

SOME THINGS TO CONSIDER ON EARNING YOUR BS OR GRADUATE DEGREE

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BSEE, MICHIGAN TECH 1957

MS(NUCLEAR), MSEE, PhDEE
U. Of MICHIGAN 1958, 1963, 1965

MY JOB HISTORY OFFERS PERSONAL EXPERIENCE CONCERNING THE TOPICS TO BE CONSIDERED . . .

- MICHIGAN TECH, PHYSICS DEPT., 1958-59
- U. OF MI, RADIATION LABORATORY, 1959-65
- U. OF MI, HIGH ALTITUDE ENGINEERING LABORATORY,
1966-68
- MBASSOCIATES, SAN RAMON, CA 1968-71
- LAWRENCE LIVERMORE NATIONAL LAB, LIVERMORE, CA,
1971-85
- KANSAS U., LAWRENCE, KA, 1985-87
- ROCKWELL INTERNATIONAL, THOUSAND OAK, CA, 1987-88
- GENERAL RESEARCH CORP., SANTA BARBARA, CA, 1988-89
- LOS ALAMOS NATIONAL LAB, LOS ALAMOS, NM, 1989-93
- OHIO U., ATHENS, OH, 1994-95

... AND DISCUSSION THAT FOLLOWS IS
BASED LARGELY ON THAT
EXPERIENCE ...

... AS COVERED IN 25+ COLUMNS TITLED
“ON THE JOB” IN IEEE POTENTIALS
MAGAZINE FROM 1998-2004

On the job: a penny saved is a penny compounded

FEBRUARY/MARCH 1999

IT'S NEVER TOO SOON TO BEGIN SAVING FOR THE FUTURE

*\$1 SAVED TODAY IS WORTH MANY TIMES WHAT 1\$
SAVED 30 OR 40 YEARS FROM NOW IS WORTH
**--DUE TO THE WONDERFUL POWER OF COMPOUND
INTEREST**

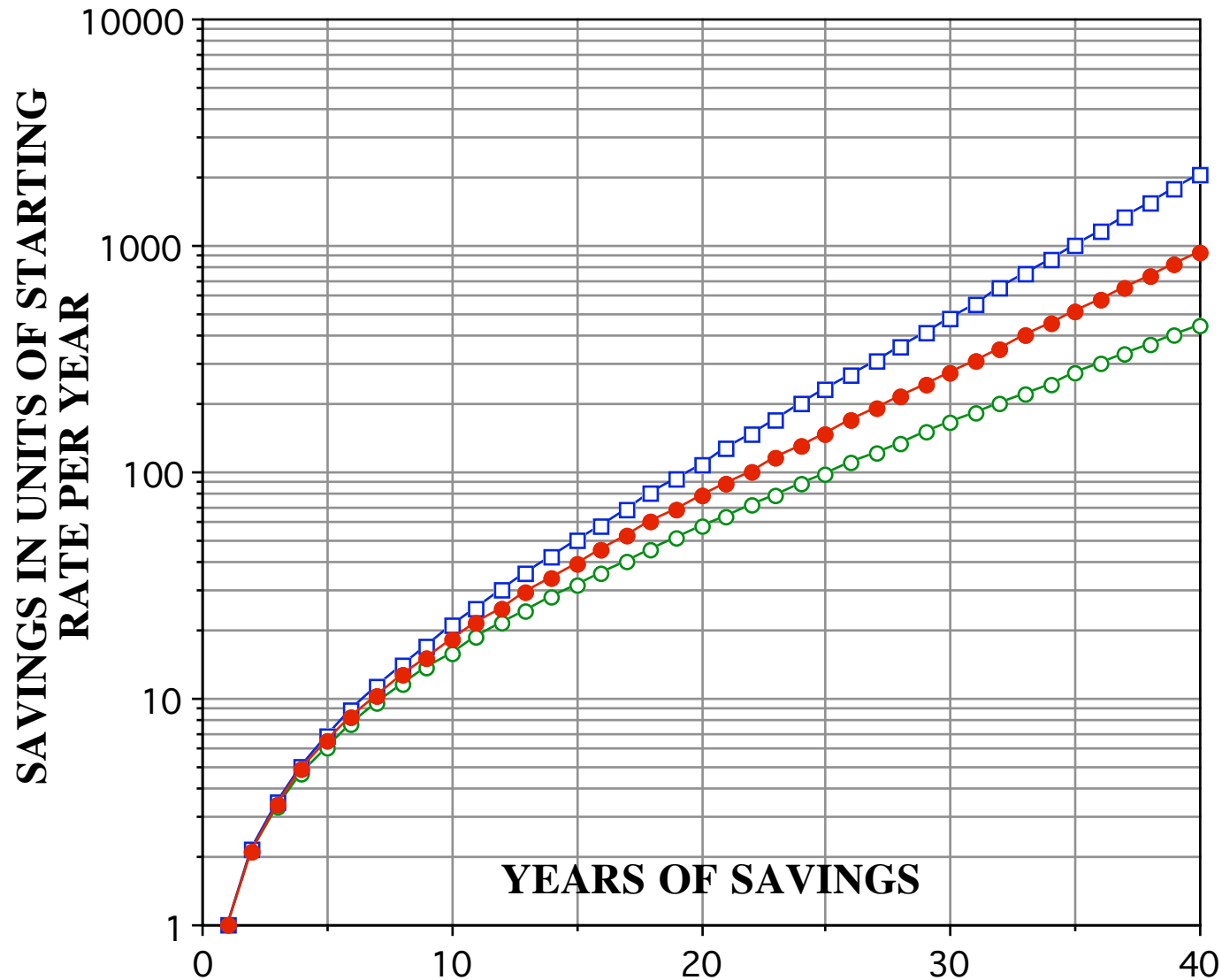
*IF YOUR STARTING SALARY IS \$60,000./YEAR
SHOULDN'T YOU BE ABLE TO SAVE AT LEAST
\$1,000./YR STARTING OUT?

*WHY NOT LIVE SOMEWHAT BELOW YOUR
SALARY?

*DEFERRING TAXES IS GENERALLY A GOOD IDEA

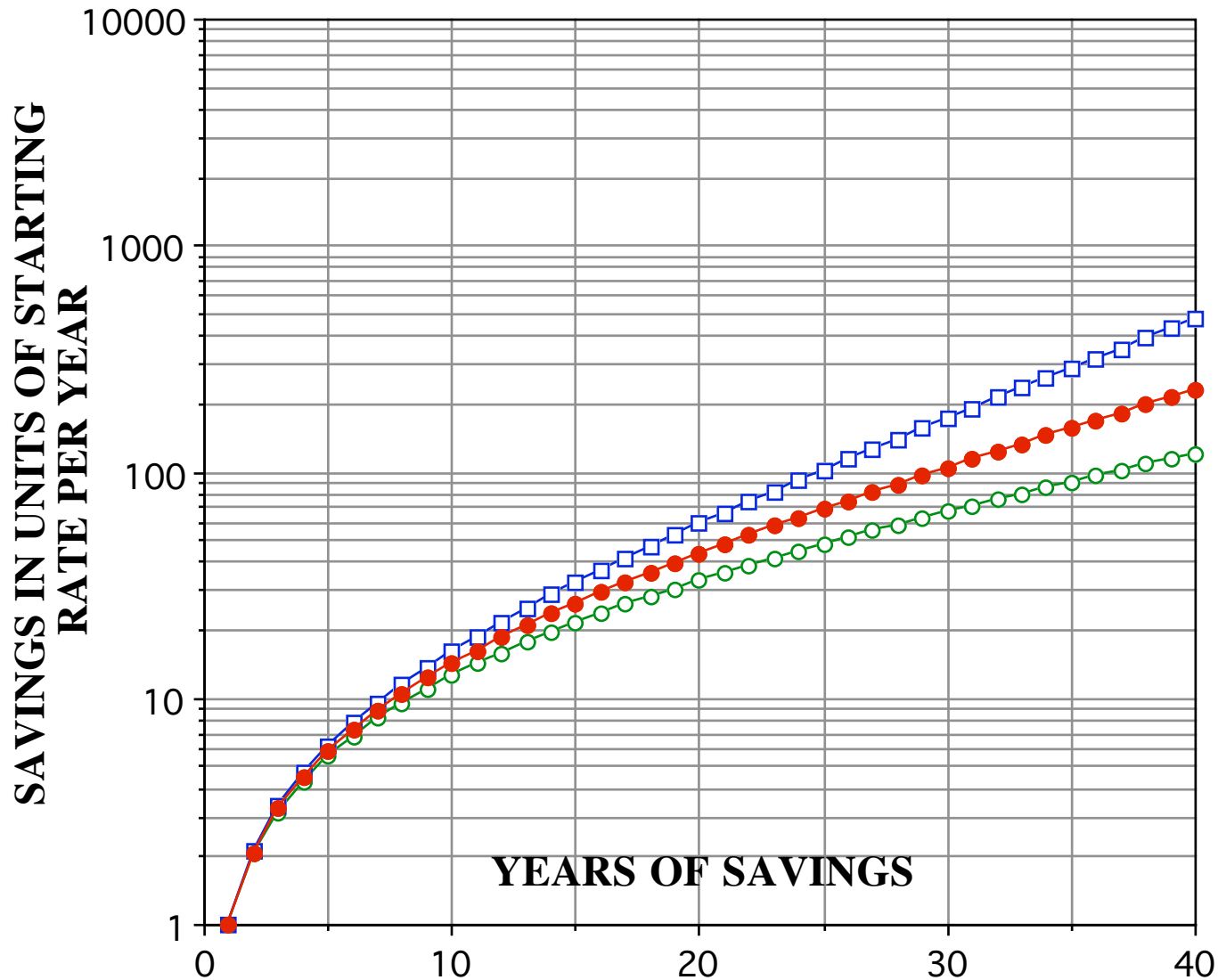
10% GAIN/YEAR IS SPECTACULAR

- Constant Savings per Year at 10% Interest
- Savings Growing at 5% per Year and 10% Interest
- Savings Growing at 5% per Year with 2.5% Inflation and 10% Interest

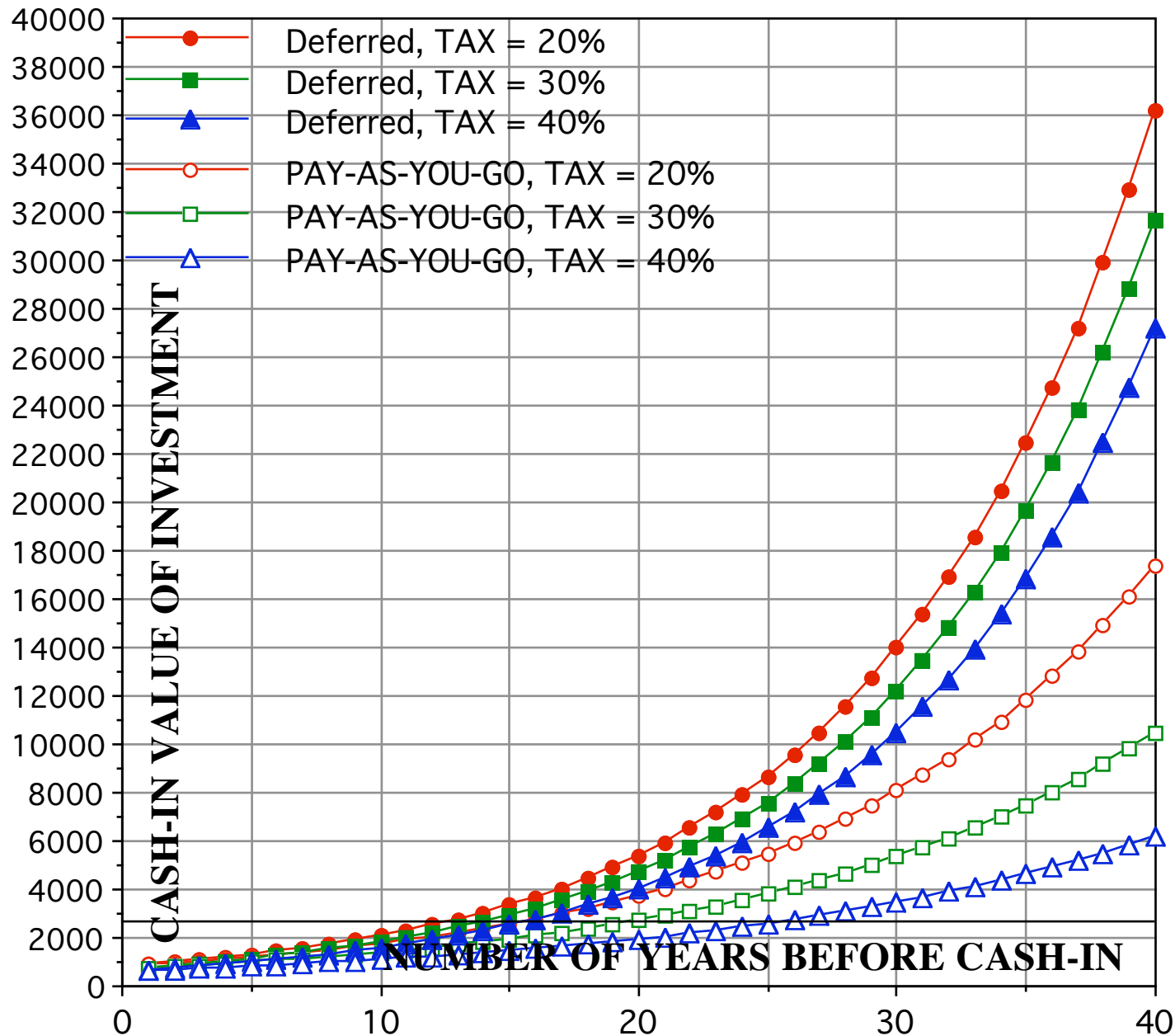


5% GAIN/YEAR YIELDS $\sim \frac{1}{4}$ AS MUCH

- Constant Savings per Year at 5% Interest
- Savings Growing at 5% per Year and 5% Interest
- Savings Growing at 5% per Year with 2.5% Inflation and 5% Interest



\$1,000 INVESTED AT YEAR 1 SHOWS THE GREAT BENEFIT OF TAX DEFERRAL FOR 10% INTEREST



Choosing a grad school advisor

AUGUST/SEPTEMBER 2002

WHEN CONSIDERING AN MS DEGREE & ESPECIALLY A PhD, THE CHOICE OF AN ADVISOR IS VERY IMPORTANT-CONSIDER THEIR:

- *AVAILABILITY**
- *FORMER STUDENTS**
- *NUMBER OF STUDENTS GRADUATED**
- *AVERAGE TIME REQUIRED FOR STUDENT TO GRADUATE**
- *DISCIPLINARY AREA**
- *FUNDING AVAILABILITY**
- *REPUTATION IN THE DISCIPLINE**
- *COMPATABILITY**

Interviewing and Being Interviewed

DECEMBER '97/JANUARY '98

SOME PRELIMINARIES:

- *PREPARE THE FORM USED BY YOUR PLACEMENT OFFICE
- *POSSIBLY ALSO A SUPPLEMENTARY RESUME
- *RESEARCH WHERE YOU MIGHT LIKE TO LIVE AND THE KIND OF EMPLOYER YOU'D PREFER
- *LOOK AT AVAILABLE LITERATURE ABOUT PROSPECTIVE EMPLOYERS
- *SCHEDULE ON-CAMPUS INTERVIEWS IF OFFERED
- *MAKE SITE VISITS IF OFFERED

CONSIDER QUESTIONS YOU MAY BE ASKED IN AN INTERVIEW, e.g., . . .

- *WHY DID YOU CHOOSE YOUR FIELD OF STUDY?
- *WHAT DID YOU LIKE MOST ABOUT YOUR STUDIES?
- *WHAT DO YOU ENVISION DOING IN 5 TO 10 YEARS?
- *WHAT IS THE MEDIAN GPA OF YOUR CLASS AND WHERE DO YOU RANK?
- *WHY DID YOU CHOOSE THIS EMPLOYER TO INTERVIEW?
- *HOW SOON DO YOU HOPE TO MAKE A DECISION?

. . . AND QUESTIONS YOU SHOULD ASK . . .

*WHAT KINDS OF WORK MIGHT BE OFFERED?

*IF 2 OR MORE LOCATIONS ARE AVAILABLE
WHICH ONE WOULD BE MOST LIKELY?

*HOW WOULD YOUR JOB BE FUNDED?

*IS THERE A FORMAL TRAINING PROGRAM?

*ARE THERE POSSIBILITIES FOR CONTINUING
EDUCATION?

*IF AN OFFER IS TO BE MADE HOW SOON WILL A
RESPONSE BE REQUIRED?

... AT WHICH TIME IT'S ALSO RESONABLE
TO ASK ABOUT ...

*WHAT MOVING EXPENSES ARE COVERED?

*WHAT ARE THE VACATION AND SICK-LEAVE
POLICIES?

*IS A RETIREMENT PROGRAM OFFERED AND WHAT
ARE THE VESTING OPTIONS?

*IS A SECURITY CLEARANCE REQUIRED?

*ARE PUBLICATION AND ATTENDING
PROFESSIONAL MEETINGS SUPPORTED &
ENCOURAGED?

Finding a job

DECEMBER '98/JANUARY '99

THERE ARE NUMEROUS AVENUES TO
FINDING A JOB INCLUDING:

*WORKING THROUGH AN INSIDE CONTACT

*INTERVIEWING CAMPUS RECRUITERS

*CONTACTING A “HEAD HUNTER”

*RESPONDING TO ADVERTISEMENTS

*ATTENDING A JOB FAIR

*USING THE INTERNET

University Physics Instructor: Personal letter to Department Head from whom I had taken courses as an undergrad.

University Assistant Research Engineer: Personal letter to Laboratory Director, whom I never met but who was hiring graduate research assistants.

University Associate Research Engineer: First post-PhD job obtained through personal contact for whom I'd done a small project as a graduate student.

Scientist at small industrial firm: First non-university position obtained through contact who had previously offered me a position when he was at another firm.

Engineer at a government laboratory: Personal contact at the laboratory informed me of an opening for which I was hired, even though a Reduction In Force (RIF) was underway.

Tenured Professor at a university: Acquaintance at the same university suggested I apply.

Manager at industrial research labo-

ratory: Contacted by a headhunter. Manager at small industrial firm: Former summer student who'd worked with me requested my application.

Group Leader at government laboratory: Responded to ad in *Spectrum*, but turned out I was acquainted with Division Leader who had the opening.

I should add that at the times I changed jobs, I usually had several other opportunities available. These mostly came from contacts inside the organization from which an offer was received. To summarize, of nine different positions I obtained, seven involved personal contacts in some way. One was a result of a personal letter (but it was simply a GRA position), and one came because I was contacted by a headhunter. So you can see why I think personal contacts are the most productive way to find a job.

Edmund K. Miller
Associate Editor, IEEE Potentials

Job hunting

Incorporating profs & alumni

DECEMBER '01/JANUARY '02

ADDITIONAL CONTACTS INCLUDE:

***FACULTY MEMBERS**

***ALUMNI AT WORKPLACES OF INTEREST TO YOU**

***ACQUAINTANCES YOU MAY HAVE MET AT
MEETINGS**

***NON-RECRUITING CAMPUS VISITORS**

On the job: Choosing a workplace

FEBRUARY/MARCH 2004

WORKPLACES CAN BE BASICALLY
IDENTIFIED AS ONE OF 3 TYPES . . .

*BUSINESS/INDUSTRY

*GOVERNMENT/PUBLIC SERVICE

*COLLEGES/UNIVERSITIES

... THAT CAN OFFER DIFFERENT KINDS OF OPPORTUNITIES AND ENVIRONMENTS

- *BUSINESS PROBABLY PAYS BEST BUT GENERALLY OFFERS LESS JOB SECURITY
- *GOVERNMENT JOBS OFFER BOTH BETTER BENEFITS AND JOB SECURITY
 - ONE FORM IS A GOCOL (GOVERNMENT-OWNED, CONTRACTOR-OPERATED LABORATORY)
- *ADADEMIA PROBABLY HAS FEWER TOTAL POSITIONS AND TENURE MAY BE GOING AWAY BUT COULD PROVIDE MORE PRESTIGE AND JOB SATISFACTION

JOB SECURITY CAN DEPEND ON YOUR EMPLOYER'S FINANCIAL SUCCESS

***BUSINESS/INDUSTRY**

- DEPENDS ON SELLING OF SERVICES AND/OR PRODUCTS**
- FTE COST CAN RANGE FROM 1.5 TO 3 x SALARY**

***GOVERNMENT/PUBLIC SERVICE**

- DEPENDS ON FUNDING BY VARIOUS AGENCIES**
- CAN RANGE UP TO 4 OR 5 x SALARY**

***COLLEGES/UNIVERSITIES**

- WHEN I STARTED AT TECH IN 1953, ESSENTIALLY 100% OF ITS BUDGET CAME FROM THE STATE AS WAS THE CASE FOR MOST PUBLIC ENTITIES**
- NOW IT'S GENERALLY BELOW 20% FOR MOST**
- COST OF AN FTE ~1.5 TO 2 x SALARY**

On the job: what's most important?

????

ONE SET OF GENERAL NEEDS . . .



... WHILE WORK-SPECIFIC NEEDS MIGHT
BE EXPRESSED SOMEWHAT DIFFERENTLY
AS INCLUDING ...

***CHALLENGING**

--CHANCE TO LEARN NEW THINGS

***WORTHWHILE**

**--DEVELOP PROCESSES/PRODUCTS/RESULTS THAT
MEET SOME REAL NEED**

***FUN**

--PROVIDES SATISFACTION & ENJOYMENT

... AND IF YOU DON'T LOOK FORWARD TO
MONDAY MORNINGS YOU'RE IN THE
WRONG JOB

On the job: your first impressions

AUGUST/SEPTEMBER 2000

SOME OF THE THINGS TO KEEP IN MIND

- *RESPECT THE DRESS CODE
- *BE ON TIME
- *REQUEST FEEDBACK AND ASK QUESTIONS
- *BE COURTEOUS AND POLITE TO EVERYONE
- *GIVE YOUR EMPLOYER A FULL DAYS WORK
- *BE ON THE LOOKOUT FOR A MENTOR
- *DEVELOP A CAREER PLAN

*On the job:
Security clearances*

OCTOBER/NOVEMBER 2003

GETTING A CLEARANCE IS NOT TRIVIAL

- *BE AWARE THAT CLEARANCES VARY IN TYPE & LEVEL DEPENDING ON THE ORGANIZATION
--**SECRET, TOP SECRET, SPECIAL ACCESS, P, Q, ..**
- *COMPLETING A LONG COMPLEX FORM IS NORMALLY REQUIRED
- *BE THOROUGH AND HONEST IN FILLING OUT WHATEVER INFORMATION IS REQUIRED
- *KEEP A LOG OF YOUR ADDRESSES AND EMPLOYER INFORMATION OVER TIME

THE KINDS OF INFORMATION ASKED FOR TYPICALLY INCLUDES:

- 1) Full name
- 2) Aliases or other names by which you have been known
- 3) Present place of residence and when you moved there.
- 4) Physical description
- 5) Social security number
- 6) Birth date and birthplace
- 7) Marital status (Don't misread as this as "martial" status as I once did and put in 1A.)
- 8) Previous residences for some specified period of time, possibly 15 years or more
- 9) Country of citizenship (US citizenship will usually be, but not always, a requirement for a US clearance.)
- 10) Military service
- 11) Employment history
- 12) Foreign travel including countries that you've visited, the purpose for the visit(s) and dates
- 13) Education record
- 14) Relatives and their relationship to you out to some specified degree
- 15) Record of legal offenses and/or arrests and their disposition
- 16) Quantity and frequency of alcohol use
- 17) Use of illegal drugs
- 18) Membership in organizations that might advocate the violent overthrow of the government
- 19) Personal involvement in seeking the unlawful overthrow of the US government
- 20) Personal references
- 21) Knowledge of any other items that might disqualify you for a clearance

What if your boss is a “jerk”?

APRIL/MAY 2000

THE DICTIONARY DEFINITION MAY HELP
TELL YOU THAT YOU’VE MET A “JERK”

*VARIOUSLY DESCRIBED, AMONG OTHER
THINGS AS:

THOUGHTLESS

INSENSITIVE

RUDE

BOMBASTIC

SELFISH

UNFAIR

CREDIT-HOGGING, etc.,

THAT UNFORTUNATELY MIGHT INCLUDE
A BOSS OR TWO ALONG THE WAY

DEALING WITH A JERK BOSS REQUIRES
MORE TIME THAN AVAILABLE HERE, SO
CHECK OUT THE APRIL/MAY 2000 ISSUES
OF IEEE POTENTIALS

AMONG THE ITEMS INCLUDED IN THAT COLUMN ARE
TESTS THAT PROVIDE A SCORE TO EVALUATE
QUANTITATIVELY JUST WHERE YOUR BOSS MAY FIT
INTO THE SPECTRUM FROM BAD TO GOOD

charting how organizational structuring matters

OCTOBER/NOVEMBER/ 2000

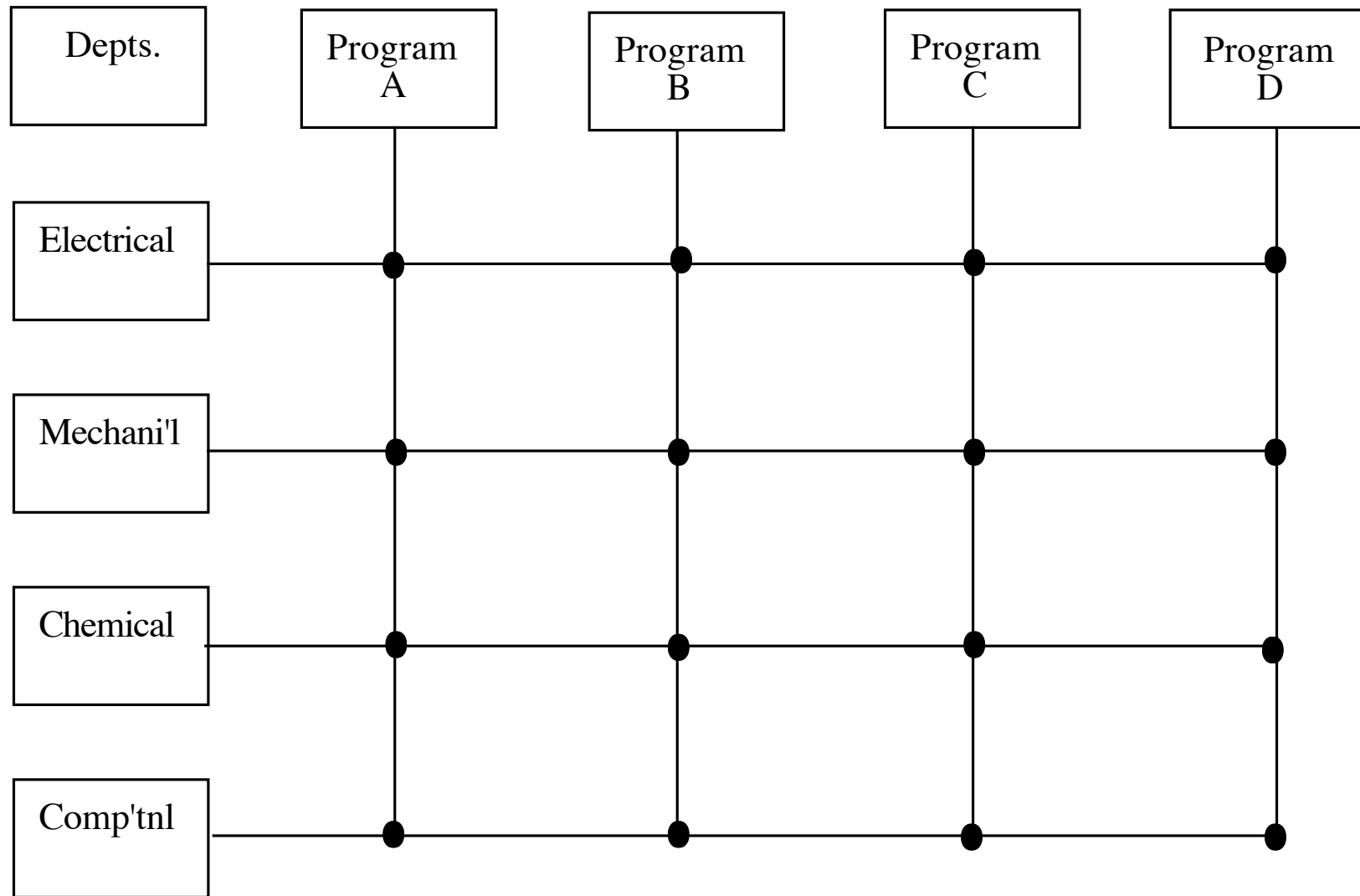
ON A PLANT VISIT ITS ORGANIZATIONAL
STRUCTURE WILL LIKELY BE
OUTLINED FOR YOU . . .

*THIS MAY APPEAR BORING BUT IT'S IMPORTANT
TO KNOW THAT THERE ARE TWO COMMON
ORGANIZATIONAL STRUCTURES

. . . MATRIX AND LINE THAT CAN AFFECT
YOUR FUTURE OPPORTUNITIES

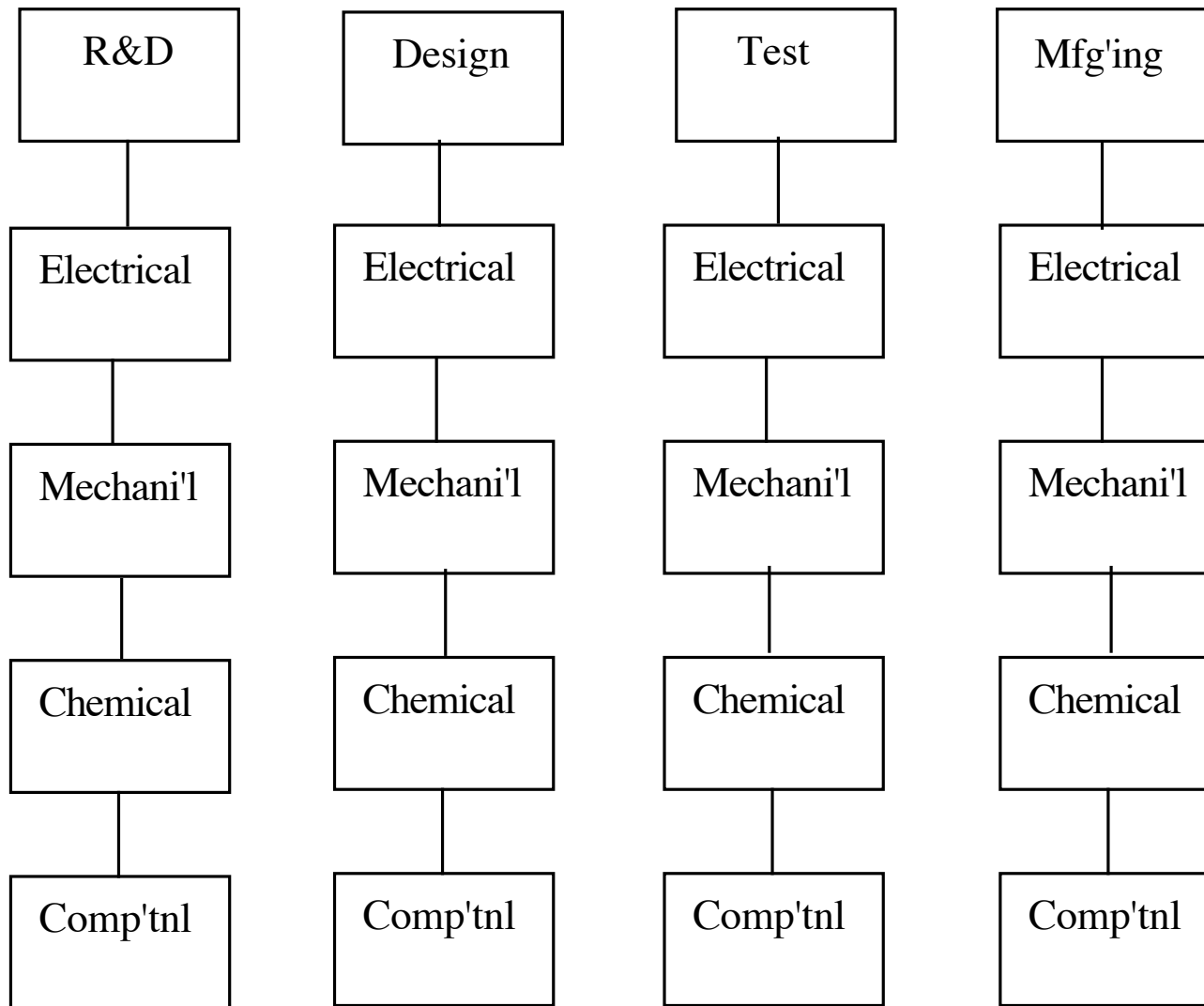
THEIR GENERIC STRUCTURES ARE QUITE DIFFERENT:

MATRIX



THEIR GENERIC STRUCTURES ARE QUITE DIFFERENT:

LINE



. . . AND THEY DIFFER IN OTHER WAYS

- *THE MATRIX OFFERS A “HOME BASE” TO THE VARIOUS SPECIALTIES

- *IF THERE ARE RIFs THE MATRIX CAN BE MORE FLEXIBLE

- *JOB CHANGES MAY BE MORE EASILY MADE IN THE MATRIX STRUCTURE

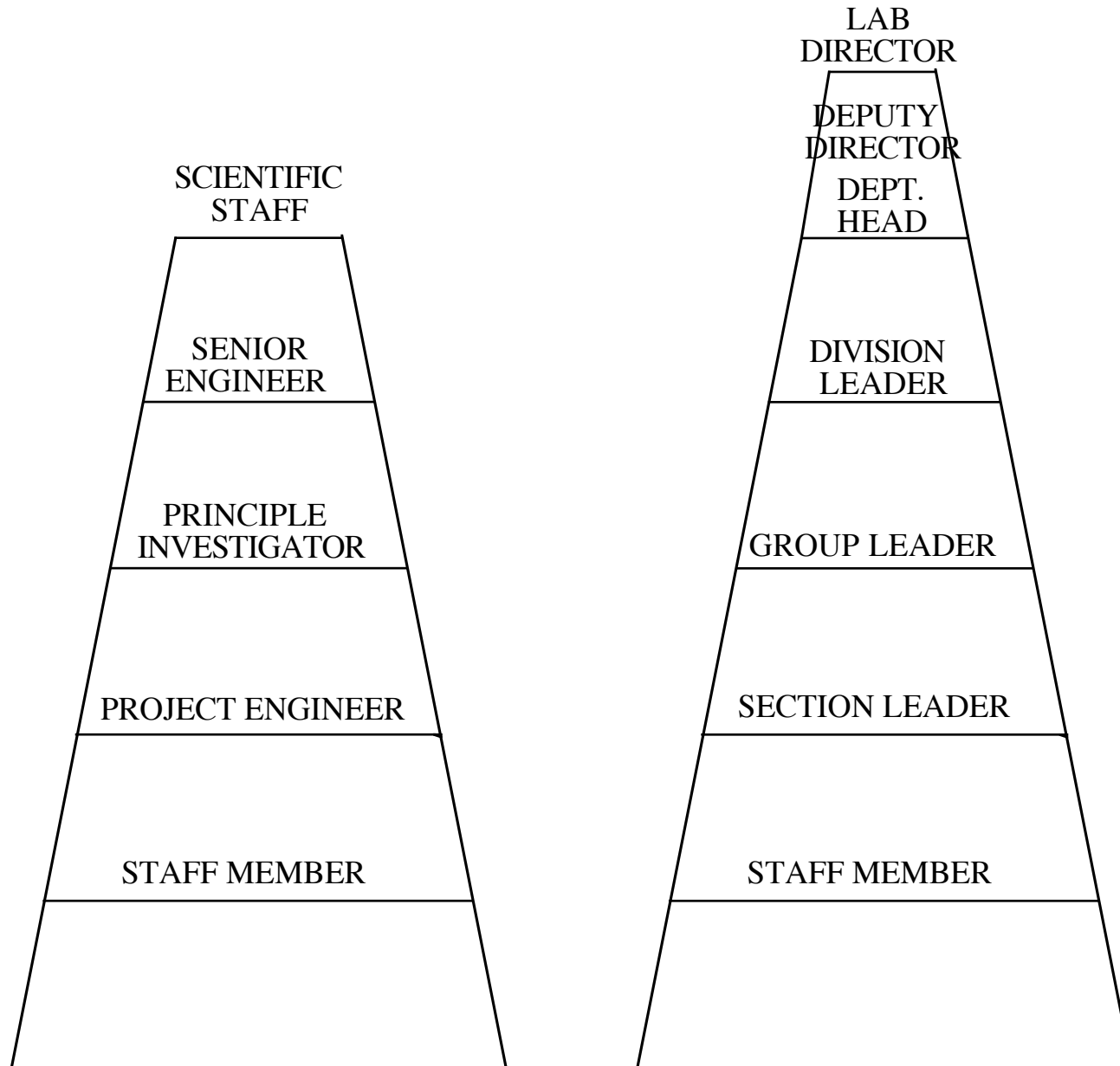
OTJ: technical vs. management ladder

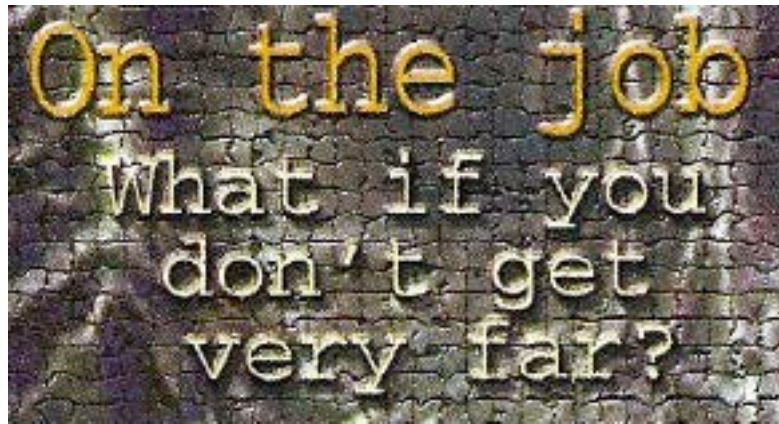
????

MANY ENTITIES MAY CLAIM TO OFFER
EQUAL ADVANCEMENT OPPORTUNITIES
IN ENGINEERING AND MANAGEMENT

*BUT IN REALITY THE MANAGEMENT LADDER
USUALLY HAS MORE RUNGS AT THE TOP

... AS SHOWN HERE

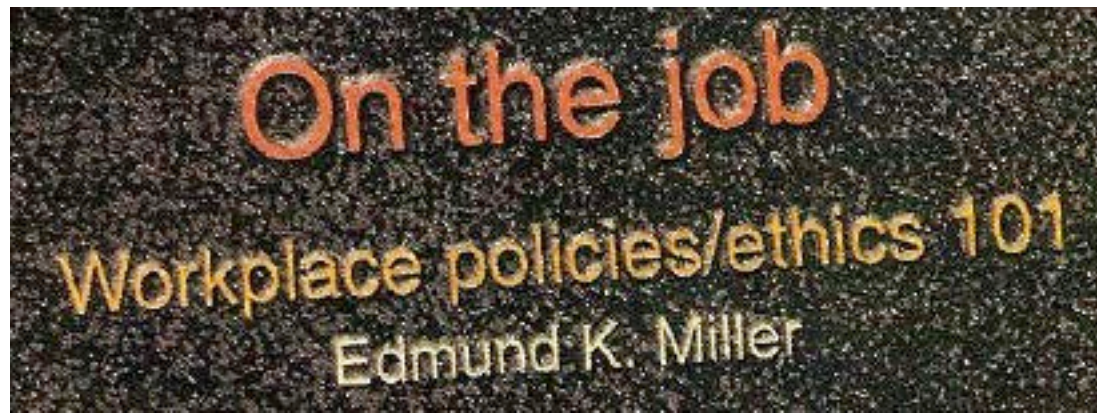




DECEMBER 1999/JANUARY 2000

WHAT DOES IT MEAN IF YOU DON'T GET FAR UP EITHER LADDER?

- *ON THE MANAGEMENT LADDER IT MAY MEAN YOU'RE NOT A PEOPLE PERSON
- *ON THE TECHNICAL LADDER IT MAY MEAN THAT YOU'RE NOT THAT INTERESTED IN TECHNICAL ISSUES AFTER ALL
- *OR IT MAY MEAN THAT YOU HAVE PERSONAL PRIORITIES THAT COMPETE WITH WORK



FEBRUARY/MARCH 2000

WORKPLACE ETHICS ARE BOTH COMMON-SENSICAL AND SPELLED OUT IN “POLICY AND PROCEDURES” MANUALS

*THE P&P MANUAL WILL DESCRIBE WHAT IS SPECIFICALLY PERMITTED AND PROHIBITED, COVERING SUCH THINGS AS:

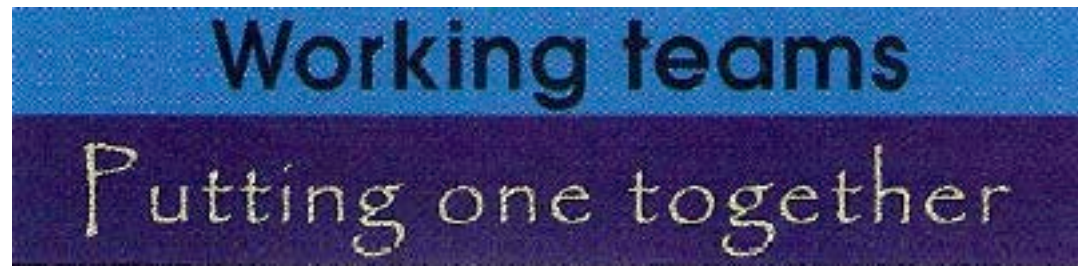
- TIME REPORTING & ACCOUNT NUMBERS
- VACATION AND SICK LEAVE USE
- REPORTING TRAVEL EXPENSES
- COMBINING PERSONAL & BUSINESS TRAVEL
- PER DIEM OR RECEIPTING EXPENSES
- USE OF COMPANY RESOURCES & PROPERTY

courtesy rulings

DECEMBER 2000/JANUARY 2001

COURTESY AT WORK HAS SIMPLE GROUND RULES

- *FOLLOW THE GOLDEN RULE
- *THINK BEFORE YOU SPEAK
- *LISTEN TO WHAT OTHERS HAVE TO SAY
- *OFFER CONSTRUCTIVE CRITICISM
- *TRY TO PUT OTHERS AT EASE
- *ANSWER PHONE CALLS, LETTERS, eMAIL IN A
TIMELY MANNER
- *GIVE CREDIT & COMPLIMENTS WHEN
APPROPRIATE
- *TELL THE TRUTH
- *DRESS APPROPRIATELY
- *ARRIVE ON TIME AND PREPARED TO WORK



OCTOBER/NOVEMBER 2001

VARIOUS WAYS TO BUILD & MAINTAIN AN EFFECTIVE, HAPPY TEAM INCLUDE*

- *HELP EACH OTHER BE RIGHT—NOT WRONG
- *LOOK FOR NEW WAYS TO MAKE NEW IDEAS WORK—NOT FOR REASONS WHY THEY WON'T
- *BE POSITIVE ABOUT YOUR ORGANIZATION & TEAM
- *DO EVERYTHING WITH ENTHUSIASM; IT'S CONTAGIOUS
- *SHARE THE GLORY; TO GET CREDIT, GIVE IT AWAY
- *LOVE WHAT YOU DO AND HAVE FUN

***TRINITY WESTERN U., LANGLEY, BC, CANADA**

The performance appraisal

APRIL/MAY 1997

THE PERFORMANCE APPRAISAL AMOUNTS
TO YOUR ON-THE-JOB REPORT CARD

*USUALLY DONE ON A YEARLY BASIS

*YOU WILL BE ASKED TO PROVIDE YOUR INPUT
WITH POSSIBLY A SELF-ASSESSMENT

*YOUR SUPERVISOR WILL GIVE YOU HIS/HER
EVALUATION

*IT WILL CONCLUDE WITH WRITTEN GOALS FOR
NEXT YEAR AND YOUR SIGNATURE

THE WRITTEN APPRAISAL CAN TAKE VARIOUS FORMS BUT SHOULD AT LEAST EXPLICITLY COVER THREE ISSUES*:

*JOB PERFORMANCE, i.e., HOW WELL DID THE INDIVIDUAL COMPLETE THEIR ASSIGNED TASKS OVER THE PAST YEAR?

*JOB DEMANDS, i.e., HOW DIFFICULT, DEMANDING, & COMPLEX WERE THE ASSIGNED TASKS?

*JOB FLEXIBILITY, i.e., HOW IN DEMAND IS THIS INDIVIDUAL WHEN PEOPLE ARE SOUGHT FOR A NEW PROJECT/ASSIGNMENT?

*EXCERPTED FROM LAWRENCE LIVERMORE NATIONAL LAB ELECTRONICS ENGINEERING

On the job: handling rejection

FEBRUARY/MARCH 1998

REALIZE THAT REJECTION IS A COMMON
PART OF TAKING RISKS SUCH AS . . .

*APPLYING FOR A NEW JOB

*WRITING A PROPOSAL FOR FUNDING

*SUBMITTING A JOURNAL ARTICLE FOR
PUBLICATION

*SUGGESTING IDEAS AT A “BARNSTORMING”
SESSION

*Etc., Etc., . . .

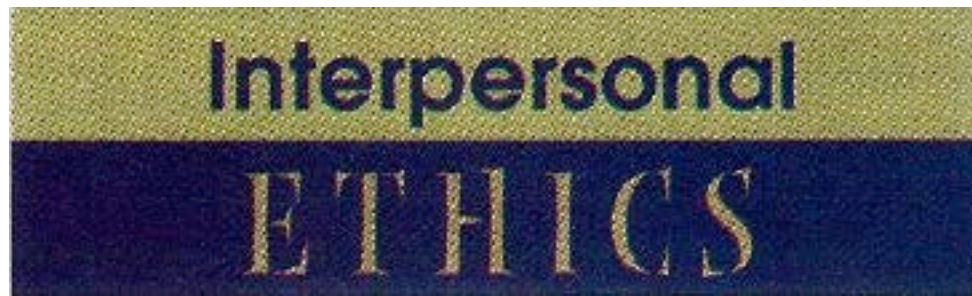
... BUT THESE ARE JUST PART OF
ORDINARY WORKPLACE ACTIVITIES—

*PERIODICALLY ASSESS YOUR STRENGTHS AND
WEAKNESSES

*REALISTICALLY REVIEW WHAT YOUR WORK AND
PERSONAL GOALS ARE

*MAKE WHATEVER ADJUSTMENTS ARE CALLED
FOR

--AND KEEP IN MIND THAT “NOTHING
VENTURED, NOTHING GAINED” APPLIES
TO ALL LIFE’S ACTIVITIES



APRIL/MAY 2002

A GOOD GENERAL STRATEGY IS THE “GOLDEN RULE” WITH SOME SPECIFIC EXAMPLES

- *GIVE CREDIT WHERE IT'S DUE
- *AVOID GOSSIP AND RUMOR MONGERING
- *DON'T EAVESDROP AND SNOOP
- *BE COURTEOUS
- *TELL THE TRUTH
- *KEEP CONFIDENCES

On the job: record keeping

APRIL/MAY 1998

MUCH OF YOUR WORK “PRODUCT” AND
ACTIVITIES WILL BE WRITTEN ACCOUNTS
IN ELECTRONIC AND/OR HARD COPY

- *ACTIVITIES LOG

- *TIME CARDS

- *PHONE LOG

- *EMAIL & LETTER CORRESPONDENCE

- *ACTION ITEMS AND DUE DATES

On the job: record keeping

MUCH OF YOUR WORK “PRODUCT” AND ACTIVITIES WILL BE WRITTEN

- *LAB LOGBOOK

- *COMPUTER LOG

- *TRIP REPORTS

- *MEMOS, TECHNICAL REPORTS, JOURNAL ARTICLES

- *MEETING NOTES

- *AN “IDEA” BOOK

Meeting Presentations & Publication

????

Publishing—why bother?

AUGUST/SEPTEMBER 1998

On the job—reviewing manuscripts

OCTOBER/NOVEMBER 1998

**WRITING, MAKING PRESENTATIONS AND
REVIEWING OTHER'S WORK IS LIKELY TO
BECOME A BIG PART OF YOUR JOB**

- *GIVING TALKS IS A WAY TO BECOME KNOWN & TO
SELL YOUR IDEAS AND ACCOMPLISHMENTS**
- *WRITTEN REPORTS & JOURNAL ARTICLES BECOME
ARCHIVAL RECORDS**
- *REVIEWING OTHERS' WORK IS PART OF THE JOB**

On the job: Validating data

DECEMBER 2003/JANUARY 2004

ENGINEERING CAN INVOLVE DEALING WITH A LOT OF DATA . . .

- *MOSTLY FROM MEASUREMENT OR COMPUTER
MODELING, SOMETIMES FROM ANALYSIS

. . . THAT CAN RAISE MANY QUESTIONS:

- *HOW WAS THE DATA OBTAINED?
- *IS ENOUGH DATA AVAILABLE FOR CONCLUSIONS
ABOUT IT TO BE CREDIBLE?
- *CAN RELIABLE DESIGN DECISIONS AND
TRADEOFFS BE MADE BASED ON THE DATA?

ANSWERS TO SUCH QUESTIONS REQUIRE CONSIDERATION OF ISSUES SUCH AS:

*DATA ACCURACY—THE DEGREE TO WHICH THE
DATA CONFORMS TO A TRUE VALUE, e.g.,
WITHIN X%

*DATA UNCERTAINTY—THE CONVERSE OF
ACCURACY EXPRESSED IN \pm TERMS AS ERROR
BARS

THE TRADITIONAL APPROACH TO
ESTIMATING THE UNCERTAINTY OF
EXPERIMENTAL DATA HAS BEEN TO
DEVELOP ESTIMATES FOR EACH ITEM IN
THE MEASUREMENT CHAIN

*SOMETHING EQUIVALENT NEEDS TO BE
DEVELOPED FOR COMPUTATIONAL RESULTS

*IT'S A WORTHWHILE GOAL BUT IS NOT NOW
USUALLY DONE IN VARIOUS EE SPECIALTIES,
ELECTROMAGNETICS FOR EXAMPLE

On the job: marketing your ideas

???

BEING AN ENGINEER DOESN'T MEAN YOU'RE NOT ALSO A "SALESMAN"

- *GOOD IDEAS STILL NEED SELLING
- *THERE ARE BOTH INTERNAL & EXTERNAL
"CUSTOMERS"
- *INTERNAL CUSTOMERS CAN FUND R&D FROM
OVERHEAD AND OTHER \$\$\$ SOURCES
- *EXTERNAL CUSTOMERS CAN PROVIDE FUNDING
VIA GRANTS AND CONTRACTS
- *ACCESS TO SUCH FUNDS IS USUALLY VIA
PRESENTATIONS AND PROPOSALS
- *YOUR JOB MAY DEPEND ON SUCCEEDING AT THIS

On the job: It never ends

CONTINUING EDUCATION

AUGUST/SEPTEMBER 1999

LIFE-LONG LEARNING HAS BECOME A NEED IN TECHNICAL DISCIPLINES

*COMPARE 1950's TECHNOLOGY WITH TODAY'S

1st CREDIT CARD

TUBE-BASED TVs

SOLAR BATTERY

FIRST SATELLITES

COMPUTER HARDISK

TRANSISTOR

LASER

OPTICAL FIBER

DIAL TELEPHONE

MIMEOGRAPH

MAINFRAME COMP.

XRAYS

CHIP ENABLED & BLUE-TOOTH

FLAT-SCREEN IC HD TVs

ROOFTOP PV SYSTEMS

SPACE STATION/MOON LANDING

SOLID-STATE DISK

INTEGRATED CIRCUIT

LASER READERS, SURGERY, etc.

UNDERSEA OPTICAL CABLES

CELL & SMART PHONE

LASER COPIER & PRINTER

PERSONAL COMPUTERS

CAT SCANS, MRIs

YOU CAN MAINTAIN YOUR TECHNICAL EDGE IN A NUMBER OF WAYS VIA:

- *WORKING ON AN ADVANCED DEGREE

- *SHORT COURSES AND WORKSHOPS

- *MEETINGS AT LOCAL IEEE CHAPTERS

- *SEMINARS & TALKS AT NEARBY COLLEGES

- *SELF-STUDY

- *DISTANCE LEARNING, MASSIVE ON-LINE OPEN
COURSES, etc.

IN CLOSING, TO THOSE OF YOU NEARING
THE END OF YOUR ACADEMIC CAREERS,
GOOD LUCK IN ALL YOUR FUTURE
ENDEAVORS WHEREVER THEY MAY TAKE
YOU . . .

. . . AND I HOPE THAT YOU WILL ALWAYS
BE IN A POSITION TO LOOK FORWARD TO
MONDAY MORNINGS