



Engineering Ethics

An Historical Walk Through of IEEE's Involvement in Ethics, 1884 – 2015

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About the Author

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- **BEE (with HONORS) U of Florida, 1958, MSEE U of Houston, 1962**
- **IEEE and SSIT Life Senior Member (1957 – Present)**
- **IEEE USAB Ethics Task Force Committee (1977)**
- **IEEE Member Conduct and Ethics Committees (1996-98)**
- **IEEE USA Employment Guidelines and Salary Survey Committees (1996)**
- **IEEE Melbourne, FL Section Professional Activities Committee for Engineers (PACE) (1997-1999)**
- **IEEE Florida Council, (1996-97)**
- **IEEE Professional Engineer of the Year Award, IEEE Orlando Section (1974)**
- **IEEE USA Merit Award for Promoting Professionalism and Ethics (1998)**
- **Harris Corp. ,Staff Systems Engineer (1980 – 1997)**
- **Bel Canto Singers, Daytona Beach, FL (2009-2014)**
- **Daytona State College Symphony Orchestra (Violin), (2008-Present)**
- **Daytona Travelling Golf League, (2009-Present)**
- **Resident of Crane Lakes Golf and Country Club, Port Orange, FL (2007 – Present)**

Introduction

- This presents a walk through of **IEEE's involvement in ethics**, from its very start, in 1884 with the forming of the AIEE, through 1912 when the IRE was formed, through today, the end of 2015.
- Through the years, **IEEE at times supported both ethics advice and support**, but beginning around 2000, **it formally restricted the EMCC from involvement in employee-employer professional/ethical disputes**, which is being **challenged**. This documents that history.
- In a companion work, a proposal is made to form a Task Force, of **IEEE USA-SSIT-Non USA Regional Members**, to address this issue of restoring the right of IEEE Members to full ethical advice and support. **A copy will be furnished, upon request to: w.elden@ieee.org**

Topics of Talk

- **A Complete Engineer? CE = TA + PR**
- **What Constitutes an Engineer Professional?**
- **IEEE's Historical Role in Ethics, Member Conduct and Ethical Support**
 - **From AIEE in 1884 to the Present IEEE and on into the Future**
 - **Ethical Support: IEEE Provided it, then Removed it**
- **Suggested Reading Material**

*What Makes Up a Complete
Engineer?*

The Complete Engineer

- Early in my engineering career, I developed the view that a **Complete Engineer** was the **Sum** of his/her **Technical Accomplishments** plus **Professional Responsibility, Therefore $CE = TA + PR$**
- **Technical** – providing a performing & affordable design/result, on time to a client, employer/customer
- **Professional** – being responsible, competent, safe, protecting the public and upholding ethical conduct
- 2 Courses at U of Florida influenced me to develop this view about what it means to be a Complete Engineer
 - **American Institutions**
 - **Professionalism, PE Licensure, Ethics, Economics and Safety**



PART 1

Engineers' Technical Side

What You'll Be Measured On Working in Industry

- **Supporting Management Achieve:**
 - **Business Objectives (Reported on Monthly)**
 - **Orders** (What was booked as New Business)
 - **Sales** (What was completed and sold)
 - **Profits** (The Resulting Revenues above costs)
 - **Technical Objectives (the part you will do)**
 - Design and **Meet Performance Requirements**
 - Do it **On Schedule**
 - Above all **Meeting Costs**
 - As a Professional **Upholding Ethical Conduct**
- **When you face an ethical conflict, you should expect the IEEE to provide advice and support**
- **But will it? I will answer that in this presentation!!!!**

PART 2

The Engineer as a Professional

**One engaged in a profession,
characterized by or conforming to the
technical or ethical standards of its profession.**

WHAT A PROFESSIONAL IS

- **High Academic Standards** —Having knowledge and skill not possessed by the general public (for example, high levels of technical competence)
- **Continual Renewal of Knowledge** —Staying abreast of developments through journals, publications, conferences, and seminars
- **Service for Society** —Performing services that affect the public health, safety, and welfare (beneficial application of technical competence)
- **Personal Responsibility for Work** —Continually looking for own mistakes and opportunities/methods for improvement
- **Display of Self-Confidence** —Who wants a nervous dentist, unsure of which tooth to drill?

Continued

- *Exercise of Independent Judgment and Discretion* —
Having flexibility/authority to make decisions based upon a defined body of knowledge
- *Predominantly Intellectual Work* —*Generally white-collar and not readily subject to productivity measurement*
- *Regulated/License Usually Required* —*Quality of work is subject to established standards. Members of the profession risk loss of right to practice for misconduct, incompetence, or gross negligence*
- *Dedication Beyond Personal Considerations* —
Commitment to the "calling" with ethics and quality of work transcending any other issues

Part 3

IEEE's Historical Role in Ethics, Member Conduct and Ethical Support Each Important in a Profession

From the AIEE in 1884 to the Present in IEEE

- **IEEE Both Supported, Then Dropped Ethical Advice and Support of its Members**
- **But Now, How Can It be Restored?**

***PROACTIVELY RESOLVING
EMPLOYEE-EMPLOYER ETHICAL
CONFLICTS***

**AN ELEMENT OF IEEE MEMBERS'
RIGHT TO ETHICAL SUPPORT**

**Walking Thru IEEE's Time Periods
Since 1884**

A. 1884-1912 The AIEE Era, 1st Code of Ethics Developed

- **The AIEE was formed by practicing engineers** to welcome and host International engineers attending an 1884 Exposition in Philadelphia
- **AIEE Worked 6 years developing a Code of Ethics** following 1906 remarks of Dr. Schuyler Wheeler, AIEE President Stating A Need for One
- **AIEE Managers and Business Executives lacked full Member Voting Rights** that Founding Practicing Engineers exercised
 - But they **wanted those same rights** to advance interests and Standards, to better their Industries
 - This raised the issue **whether to give them increased voting power**, then held by the Founding Practicing Engineers

B. 1912-1972 IRE and Non-Professional Activities Era

- Through a **New York Supreme Court ruling, full voting rights were given** to Managers and Business Executives in the AIEE.
- This **began shifting the AIEE's role away from serving that of the founding Practicing Engineer Members** more to **the interests of the growing number of Business and Manager Members**. I contend this has continued to this day.
- The **AIEE 1st Code of Ethics was finally approved 1912** and unchanged til a 1950 revision
- Electrical, Telephone and Telegraph **industries exercised their political power and succeeded getting an exemption of engineers employed in industry** from being required to hold a PE license.
- This is referred to as **the "industry exemption"**, which I have written and debated against several times, both in the IEEE and the NSPE

- The **IRE was formed in 1912** and its electronics technology **membership rate grew faster** than that of the power/telephone/telegraph mature membership of the AIEE
- **AIEE/IRE restricted their activities to Technical, Educational and Standards Activities** and thus **did not get involve in Professional Activities, IRE was International, the AIEE was not**
- AIEE Code of Ethics was revised in 1950 and incorporated Canons of the NSPE Code. **I happen to find this around 2000** at the Illinois Institute of Technology database of Ethics Codes and **was unknown of by the IEEE**
- **High unemployment during the late 1960's** in US Aerospace Industries led Engineer Members to **call for professional support activities** be added
- **No ethical support cases were found through the end of 1972**, since AIEE was formed in 1884

NOTE: This AIEE/IRE and IEEE history to date was documented by Historian Edwin Layton, Jr in his classic book "The Revolt of the Engineers" (This is a MUST READ HISTORY as a 2nd Engineers' REVOLT may be needed) Go to Suggested Reading Material at end.

C. 1972-1975 Professional Activities was Added and the BART Case Was Supported Causing Ethical Support to be Formalized

- High unemployed Aerospace engineers' Pressure led **IEEE to hold a vote to add Professional Activities to its Constitution, which passed YES by over 82%** November of 1972
- December 1972 I immediately proposed and was granted approval and **did form IEEE 's 1st Professional Activities Committee, a PAC,** in the Orlando Section.
- I chaired it during 1973, holding well attended PAC meetings Monthly on a variety of Professional topics and issues
- **3 engineers, IEEE Members, fired from BART.** Dr Steve Unger and Spectrum published news and **called for their ethical support** 1973-75
- **The IEEE Board approved and it entered an Amicus Curiae Friend of the Court legal argument** supporting legal right of engineers to practice in accordance with established Codes of Ethics

IEEE MATTERS OF ETHICAL PRINCIPLE

The Executive Committee is empowered by the Board of Directors to **enter an amicus curiae brief in any court in the U.S.A. or in cooperation with cognizant national societies in other countries **where a member of the profession is involved as a consequence of his taking a position on a matter of ethical principle.****

NOTE:

The only Amicus Curiae entered by IEEE to date was in 1975 in the BART Case in California. Several, however, have been approved for entering when the case progresses to the proper state of proceedings.

Ethical Support From the IEEE Amicus Curiae in the BART Case of 1975

Appendix E

Court Deposition

1 GALL, LANE & POWELL
2 Frank Cummings
3 Jill Cummings
4 1250 Connecticut Avenue, N.W.
5 Washington, D. C. 20036
6 (202) 659-1600
7 ROBERT G. WERNER
8 1255 Post Street, (Suite 700)
9 San Francisco, California 94104
10 (415) 441-1211
11
12 Attorneys for The Institute of
13 Electrical and Electronics
14 Engineers, Inc.
15

FILED
JAN - 9 1975
RENE C. DAVIDSON, County Clerk
By *James Kitterman*
JAMES KITTERMAN, Deputy

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SUPERIOR COURT OF CALIFORNIA
FOR THE COUNTY OF ALAMEDA

HOLGER HJORTSVANG,)
Plaintiff)
vs.)
SAN FRANCISCO BAY AREA RAPID)
TRANSIT DISTRICT, a public)
entity; DOES ONE through TEN)
INCLUSIVE,)
Defendants)

NO. 436443

(Consolidated with Nos.
436444 and 436445)

AMICUS CURIAE BRIEF OF THE
INSTITUTE OF ELECTRICAL
AND ELECTRONICS ENGINEERS, INC.

IEEE's Legal Argument of Ethical Support of its Engineers

8 and

9 3. As to Jury Instructions: In any charge to the jury
10 herein, this Court should instruct the jury that if it finds,
11 based upon the evidence, that an engineer has been discharged
12 solely or in substantial part because of his bona fide efforts to
13 conform to recognized ethics of his profession involving his duty
14 to protect the public safety, then such discharge was in breach
15 of an implied term of his contract of employment.

16 We base this position upon the cases, statutes and
17 ethical codes discussed below.

Continued

- In **1974 the IEEE adopted a modern Code of Ethics**
- After the 3 BART engineers filed suit for wrongful discharge, **IEEE entered a Friend of Court Amicus Curiae** in their case in 1975. Later, the **case settled out of court.**
- The **CSIT awarded them the 1st Barus Award** later
- These events raised the **issue of whether IEEE should only discipline and not support ethical conduct in conflicts**
- **IEEE Board led effort for only disciplining** violations of the Code of Ethics and **did not advocate providing ethical support**
- Steve Unger via the CSIT **led efforts to provide ethical support** additionally to Engineers **if IEEE was going to only institute ethics discipline** procedures

D. 1975-1978 Establishment of the Member Conduct Committee

- **As a counter move to the Board** only wanting to Discipline Members, USAB formed an Ethics Task Force to develop both **1. Discipline and 2. Ethical Support** procedures to the Code of Ethics
- I volunteered and served on the USAB Ethics Task Force to develop these procedures
- **The Ethics Task Force met** one Saturday morning in the Spring of 1977 in a New York City hotel and **developed both procedures**. Steve Unger led **Discipline** and I led **Ethical Support**

Continued

- USAB President John Guererra asked and **I made USAB's presentation of its 2 procedures, Discipline and Ethical Support, before IEEE's Board of Directors** at its 1977 meeting
- At which time the **Board's independent Discipline procedure alone was also presented** by Attorney-Engineer Jim Fairman.
- We had worked independently and unaware of the other's work
- **IEEE merged both sets of procedures and in February 1978 approved and formed the Member Conduct Committee, MCC.**
- New MCC Members were **appointed routinely to 5 Year Terms** and it seemed mostly Pro-Employer Members were appointed
- This new MCC was **empowered to: 1. institute discipline procedures and 2. provide ethical support**

E. 1978-1998 Era of Pro Ethical Support Activities, Cases

- The **1st MCC Ethical Support case was the Virginia Edgerton Case**. I received her phone call seeking support in May of 1978 and referred her to Steve Unger with the CSIT. She had **been fired for trying to get changes made in a New York Police Dispatch system** because she showed that it **could impact response times in the 911 system**.
- The CSIT, following its thorough investigation, **referred her case to the MCC** which in turn **recommended for the Board to render support, which it did**, but the MCC did not publish the Case report and instead it was the CSIT that did. **The MCC, while empowered to publish approved case stories for support and education purposes, there is no record that the MCC ever did that.**
- The **CSIT awarded her a Barus Award** later

Continued

- A MCC pattern of **not providing ethical support** was beginning to be noticed by CSIT, Steve Unger, myself and others.
- I was **appointed in 1996 to a 5 year term on the MCC** and **exercised Pro-Employee Engineer activities** to try and begin supporting Members, for which I **was subjected to Co-Committee Member harassment**.
- It was very evident that **this MCC had been comprised of Pro Employer members** who were **reluctant to support the employee Members**. I rejected that view, acted accordingly and received negative feedback from the established MCC Co-Members
- I was **appointed MCC to Ethics Committee Liaison**, and attended meetings of the Ethics Committee. In that role I **designed and operated IEEE's 1st and both MCC and EC web sites**
- The separate **Ethics Committee, led by Steve Unger, had Pro-Employee members**, got approval and began **operating a moderated Ethics HOT Line, an Ethics Legal Support Fund** and **publishing Bi-Monthly Ethics articles**.

Continued

- **Salvador Castro, through the Ethics HOT Line, requested Ethical Support** after being fired for trying to get a design defect in an Infant Breathing Device corrected.
- An appointed IEEE **Medical engineer corroborated his claims** and his case was then **referred to the MCC**.
- As I was one of the HOT LINE moderators and the MCC-Ethics Committee Liaison, **I brought his case to the MCC**, upon which I was serving. The **MCC Chair insisted that I recuse myself, but I refused to**.
- Eventually the **MCC referred his case to the Board** which **voted to support him in any subsequent court proceeding**.
- The **SSIT awarded him a Barus award** later
- **Martha Sloan, a Past IEEE President**, but the MCC CHAIR IN 1998, **proposed establishing an Ethics Conflict Resolution Service, ECRS**.
- As Editor for her, I **prepared the Draft ECRS Proposal** with supporting efforts of other MCC Members

Martha Sloan's Proposed Ethics Conflict Resolution Service, the ECRS

- Martha, a **Past IEEE President, MCC Chair** and Professor at the U of Michigan envisioned:
 - IEEE would be **Pro-Active to resolve conflicts**
 - **Give Advice, Educate, Consult Parties** with Guidance
 - **Provide Experts** to look into and **assess the issues**
 - Perform a **Sounding Board Function/Peer Review**
 - **Advise avoiding Whistleblowing**
 - **Mediate or Arbitrate the Issues** before Escalating
 - **Seek Assistance from the Ethics Officers Association** in Resolving Employee-Employer Disputes mutually

Continued

- At one MCC meeting, held at a Holiday Inn in Newark, NJ in 1998, another **Past IEEE President, Wally Read**, who represented a **powerful Power Company and a Canadian Power Industry organization, and MCC Member**, said the following to the Committee, which I attended as a Member:
 - **"I do not feel that the IEEE should get involved in employee-employer ethical support disputes".**
- **I completely disagreed** with this view and considered it a **Pro-Business/Executive view and against the Employee category** of IEEE Members, whom I had been Pro-Active for.
- This position, Read expressed, **reminded me of the Pro-Business actions in the early AIEE when they took control of the AIEE** from a NY Supreme Court Ruling and when the **Board only wanted to discipline, but not support, ethics**

Continued

- From 2002-2005, this Read view became an **INFORMAL** policy restriction on the new EMCC but by 2005 it had become the **OFFICIAL IEEE Policy**.
- At the end of my 3 out of a 5 year term in the MCC, **I was suddenly removed at the end of my 3rd year** and the **ECRS Proposal was not forwarded** to the Board.
- It is interesting to note that the person I had replaced on the MCC, continued to remain a Member, but with no vote, for nearly 15 years. Others had served their full 5 year terms, and longer. **I was removed after 3 years and interpreted it to be for my exercising Pro-Employee Engineer initiatives, and my replacement served a full 6 years.**

F. 1998 Board Cancels all Ethical Support Activities

- Beginning in 1997 and carrying into 1998 and beyond, the IEEE Executive Committee and Board began to systematically terminate the various Ethical Support services and programs which had been put into operation previously,
 - **In particular the Moderated Ethics HOT Line,**
 - **Ethics Legal Support Fund,**
 - **Publishing of the Bi-Monthly Ethics articles in the INSTITUTE (which I have saved) and lastly**
 - **Removal of the Pro-Active Employee Engineers supporting Ethical Support initiatives.**
 - **Martha Sloan's ECRS Proposal was never acted upon**

*G. 1999-2005 Era the EMCC was **Informally** restricted from involvement in Employee-Employer Professional/Ethical Disputes*

- Former IEEE President Wally Read later became a member of the Ethics Committee, during which the EC and MCC was combined into today's EMCC.
- Beginning with that "**against IEEE employee-employer ethics disputes**" statement expressed by former IEEE President Wally Read and a MCC Member in 1998, the EMCC by 2005 added a one sentence restriction, Board approved and inserted it into the EMCC OPERATIONS MANUAL, **to not get involved in employee-employer professional/ethical disputes and to not give ethics advice**
- I was informed by email correspondence from a former EMCC Chair that **as early as 2000 the EMCC was routinely briefed by a Staff member on that restriction** and further **over the 6 years he had served on the EMCC that at no time had there been an employee-employer ethics support dispute been referred to it.**

*H. 2005-2015 **Full Formal Enforcement** of EMCC Restriction against providing Ethical Support measures*

- In 2005, the **IEEE Board approved and formally** inserted into 1.4 of the Ethics and Member Conduct Committee's OPERATING MANUAL this one line RESTRICTION:
"THE EMCC SHALL NOT BE INVOLVED IN EMPLOYEE-EMPLOYER DISPUTES"
- Upon my asking a Senior Staff Manager of this applied to just Collective Bargaining Trade Union issues, she wrote to me **that it also included Professional and Ethical disputes.**
- **1.4 also prohibits the EMCC from giving ethical advice**

The EMCC Ops Manual Cover
in which is found the ethical support restriction (next)



**Ethics and Member Conduct Committee
Operations Manual**

IEEE
445 Hoes Lane
Piscataway, NJ 08854 USA

The EMCC Ethical Support Involvement Restriction in Employee-Employer Dispute

1.3 Scope

IEEE Bylaw I-305.6

“The Ethics and Member Conduct Committee shall make recommendations for policies and/or educational programs to promote the ethical behavior of members and staff, and shall consider instituting proceedings, as defined in IEEE Bylaws I-110 and I-111, related to matters of member and officer discipline and requests for support. Neither the Ethics and Member Conduct Committee nor any of its members shall solicit or otherwise invite complaints, nor shall they provide advice to individuals.”

1.4 Limits to Activities

IEEE Constitution, Article 1, Section 2

“The IEEE shall not engage in collective bargaining on such matters as salaries, wages, benefits, and working conditions, customarily dealt with by labor unions.”

The Ethics & Member Conduct Committee shall not be involved in employee-employer disputes.

***IEEE’s Restriction for the EMCC Not to get Involved in Employee-Employer Disputes is a Violation of IEEE’s Governing Documents and MCC History
Read my Position Statement document on this.***

I. What Can IEEE Members Do To Assist Restoring Full Ethics Support

- Become **educated** about IEEE's full **History in Professional and Ethical Matters**
- **Advocate removing restrictions** against the EMCC giving **Ethical Advice and Support** in Employee-Employer Disputes
- **Amend the IEEE Constitution, not the ByLaws**
- **Adopt a Section Position** and urge IEEE Entities and Organizational Units to support your position
- **Stay involved, informed, be a Proponent and not allow a future IEEE Board to restrict full ethical support**

Suggested Readings on the WEB

The IEEE USAB Ethics Task Force's Proposals for Ethical Support and Member Discipline presented to the IEEE Board of Directors, November 1977

<http://ewh.ieee.org/soc/ssit/Newsletter%20Archive/1972-1981/TS5-20-77.pdf>

A Position Statement on EMCC Restrictions in Ethics Employee-Employer Disputes

http://ethw.org/images/d/d6/A_POSITION_STATEMENT_DOCUMENTING_ETHICAL_SUPPORT_MEANING.doc

Martha Sloan's Ethics Conflict Resolution Service Proposal

http://ethw.org/images/9/9b/Ethics_Conflict_Resolution_Service_ECRS.docx

IEEE INSTITUTE Roundup Opinion Paper on Employee-Employer Disputes

<http://theinstitute.ieee.org/ieee-roundup/opinions/ieee-roundup/position-statement-on-employeeemployer-disputes>

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The Assault on IEEE Ethics Support (in 1999)

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4274770>

The Case of the Vanishing Ethics Article (in 2008)

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4538973>

IEEE Has Shown Disregard Towards Proactive Ethics Activities (in 2008)

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4623819>

BART Case : 3 Engineers Fired Who Sued and IEEE Entered an Amicus Curiae:

<http://ewh.ieee.org/soc/ssit/Newsletter%20Archive/1972-1981/TS1-4-73.pdf#page=6>

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6366689>

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6498825>

The Virginia Edgerton Case Involving 911 Delay Flaws, Who was fired:

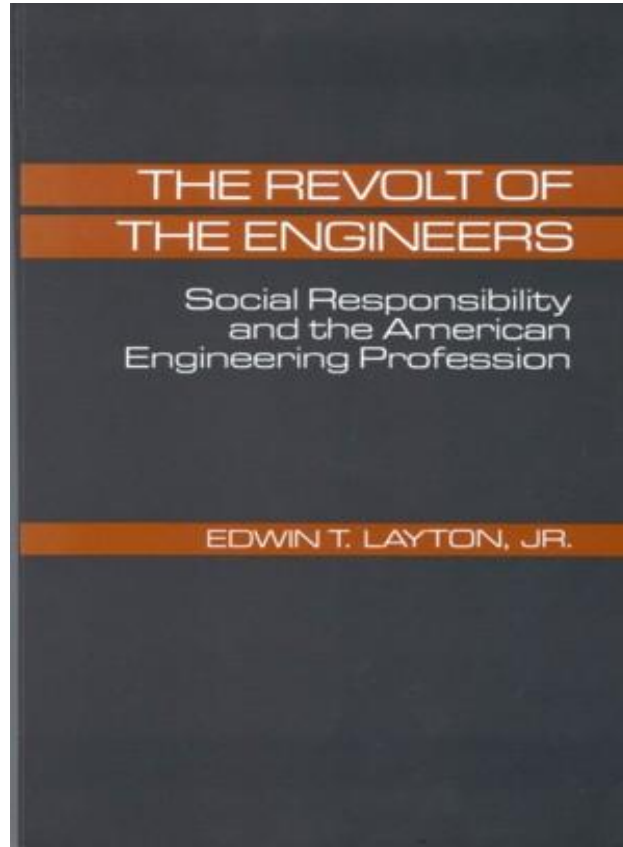
<http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=6500365>

<http://ewh.ieee.org/soc/ssit/Newsletter%20Archive/1972-1981/TS6-22-78.pdf#page=3>

The Salvador Castro Case of the Defective Infant Breathing Device:

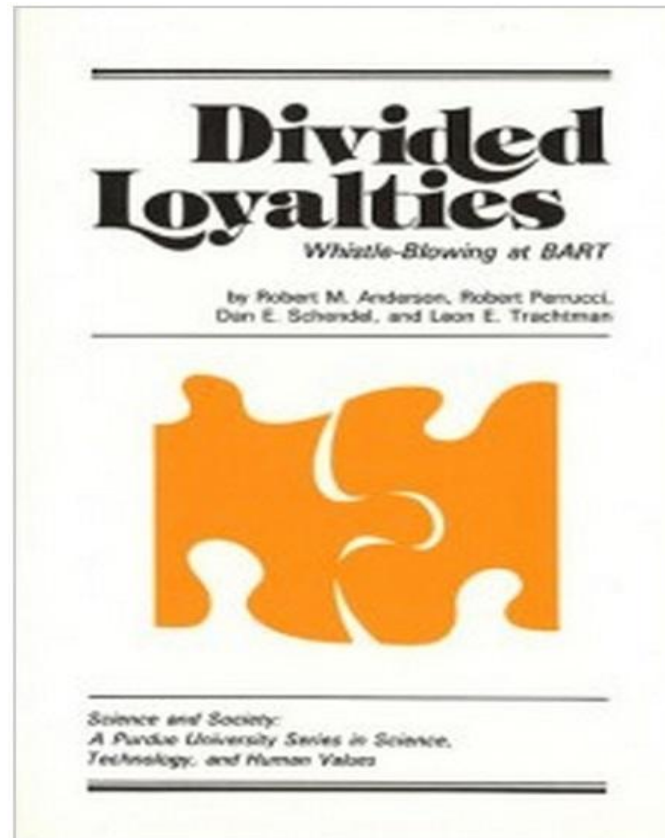
<http://www.onlineethics.org/cms/23337.aspx>

Continued
Early History of the AIEE and IRE, 1884 +



<http://www.amazon.com/The-Revolt-Engineers-Responsibility-Engineering/dp/080183287X>

IEEE Entered The BART Case in 1975



In Appendix E is found the IEEE Amicus Curiae filed in BART January of 1975

<http://www.amazon.com/Divided-Loyalties-Whistle-Blowing-Science-Society/dp/0931682096>