In Honor of Tom Edgar's 65th Birthday I

Monday, November 8, 2010: 12:30 PM

250 B Room (Salt Palace Convention Center)

12:30 PM (101a) An Overview of Tom Edgar's Contributions to Chemical Process Systems Engineering
B. Wayne Bequette and Dale E. Seborg

12:55 PM (101b) Modeling and Control of a Radiation Therapy Couch
Thomas J. McAvoy, Kate Malinowski, M. Ali Yousuf and Warren D. D'Souza

1:20 PM (101c) Controlling Large-Scale Systems with Distributed Model Predictive Control
James B. Rawlings

1:45 PM (101d) Quality-Relevant Process Monitoring
S. Joe Qin

2:10 PM (101e) Process Systems Engineering in Pharma Product Development (to be revised)
Gintaras V. Reklaitis

2:35 PM (101f) Critical Review of 30 Years of Adaptive Control
B. Erik Ydstie


I&EC
research
Industrial & Engineering Chemistry Research
ACS Publications


Wayne Roquette

CEE

chemical engineering education

VOLUME 26 NUMBER 1 WINTER 1992

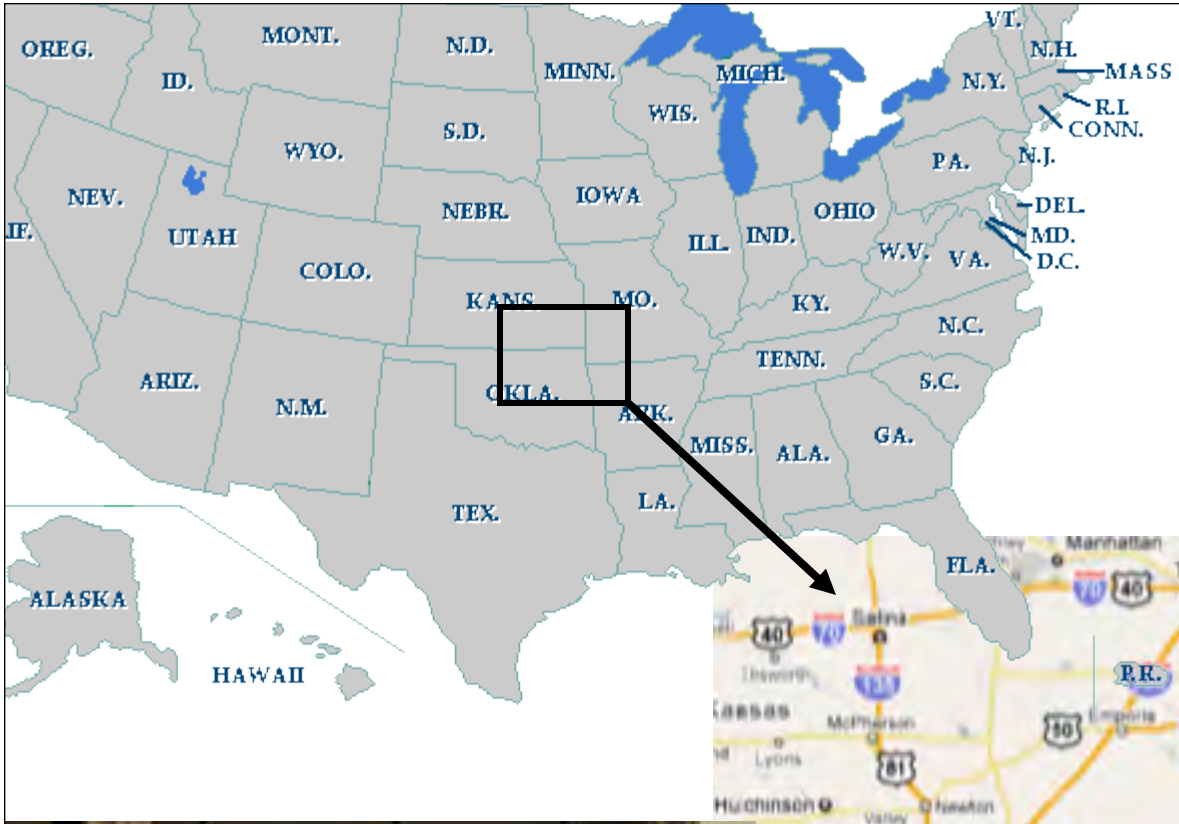
OR ENGINEERING EDUCATION

Thomas F. Edgar

of the
University of Texas, Austin

AWARD LECTURE: Part 2 . . .
Computing in Engineering Education:
From There, To Here, To Where?
CARNAHAN

and . . .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TEX.
LA.
FLA.
ALASKA
HAWAII


Phillips Petroleum Company


Manhattan
Topeka
Kansas City
Independence
Salina
Overland Park
Lee's Summit
Columbia
P.R.
Jefferson City
Missouri
McPherson
Emporia
Lyons
Hutchinson
Newton
Valley Center
El Dorado
Wichita
Augusta
Derby
Mulvane
Kingman
Charnute
Nevada
Lebanon
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Parsons
Pittsburg
Lamar
Independence
Carthage
Springfield
Winfield
Coffeyville
Joplin
Arkansas City
Miami
Neosho
Monett
Blackwell
Ponca City
Bella Vista
West Plains
Enid
Perry
Hennessey
Tulsa
Rogers
Springdale
Fayetteville
Oklahoma
Broken Arrow
Wagoner
Muskogee
Tahlequah
Ozark National Forest
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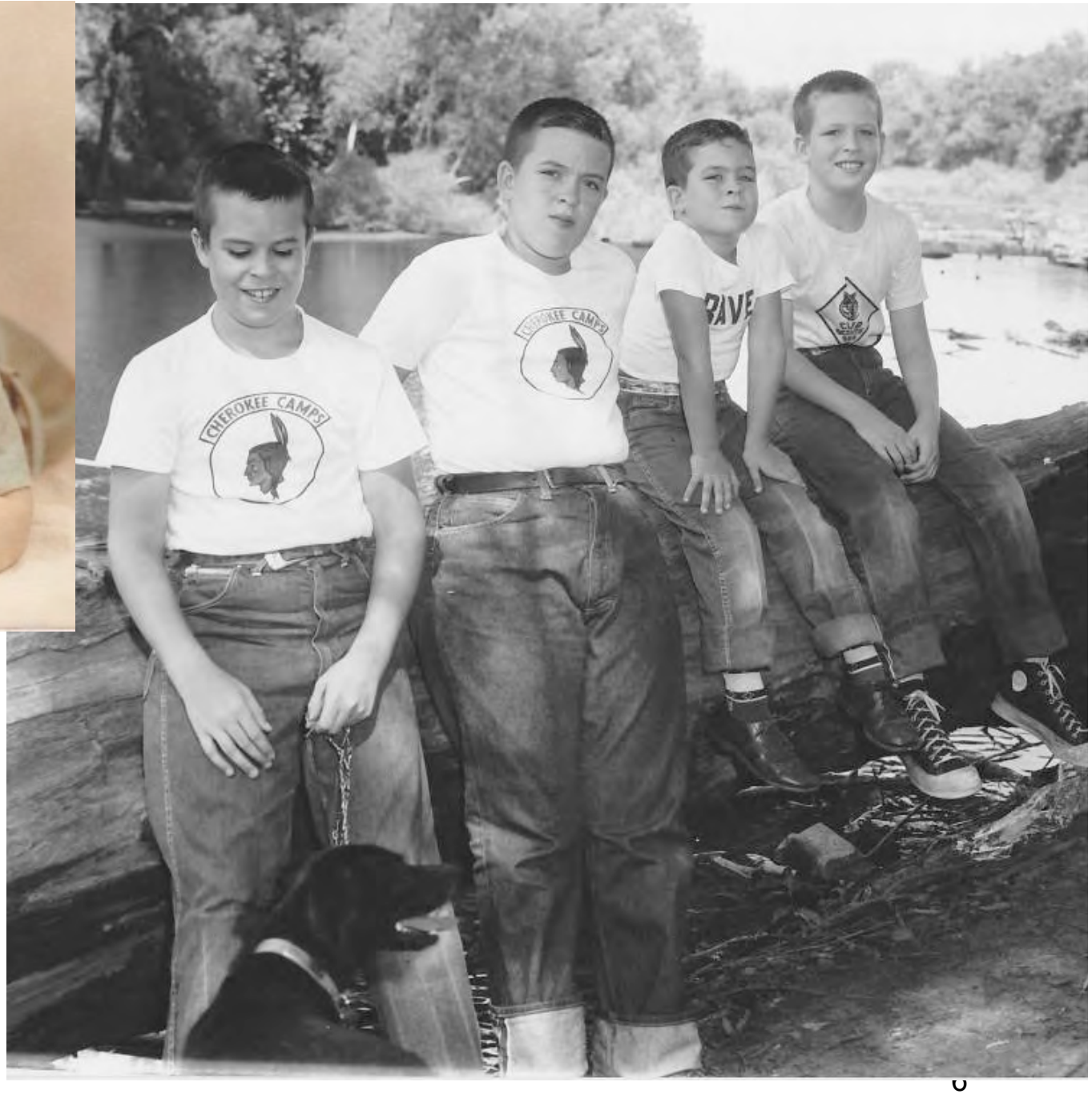
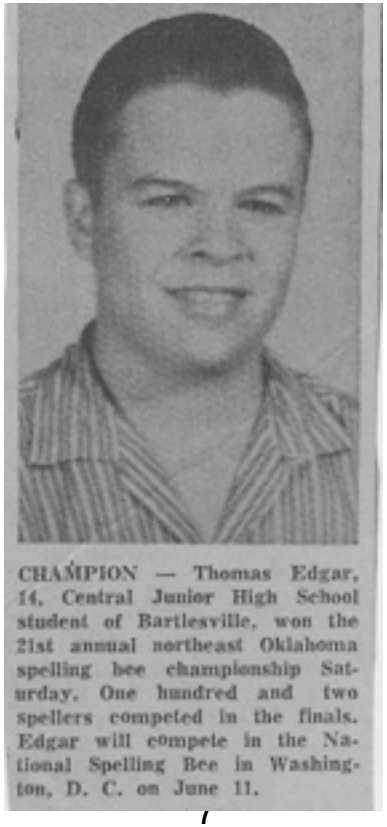
Edmond
Okmulgee
Oklahoma City
Midwest City
Moore
Norman
Sallisaw
Fort Smith
Arkansas


CHEROKEE CAMPS

Early Awards/Honors

- 8th Grade
  - Oklahoma State Spelling Bee champion
  - Trip to National Spelling Bee in DC
- Senior year of High School
  - Bartlesville Science Fair winner
  - Trip to National Science Fair



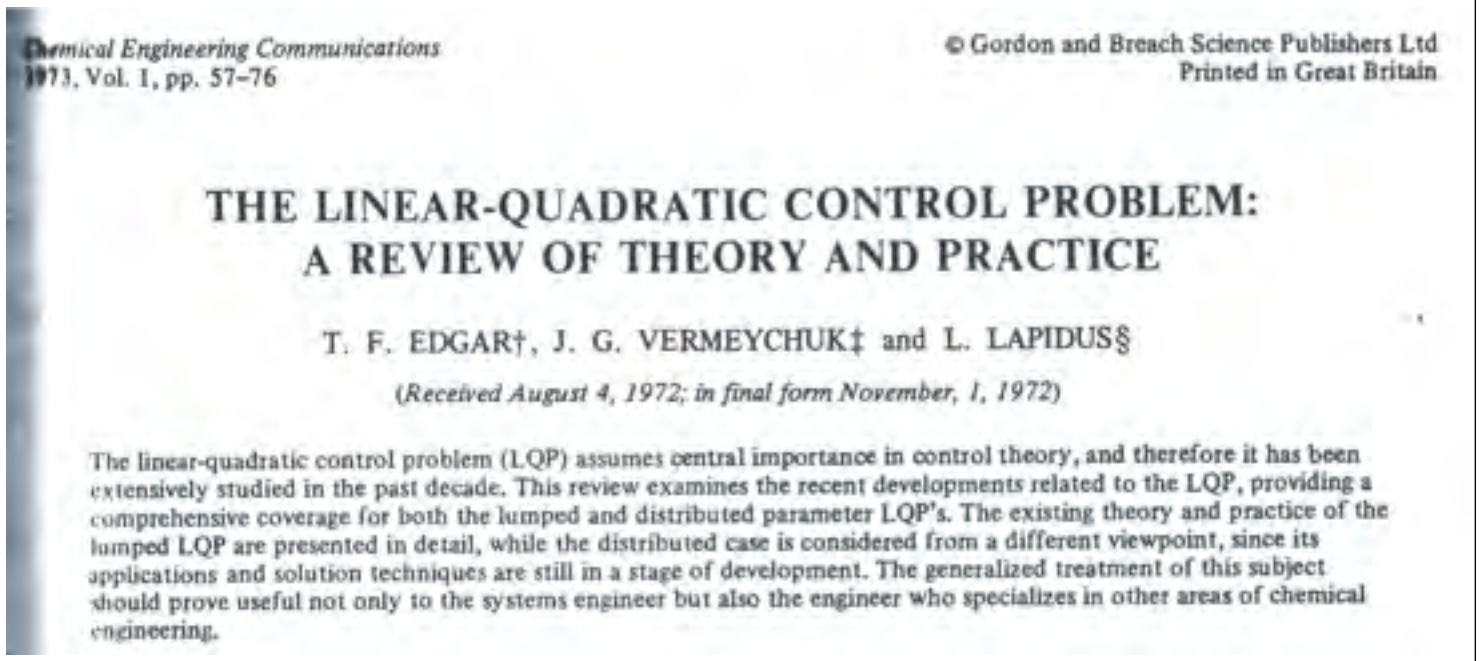
CHAMPION — Thomas Edgar, 14, Central Junior High School student of Bartlesville, won the 21st annual northeast Oklahoma spelling bee championship Saturday. One hundred and two spellers competed in the finals. Edgar will compete in the National Spelling Bee in Washington, D. C. on June 11.

Undergraduate

- University of Kansas, B.S.
  - Only B in Transport Phenomena
  - NSF funded summer project on process control


AUG

Ph.D., Princeton 1971



Chemical Engineering Communications
1973, Vol. 1, pp. 57–76

THE LINEAR-QUADRATIC CONTROL PROBLEM: A REVIEW OF THEORY AND PRACTICE

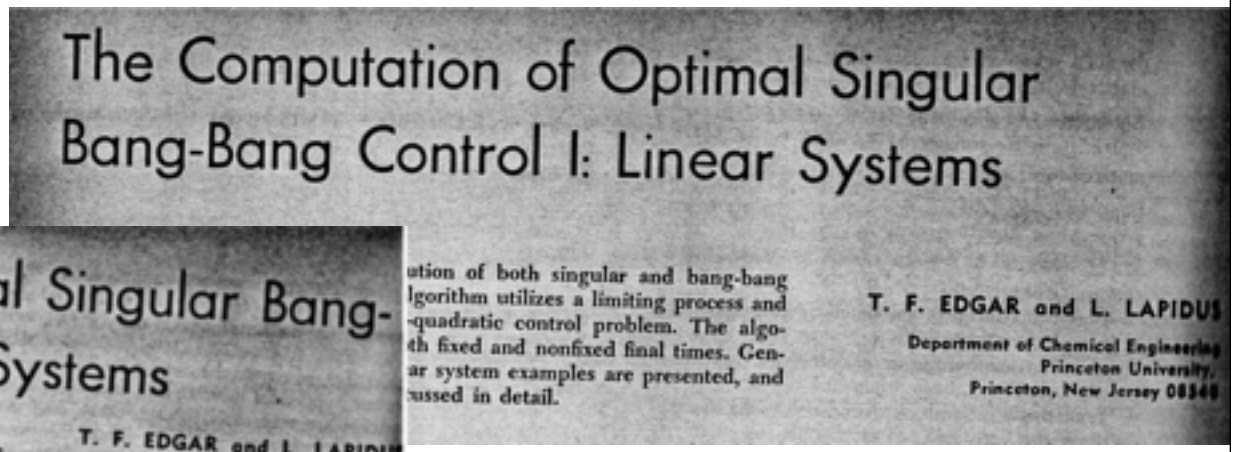
T. F. EDGAR†, J. G. VERMEYCHUK‡ and L. LAPIDUS§

(*Received August 4, 1972; in final form November, 1, 1972*)

The linear-quadratic control problem (LQP) assumes central importance in control theory, and therefore it has been extensively studied in the past decade. This review examines the recent developments related to the LQP, providing a comprehensive coverage for both the lumped and distributed parameter LQP's. The existing theory and practice of the lumped LQP are presented in detail, while the distributed case is considered from a different viewpoint, since its applications and solution techniques are still in a stage of development. The generalized treatment of this subject should prove useful not only to the systems engineer but also the engineer who specializes in other areas of chemical engineering.

AIChE JOURNAL

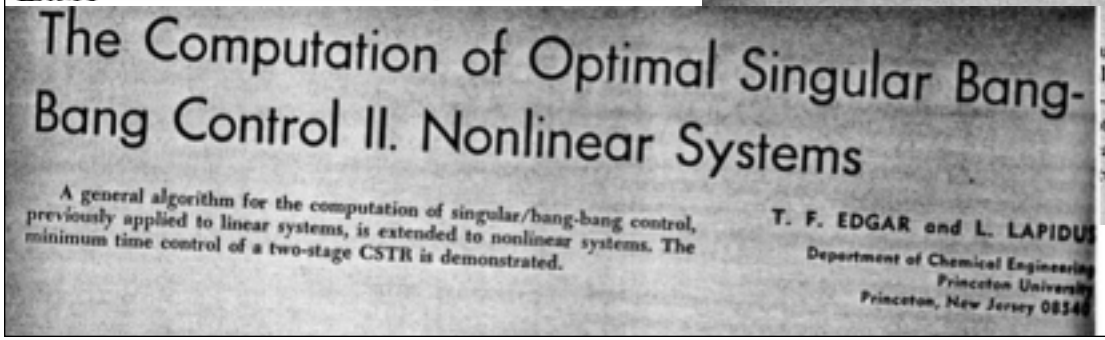
ENGINEERING RESEARCH AND DEVELOPMENT / JULY 1972



The Computation of Optimal Singular Bang-Bang Control I: Linear Systems

ution of both singular and bang-bang
lgorithm utilizes a limiting process and
-quadratic control problem. The algo-
th fixed and nonfixed final times. Gen-
ar system examples are presented, and
ussed in detail.

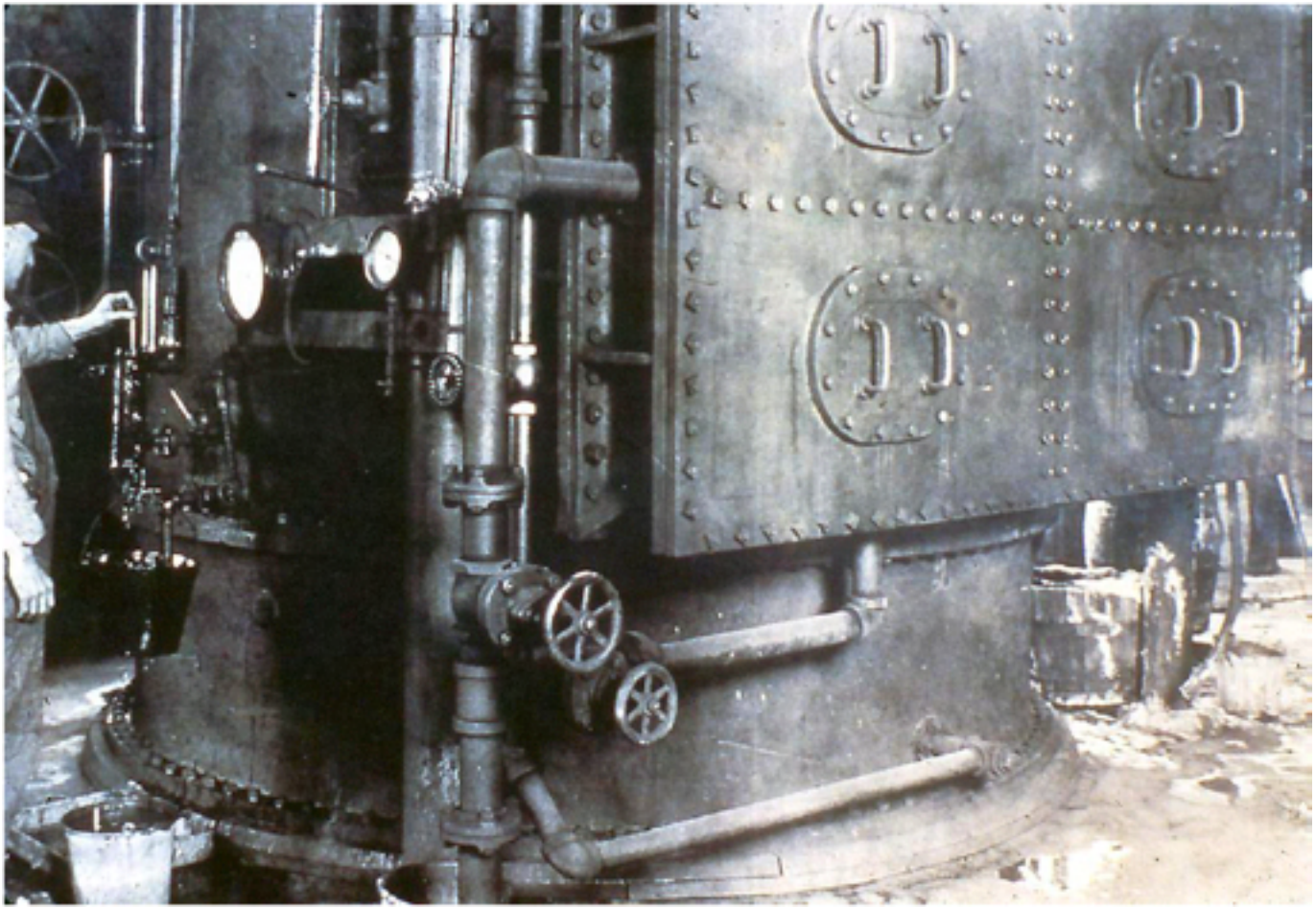
T. F. EDGAR and L. LAPIDUS
Department of Chemical Engineering
Princeton University,
Princeton, New Jersey 08540

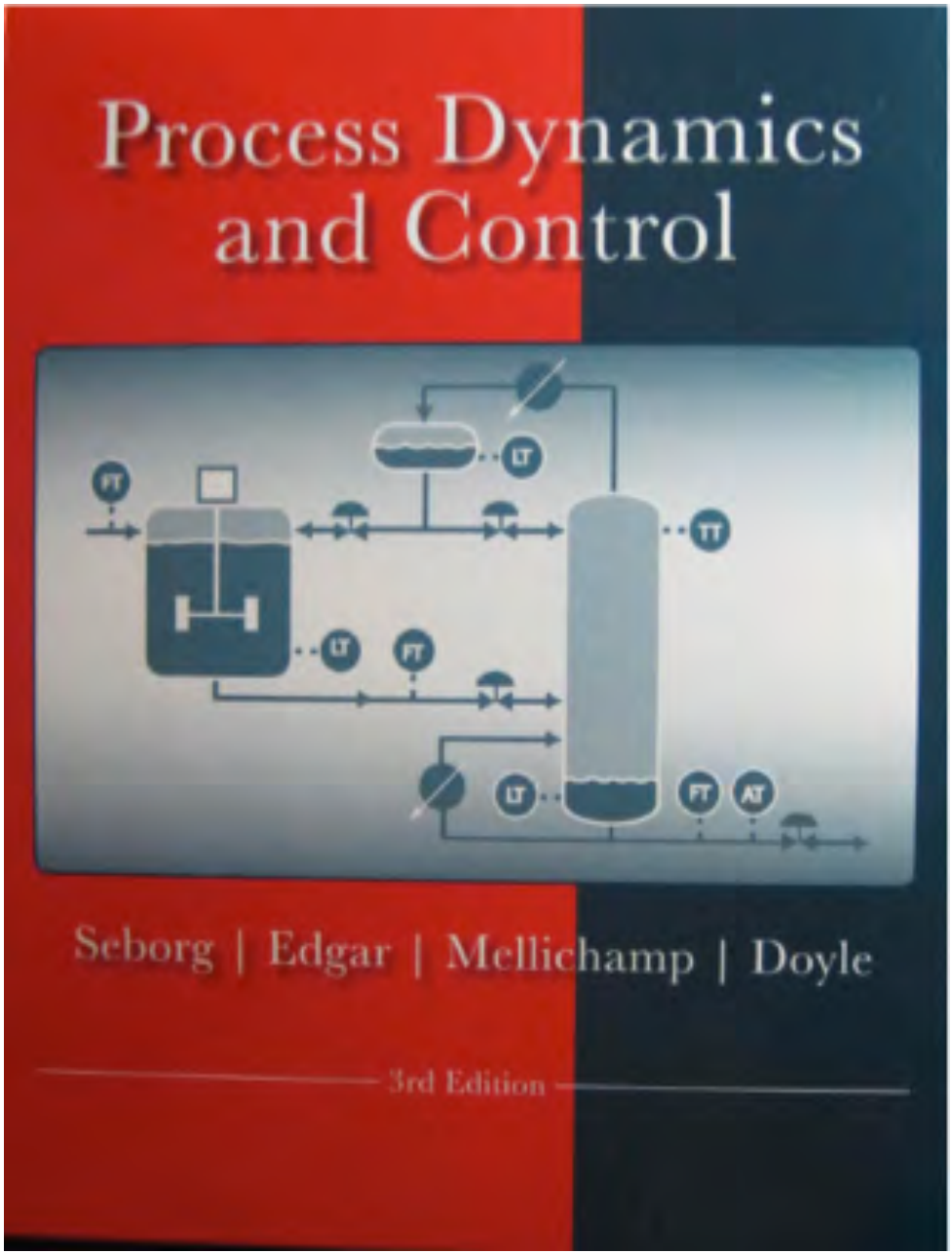


The Computation of Optimal Singular Bang-Bang Control II. Nonlinear Systems

A general algorithm for the computation of singular/bang-bang control, previously applied to linear systems, is extended to nonlinear systems. The minimum time control of a two-stage CSTR is demonstrated.

T. F. EDGAR and L. LAPIDUS
Department of Chemical Engineering
Princeton University
Princeton, New Jersey 08540




Process Dynamics
and Control
LT
FT
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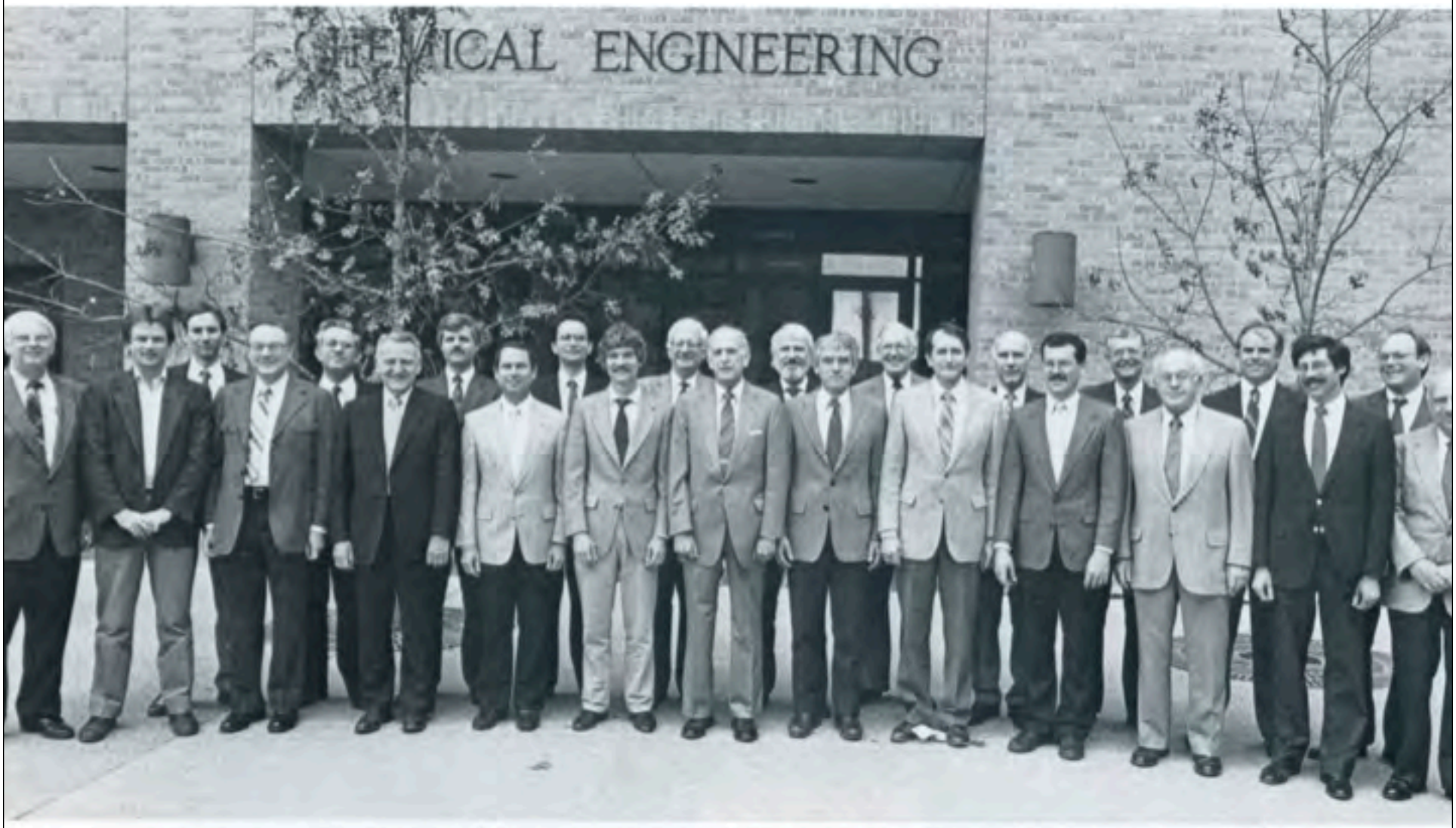
Seborg | Edgar | Mellichamp | Doyle
3rd Edition

The faculty met in the Kobe Library, E.P. Schoch Laboratories, in the early 1970s. Shown, from left to right, are: D. R. Paul, J. W. Barlow, M. Van Winkle, H. Steinfink, J. E. Stice, D. M. Himmelblau, R. S. Schechter, T. F. Edgar, E. H. Wissler, J. J. McKetta. Not present: H. F. Rase, J. O. Hougen.

AIChE social events at UT in 1976–77 included a Christmas party, picnics, and a "happy hour" after each meeting. In March 1977 they took their annual plant trip to a Houston refinery. First (front) row: Johnson, M. R. Piana; second row: Barnum, Wilkins, Sipes, Arnond, Dr. T. F. Edgar; third row: Stoltz, Glover, Swinnea, Fernandez, Fletes-Lugo, Gorup; fourth row: Johnston, Fischer, Riggs, Tullis, Bishkin, Faerman, Haskin, Kolb; fifth row: Stancil, Schultz, Huff, Schooler, Davey, Dunlap, Suffredini, Horany; sixth row: Waits, Grittman, Zapata, M. L. Piana, Tuel, McRee, Siewert, Daniel; seventh row: Tiffany, York, Trigg, Stanley, Wukasch, Turner, Roderick, Smolik; eighth row: Smolen, Getz, Hunt, Fehrenbacher, Kneupper, Mendoza, Shelton, Ulrich; ninth row: Parks, Garza, Moran, Hall, Oyen, Lorimer, Noueilaty, Murray; 10th row: Cooley, Squires, Short, Bannan, Dunn, Wofford, Dr. D. R. Paul; 11th row: Moore, Dr. J. W. Barlow, Rodgers, Merriman; 12th row: Watkins, Stearns.

more about energy problems, AIChE student members invited guest speakers to meetings to discuss energy reserves, nuclear eering and law. Front row: Essex, Lloyd, Spaid, Furlong, Looney, Earnest, Givens, Mankin, Leach, Tullis, Pitcher, Koehler, , Binder, Stolle, Barnes, Drs. D. R. Paul, J. R. Fair, and J. W. Barlow; middle row: Bevil, Wright, Spielman, Frisbee, Longwell, omerville, Erb, Brysch, Kubena, Hodges, O'Connor, Morrison, Shaw, Coker, Adams; back row: Bass, Payne, Gonzalez, Penning- Shibusawa, Tyler, Gilmore, Perez, Hinz, Popielarczyk, Wahrmund, Moutos, Geiger, Porpora, Dougal, Jepsen, Toprac, McKinney,



The Fall 1988 faculty gathering included the following. Front row: I. Trachtenberg, D. R. Lloyd, D. M. Himmelblau, J. J. McKetta, D. R. Paul, J. B. Rawlings, H. F. Rase, I. C. Sanchez, G. T. Rochelle, J. A. Hubbell, H. Steinfink, W. J. Koros, H. D. Grove; back row: K. P. Johnston, A.Heller, J. G. Ekerdt, G. Georgiou, R. S. Schechter, R. P. Popovich, J. R. Fair, E. H. Wissler, J. E. Stice, T. F. Edgar (Chairman), J. W. Barlow. Not shown: J. R. Brock.

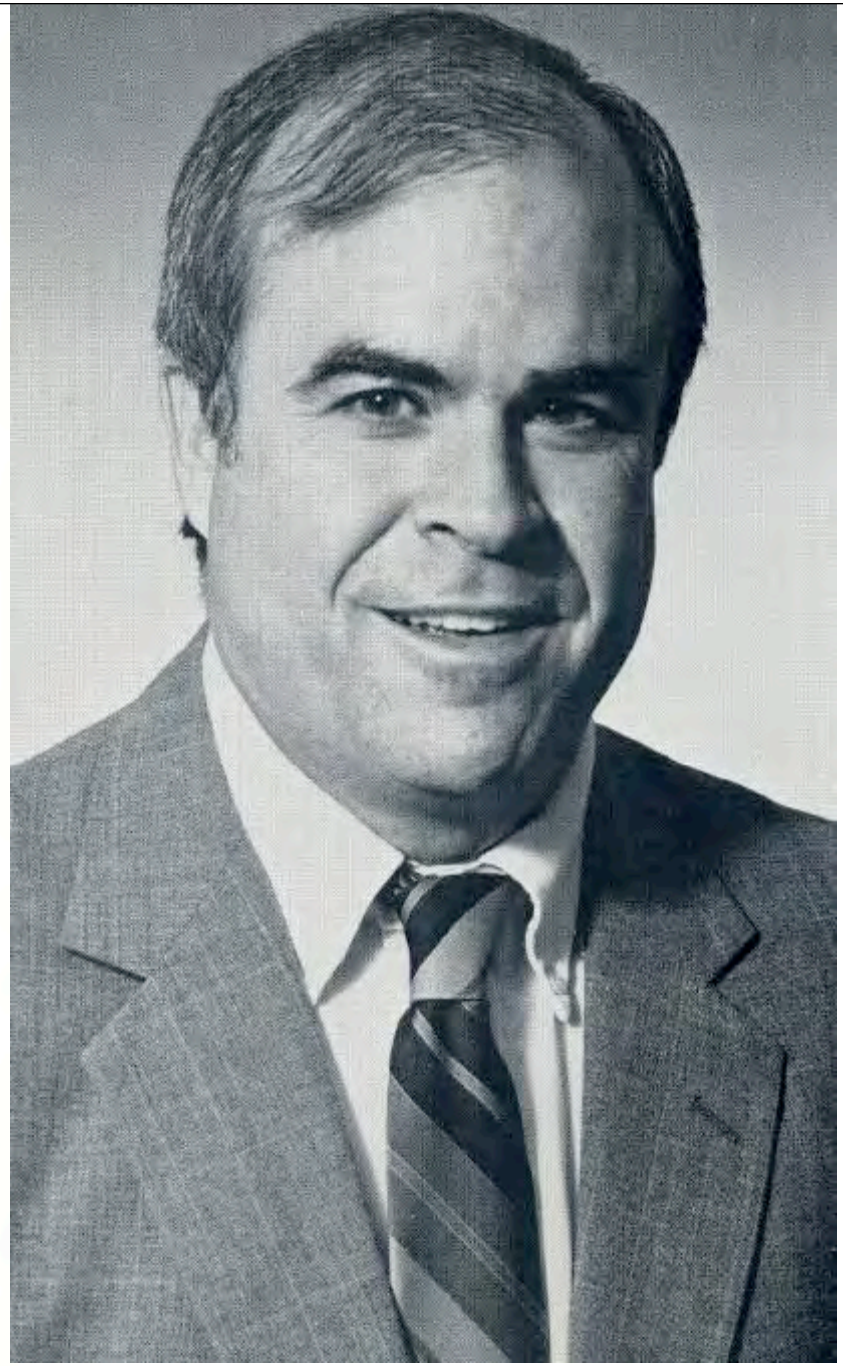
Photo courtesy of ChE Dept. archives

Will Computers Control The World?

14TH ANNUAL JOE J. KING PROFESSIONAL ENGINEERING ACHIEVEMENT AWARD LECTURE

By Dr. Thomas F. Edgar, P.E.
Professor of Chemical Engineering and
The Paul D. and Betty Robertson Meek
Centennial Professor in Chemical Engineering

February 22, 1989
College of Engineering
The University of Texas at Austin



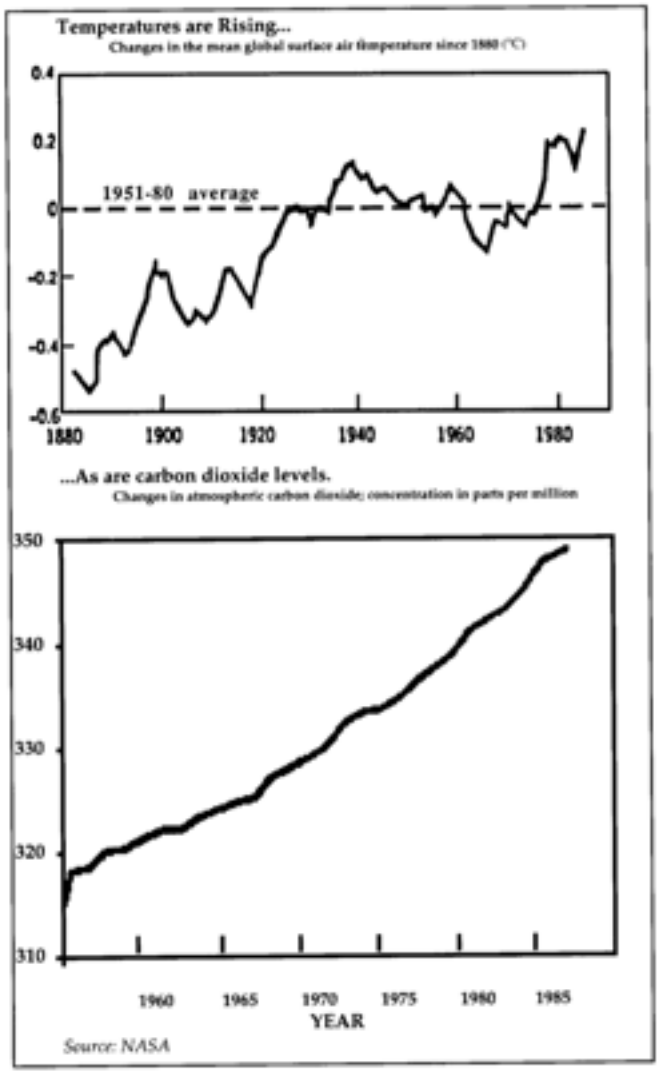
Mathematical Modeling and Global Warming

I would like to discuss briefly the last topic, environmental quality, as an example of an area where a "systems" approach will be necessary to reach a meaningful solution. During the past year we have heard many statements by experts and non-experts about the phenomenon of global warming and its potential implications. An increase in the earth's temperature may cause precipitation changes, mid-continent drought, reduction of sea ice, and a rise in global mean sea level. The subject of global chemistry and heat transfer is of interest to chemical engineers because the environment can be likened to a giant chemical reactor. In fact, in 1896 the Swedish chemist Arrhenius, well-known to chemical engineers for his work with chemical reaction kinetics, was one of the first notables to make predictions about global warming. This phenomenon is of interest to modelers because of the large number of interdependent physical and chemical processes that affect the earth's temperature and atmospheric chemistry. There is a dearth of information about which variables influence heat transfer from the sun; for example, the role of clouds has yet to be quantified. It is a

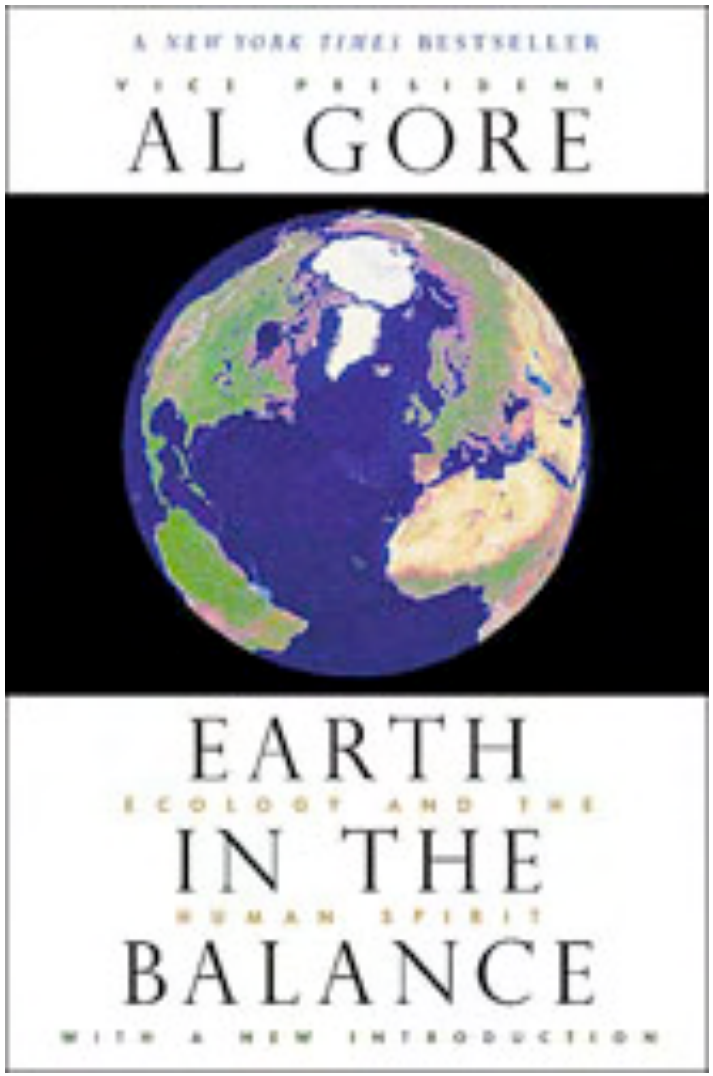
As the world has become more industrialized, two facts are indisputable: more fossil fuels are being consumed, producing more carbon dioxide (CO_2). Much of the world's forests have been exploited and removed, mainly in non-industrialized nations, reducing the global capability to consume CO_2. In general the cleared land has not been successfully converted to agricultural purposes [16,17].

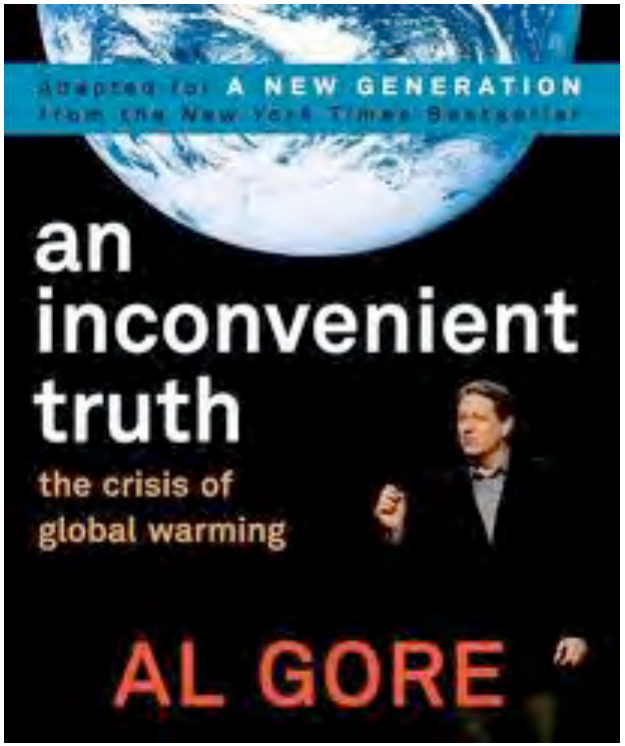
The projected increase in temperature is correlated with CO_2 concentration because atmospheric CO_2, as well as water vapor and ozone, absorb a portion of the infrared heat radiation coming from the surface of the warmed earth, re-radiating part of it back to the surface. The heat is trapped in the atmosphere in the same way that heat is trapped inside a greenhouse, hence it is called the "greenhouse effect." Most scientists believe that a continued increase in CO_2 levels, depletion of the ozone layer, and a buildup of atmospheric methane will gradually increase the earth's temperature [18].

A global CO_2 balance is difficult to perform because of the natural effects of forests and grasslands as well as the time-dependent capability



Joe J. King Award Page 26


A NEW YORK TIMES BESTSELLER
VICE PRESIDENT
AL GORE
EARTH
IN THE
BALANCE
WITH A NEW INTRODUCTION


A NEW GENERATION
an
inconvenient
truth
the crisis of
global warming
AL GORE

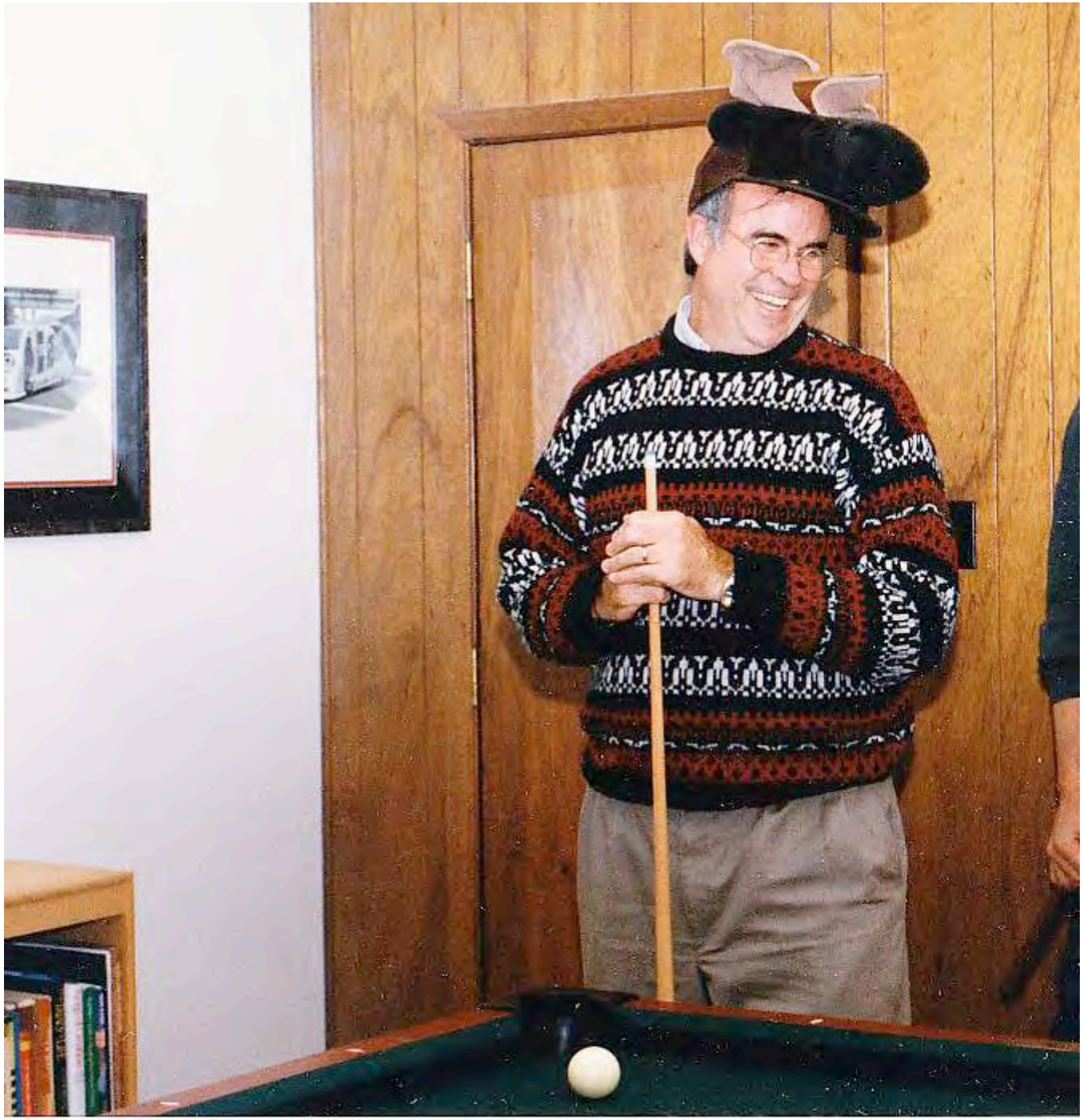
Industrial Career Achievement Award, CPC 1991

Tom Edgar

- For spending one year at a Conoco plant twenty years ago

Ragazzini Award, 1992

AACC award winners left to right, Stephen P. Boyd, Elling W. Jacobsen, Sigurd Skogestad, and Thomas F. Edgar. Not pictured is Rutherford Aris.



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Each year, the top three vote getters are inducted by their peers into the Process Automation Hall of Fame. The careers of this year's class run the gamut from the theoretical to the ruthlessly practical.

09/1/2007

THE ACADEMICIAN

Tom Edgar is grandmaster of control theory.

"My obsession is the energy situation," says inductee Thomas F. Edgar. "I teach a class at UT on energy policy and technology, have read several books by Tom Friedman recently and I also like The End of Oil by Paul Roberts." Another twisty path?

Maybe so, but for the past 35 years, Edgar has concentrated his academic work in process modeling, control and optimization. He has published over 200 articles and book chapters in those fields applied to separations, chemical reactors, coal combustion and gasification, and semiconductor manufacturing. He has supervised the thesis research of over 42 M.S. and 60 Ph.D. students. He also co-directs the Texas-Wisconsin Modeling and Control Consortium, which involves 12 companies.

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[Paperback]

Thomas F. Edgar (Author), David M. Himmelblau (Author)
(1 customer review)

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(4)

Guest Speaker


I AM A
BIG
BROTHER