Computer Systems Analyst

### **Engineering:**

Chemical Engineering Technologist Industrial Engineering Technologist Mechanical Engineering Technologist Petroleum Engineering Technologist Plastics Engineering Technologist Survey Technician

### Health/Medical Sciences:

Dental Laboratory Technician Dietary Technician Emergency Medical Technician -Paramedic Health Record Technician Laboratory and X-ray Technician Medical Laboratory Technologist Nuclear Medical Technician Occupational Health Technician Pharmacy Technician

#### Life/Biological Sciences:

Biological Technician Forest Technician Water and Waste Water Treatment Plant Operator

#### **Emerging Technologies:**

Advanced Energy Resources Bioengineering Laser Technology Robotics Space and Air Technologies Telecommunications

# **SKILLED TRADES and**

# **CAREER SELECTION RESEARCH PROJECT**

# 1988

# by: Dr. John Walsh

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# SKILLED TRADES and CAREER SELECTION RESEARCH PROJECT

# **Summary of Principal Findings:**

There is a misfit between expectations and reality with regard to post secondary education continuation rates.

There is a high awareness and acceptance of positive Skilled Trade occupation attributes.

There is low job knowledge and interest in Skilled Trade occupations.

The Apprentice/Journeyman experience is extremely positive.

The potential for recruitment into Skilled Trade occupational streams exists, and is substantial.

# THE ALBERTA SURVEY ON ENTRY

# **INTO THE TRADES (1991)**

- 3150 apprentices responded
- □ 1417 journeymen responded
- The survey asked Alberta apprentices and journeymen about their experiences, perceptions and attitudes about the trades.

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# **TRADE CLUSTERS**

# **ELECTRICAL TRADES**

Communication Electrician Electrical Rewind Mechanic Electrician Electronic Technician Power Lineman Power System Electrician

# **METAL TRADES**

Ironworker Machinist Sheet Metal Worker Steel Fabricator Welder

# VEHICLE AND RELATED TRADES

Agricultural Mechanic Auto Body Mechanic Heavy Duty Mechanic Motorcycle Mechanic Motor Mechanic Partsman Recreation Vehicle Mechanic Transport Refrigeration Mechanic

# **INDUSTRIAL TRADES**

Instrument Mechanic Insulator Millwright Printing and Graphic Arts Craftsman Sawfiler Water Well Driller

# **SERVICE TRADES**

Appliance Serviceman Baker Barber Beautician Cook Landscape Gardener Refrigeration Mechanic

# **PIPING TRADES**

Boilermaker Gasfitter Plumber Sprinkler System Mechanic Steamfitter - Pipefitter

# **BUILDING TRADES**

Bricklayer Cabinetmaker Carpenter Cement Finisher Crane and Hoisting Floorcovering Mechanic Glassworker Lather-Interior Systems Mechanic Painter and Decorator Roofer Tilesetter

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# Age at Time of Entry



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# Educational Attainment at Time of Entry Apprentices and Journeymen



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**PREVIOUS JOURNEYMAN CERTIFICATION** 

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# PERSONAL INFLUENCES AND MOTIVATIONS

APPRENTICES	JOURNEYMEN
Need for a secure future	Need for a secure future
Opportunity for Creative work	Opportunity for creative work
Opportunity for a high income	Circumstances made it easy to enter the trade
Need to earn money	

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# **Reasons for Becoming a Tradesperson**

SEQUENCE OF REASONS	SAMPLE OF APPRENTICES	SAMPLE OF JOURNEYMEN
#1	enjoy the work	enjoy the work
#2	good money	good money
#3	job security	job security
#4	opportunity for advancement	accessibility*
#5	accessibility*	opportunity for advancement

\*Accessibility refers to the ease of entering into a trade (eg. easy to find suitable employment, convenient)

# Influences



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# **INFLUENCES** (Apprentices and Journeymen)

# **REASONS FOR DISCOURAGEMENT** (ranked in order of importance)





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# PARENTS' OCCUPATION (average of apprentices and journeymen)

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# CITED REASONS FOR TRADE SATISFACTION AND FOR RECOMMENDING APPRENTICESHIP TRAINING

SATISFACTION	RECOMMENDATIONS
Enjoy the work	Thorough training
Good money	Provides a sense of accomplishment
Job Security	Beneficial to on-the-job training

# Trade Satisfact'n & Training Recom'n



Note: Graphs Contain Average Values for App's & Journ.

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GENDER DISTRIBUTION (total population)



Women-7%

# TRADE CLUSTER

METAL - 3% SERVICE - 66% INDUSTRIAL - 11% BUILDING - 6% VEHICLE & RELATED - 10% ELECTRICAL - 4%

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# IS TRADE WORK EQUALLY SUITABLE FOR MEN AND WOMEN?

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PERCEIVED NUMBER OF WOMEN IN THE TRADES

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# Apprenticeship Information for Career Advisors

In a recent independent survey\*:

- Nine out of ten **apprentices** and **journeymen** said they were pleased about having chosen a career in the trades.
- Nine out of ten apprentices and journeymen said apprenticeship training was the way to go and they would recommend it to family and friends.

## Why did they choose the trades?

They wanted

- to do work that is hands-on and creative,
- to make good money,
- to have steady work.

## Why would they recommend apprenticeship training?

### They said apprenticeship

- offers thorough training,
- gives a sense of accomplishment,
- develops transferable skills.
- Half of all apprentices and journeymen had completed Grade 12 and a third of those had finished some level of post-secondary education.
- Two out of three apprentices and journeymen thought the trades were equally suitable to both men and women.

<sup>\*</sup>The information was taken from the <u>Alberta Survey on Entry into the Trades 1991</u>, which was commissioned by Alberta Career Development and Employment and conducted by an independent researcher. The survey asked Alberta apprentices and journeymen about their experiences, perceptions and attitudes about the trades. 3,150 apprentices and 1,417 journeymen responded to the questionnaire. For more information regarding the survey, contact Gerry Denhart or Marena Fakli of the Access Initiatives Branch, Alberta Career Development and Employment, at 427-8765.





# Alberta Survey on Entry into the Trades (1991) Summary Notes

1) The <u>Alberta Survey on Entry into the Trades 1991</u> was undertaken to compare the experiences, motivations and attitudes of "recently certified journeymen<sup>1</sup>" who had not indentured as apprentices, with those of "current apprentices" who were indentured at the time of the study. To facilitate comparisons between the groups, two similar questionnaires were used.

2) A total of 1,417 journeymen and 3,150 apprentices responded to the surveys. The survey results can be interpreted with a high level of confidence.

3) The results were analyzed for the entire populations of both groups, and by trade cluster within each group. Individual trades were combined into the following clusters: electrical, metal, vehicle and related, building, industrial, service and piping trades.

4) At the time of entry into the trade, the members of both populations were, on average, 26 years of age. Apprentices in the vehicle and related trades cluster had the lowest average age at entry (25 years), while those in industrial trades had the highest average age at entry (28 years). Among journeymen, the electrical trades cluster had the lowest average age at entry (23 years), and the highest was in the piping trades (32 years).

5) Ninety-three percent of all respondents in both groups were men. A large majority of the women in both groups were in the service trades cluster, which was dominated by the beautician (now hairstylist) trade. Concentrations of women were also found in the following trades: Printing and graphic arts, partsman, electrician, landscape gardener, welder, motor mechanic, carpenter and instrument mechanic.

6) Roughly three-quarters of both groups indicated that there were few women working in their trade. A large majority of both groups thought the trades to be equally suitable for both men and women. Tradespeople in the service cluster were most inclined to feel that their trade was equally fitting for both sexes. Those in the piping trades were least likely to share that view.

<sup>&</sup>lt;sup>1</sup> "Recently Certified Journeymen" were defined as persons who had, during 1988, 1989 and 1990, received an Alberta trade certificate in a trade in which they had not indentured as an apprentice. Journeymen included in this group generally obtained their trade knowledge and skills through on-the-job training only, without the technical training (class-room instruction) normally associated with that trade. In some cases, technical training had been received previously, in a related trade.

7) Apprentices appeared to be well educated at the time they entered their trade. Forty-seven percent had completed grade 12, and another 27% had some level of post-secondary education. Tradespeople in the vehicle and related trades cluster had the highest levels of grade 12 graduates (54%); industrial trades had the lowest (42%).

8) One-third of the journeymen had completed grade 12. The largest percentage of high-school graduates were in the electrical trades (39%), and the lowest percentage were in the piping trades (24%). Sixteen percent of all the journeymen had completed only grades 9 or 10, compared with 12% of the apprentices.

9) The following factors were most influential in the decision to enter a trade:

### Apprentices

- 1. Previous employment
- 2. Family
- 3. School counsellors

Journeymen

- 1. Previous employment
- 2. Family
- 3. Vocational courses
  - (in Jr. & Sr. high school)

**10)** Respondents were asked if they had encountered any factors which discouraged them from entering the trade. Almost all (91% of apprentices and 94% of journeymen) indicated they had received no discouragement. For the few who had been discouraged from entering a trade, the main sources of discouragement were parents, friends, teachers and school counsellors<sup>2</sup>.

**11)** When asked what personal influences and motivations contributed to the decision to enter a trade, the responses were:

### Apprentices

- 1. Need for a secure future
- 2. Opportunity for creative work
- 3. Opportunity for a high income
- 4. Need to earn money

Journeymen

- 1. Need for a secure future
- 2. Opportunity for creative work
- 3. Circumstances made it easy to enter the trade

<sup>2</sup>87% of the Apprentices felt that school counsellors had no influence on their decision to enter a trade.

**12)** Almost all of the apprentices (95%) and journeymen (89%) indicated that they would recommend apprenticeship training as the route to certification in their trade. In spite of the fact that the Journeymen generally had not indentured as apprentices, they gave compelling reasons for recommending formal apprenticeship training:

Apprenticeship training -

- 1. Offers thorough training in the trade,
- 2. Provides a sense of accomplishment, and
- 3. Is beneficial to on-the-job performance.

**13)** Apprentices cited many reasons for choosing to indenture rather than train on-the-job only. They felt that apprenticeship training -

- 1. Provided an opportunity to become more skilled,
- 2. Was a requirement of the trade,
- 3. Offered an opportunity for exposure to different aspects of the work done in the trade, and
- 4. Helped to attain faster promotions and pay.

**14)** Apprentices and journeymen gave the following reasons for choosing their trade as a career (listed in order of importance):

- 1. Enjoy the work
- 2. Make good money
- 3. Trade provides job security

**15)** A large majority of the apprentices (91%) indicated positive feelings about their career choice. Apprentices in the piping trades cluster were the most positive (94%). Eighty-eight percent of the journeymen surveyed felt positive about their career choice. Among the apprentices and journeymen who were not happy about their career choice, a majority still recommended a career in the trades.

For more information regarding the survey, contact Gerry Denhart or Marena Fakli of the Access Initiatives Branch, Alberta Career Development and Employment, at 427-8765.



CAREER DEVELOPMENT AND EMPLOYMENT

MARCH 1992

Getting Ready

#### **Checklist of Transferable Skills**

• 1. Check off (√) the verbs that describe something you have done (on or off the job). If you find that you are checking off most of the verbs, you may choose to skip to step two of this exercise.

#### Group A: Communication Skills

- \_\_\_ advised
- \_\_\_\_ interpreted \_\_\_\_ negotiated
- \_\_\_\_ persuaded
- \_\_\_\_ promoted
- \_\_\_\_ presented
- read
- summarized
- talked
- translated
- \_\_\_\_ wrote

#### Group B: Creative Skills

- \_\_\_\_ arranged
- \_\_\_\_ cooked
- \_\_\_\_ created
- \_\_\_\_ demonstrated \_\_\_\_ designed
- \_\_\_\_ developed
- devised
- \_\_\_\_ generated
- \_\_\_\_ improvised
- \_\_\_\_ invented
- originated
- \_\_\_\_ performed
- \_\_\_\_ produced
- \_\_\_\_ predicted

### Group C: Working With Information and Numbers Skills

- \_\_\_\_ analyzed \_\_\_\_ budgeted
- calculated
- \_\_\_\_\_ checked
- \_\_\_\_ evaluated
- \_\_\_\_ inspected
- \_\_\_\_ investigated

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memorized ordered organized researched scheduled selected verified Group D: Leadership Skills

- \_\_\_\_ administered
- \_\_\_\_ conducted
- \_\_\_\_ controlled
- \_\_\_\_ coordinated
- \_\_\_\_ decided
- \_\_\_\_ directed
- facilitated
- initiated (started)
  - led
- \_\_\_\_ managed
- motivated
- \_\_\_ planned
- \_\_\_\_\_ supervised

#### Group E: Manual and Mechanical Skills

- \_\_\_\_ adjusted
- \_\_\_\_ constructed
- \_\_\_\_ installed
- \_\_\_ operated
- \_\_\_\_ repaired
- \_\_\_\_\_ serviced

#### Group F: Working With People Skills

- \_\_\_\_ assisted (helped)
- \_\_\_\_ consulted
- \_\_\_\_ cooperated
- counselled
- enforced
- \_\_\_\_ instructed
- \_\_\_\_ served
- trained

### Group G: Results Achieved

\_\_\_ adapted attained \_\_\_\_ completed \_\_\_\_ contributed \_\_\_\_\_ decreased (lowered) \_\_\_\_doubled (tripled) eliminated \_\_\_\_\_established \_\_\_\_ expanded \_\_\_\_ implemented improved increased (raised) introduced maintained \_\_ multiplied opened \_\_\_\_ proposed provided (furnished) realized recommended reduced (cut) \_\_\_\_ revamped \_\_\_\_ revised revitalized risked saved simplified sold solved stimulated streamlined strengthened structured submitted succeeded \_\_\_\_ supported transferred trouble-shot uncovered unified upgraded utilized widened won

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- 2. Circle the verbs in Groups A to F that describe something you enjoyed doing.
- **3.** Ask yourself *what?/whom?* after each of the verbs you have circled in Groups A to F, and checked off in Group G.

For example, - arranged what for whom? - talked to whom about what?

- motivated *whom* to do *what*?
- ed to whom about what? recommended what to whom?
- advised whom about what?

List your answers on a separate sheet of paper with the title "My Transferable Skills" at the top.

#### **Checklist of Personal Skills**

The following words describe work-related characteristics.

**1.** Check off the ones that describe you best.

accurate adaptable \_\_\_\_ adventurous alert \_\_\_\_ ambitious amiable analytical articulate \_\_\_\_assertive attentive \_ attractive broad-minded businesslike calm \_\_\_\_ careful \_\_\_\_ cautious charitable charming cheerful \_\_\_\_ clever \_\_\_\_ compassionate \_\_\_ competent competitive \_\_\_\_ confident \_\_\_\_ conscientious \_\_\_\_ conservative considerate consistent \_\_\_\_ constructive \_\_\_\_ cool-headed \_\_\_\_ cooperative \_\_\_\_ courageous courteous \_\_\_\_ creative \_\_\_\_ curious \_\_\_\_ daring \_\_\_\_ decisive dedicated \_\_\_\_ dependable

determined \_\_\_\_\_disciplined discreet \_\_\_\_ easy-going efficient \_\_\_\_ energetic \_\_\_\_ enterprising enthusiastic flexible forceful formal frank friendly \_ generous hard-working healthy helpful honest humourous imaginative independent industrious informal \_ innovative introspective kind \_knowledgeable \_light-hearted \_\_ logical loving loval mature <u>meticulous</u> \_\_\_ modest motivated \_\_\_\_ objective \_\_\_\_ obliging \_\_\_\_ open-minded \_\_\_\_ optimistic \_\_\_\_ original

\_\_\_ organized \_\_\_ outgoing \_\_\_ patient \_\_\_\_ people-oriented \_\_\_\_ perceptive \_\_\_\_ persevering \_\_\_\_ persistent \_\_\_ pleasant \_\_\_\_ positive \_\_\_\_ practical \_\_\_\_ productive \_\_\_\_ progressive \_\_\_\_ prudent \_\_\_ punctual \_\_\_ quick \_\_\_\_ quick-witted \_\_\_\_ quiet \_\_\_\_ realistic \_\_\_\_ reliable \_\_\_\_ resourceful \_\_\_\_ responsible \_\_\_\_ self-confident \_\_\_\_\_ self-reliant \_\_\_\_ sensitive \_\_\_\_\_ sincere smart \_\_\_\_ sociable \_\_\_\_\_ sophisticated \_\_\_\_ spontaneous stable \_\_\_\_ steady \_\_\_\_\_ supportive \_\_\_\_ systematic \_\_\_\_ tactful talented \_\_\_\_ thorough \_\_\_\_ thoughtful \_\_\_\_ tolerant \_\_\_\_ trustworthy \_\_\_\_ versatile

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