

Memories From the SEAS Time Capsules

The Ninth Decade: 1945-1954



COLUMBIA | ENGINEERING

The Fu Foundation School of Engineering and Applied Science

1864-2014

New York Moments

The Ninth Decade: 1945-1954

CHARLIE PARKER • DIZZY GILLESPIE
THE LEGENDARY TOWN HALL CONCERT
NEW YORK CITY, 1945



- On June 22, 1945, at the midtown Town Hall, Dizzy Gillespie and Charlie "Bird" Parker play a legendary concert later celebrated as the birth of bebop and modern jazz.
 - The photos are from their Town Hall concert a month earlier, on May 16, 1945.



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The Ninth Decade: 1945-1954



- August 14, 1945 – The famous “Kiss in Times Square” photograph by Alfred Eisenstaedt at the end of World War II, published in *Life* magazine.

From the SEAS Time Capsules

The Ninth Decade: 1945-1954



- 1946-1947 Bulletin – First graduate level courses ever offered in computer science at any university, are given by the Watson Scientific Computing Laboratory at Columbia University. They are:
 - “Machine Methods of Scientific Calculation” by Prof. Wallace Eckert (Astronomy 111-112), shown (left) c. 1930.
 - “Numerical Methods (Engineering 281) by Prof. Herb Grosch, shown (right), 1951.



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From the SEAS Time Capsules

The Ninth Decade: 1945-1954

It has been five years since last a Columbia Engineer saw the light of day. Five years is a long time, but there are some here now who were here then too, men who have been picking up the loose ends dropped three, four and five years ago. Time is "back in," and everything is going full speed ahead.

The Engineer in 1947 is picking up loose ends too. The last yearbook, in 1942, was put out by a lot of boys who weren't around when it came out, and by others who were there only by the red tape of their draft boards, or the fall of one little slip of paper out of many little slips like it, all turning and tumbling in a giant fishbowl. And many others weren't here to see their pictures in the book around June of that year.

They began coming back early in 1945. Familiar faces began to drift back at an increasing tempo, and soon old acquaintances were being renewed outside of professors' offices. By the summer of 1946, the majority of the old men, and many new ones, were back at school, and the lines grew longer and longer. Registration was somehow more or less completed, and the first real post-war academic year got under way in September. It was a record year. So congested, in fact, were conditions in the School of Engineering that there weren't enough catalogues to go around in courses like M.E. 101 or 142.

- Returning to normalcy after WWII, from the 1947 *Columbia Engineer* yearbook.
- The *Columbia Engineer* yearbook started in 1894, but began to be published regularly only in 1922.
 - It had earlier been the *Miner*, which had started in 1879.



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The Ninth Decade: 1945-1954

- The March 25, 1947 *Spectator* editorial terms the separation of the College and Engineering a “separationist policy” (because pre-engineering College students transfer to Engineering before the junior year).
 - “Once Columbia College men enter the Engineering school the process of isolation from the College begins. The men turn out their own yearbook; have their own Student Council.” ... (the Engineering) “School's administration refused to circulate copies of the College's newspaper. The net result of this isolationist, Engineering School First policy has been a weakening of the ties binding Columbia College students to their Alma Mater.
 - “The college has not helped matters by refusing Engineering students the right to engage in extra-curricular activities (except athletics) for four years (as any “normal” undergraduate).”
- A letter to the March 27, 1947 *Spectator* from Leon Philipson notes:
 - “... While the College student receives his *Spectator* free ..., the School of Engineering was requested to pay for copies of the *Spectator*.”
 - “Engineers remember when, during the war, they were entreated to the Student Association, and support the activities now excluded to them.”



New York Moments

The Ninth Decade: 1945-1954



- Jackie Robinson plays his first major league baseball game, for the Brooklyn Dodgers in Ebbets Field on April 15, 1947.



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The Ninth Decade: 1945-1954



- Camp Columbia, from the 1947 *Columbia Engineer* yearbook.



And there, in the Beautiful Hills of Connecticut, the engineer communes with nature, glorying in his closeness with the unblemished fields and the open starry sky . . . or something.



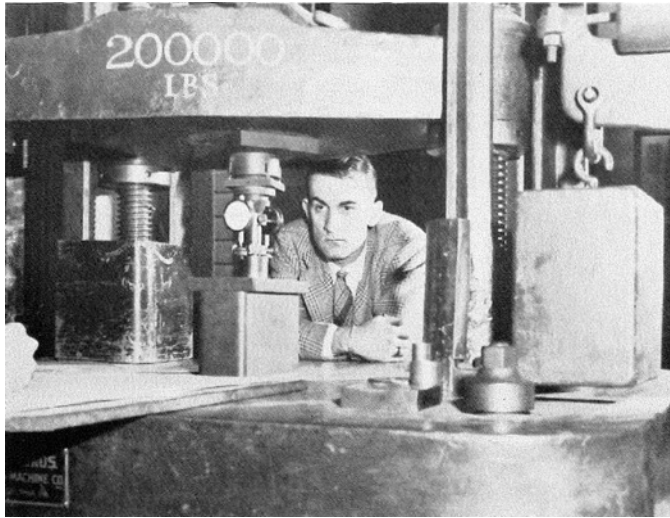
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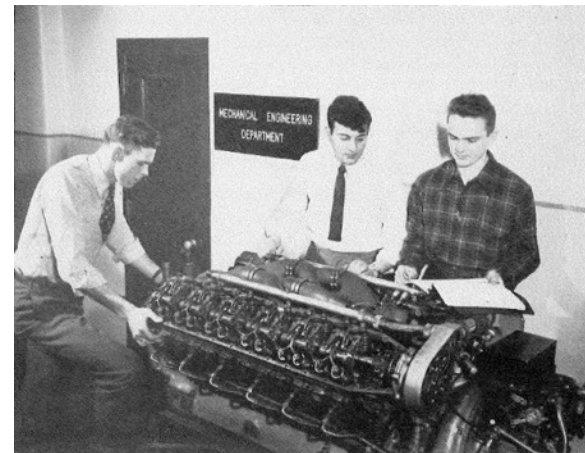
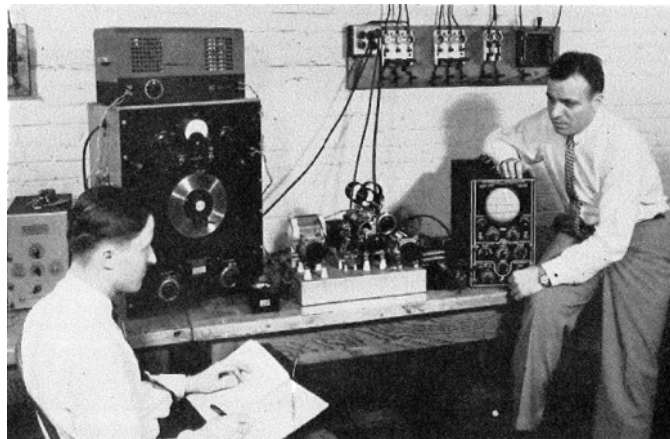
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The Ninth Decade: 1945-1954



- From the 1947 *Columbia Engineer* yearbook:
 - Stress-strain determinations in the testing lab (upper left).
 - Prof. Ragazzini explains an electric set-up (lower left).
 - Automotive set-up (below).



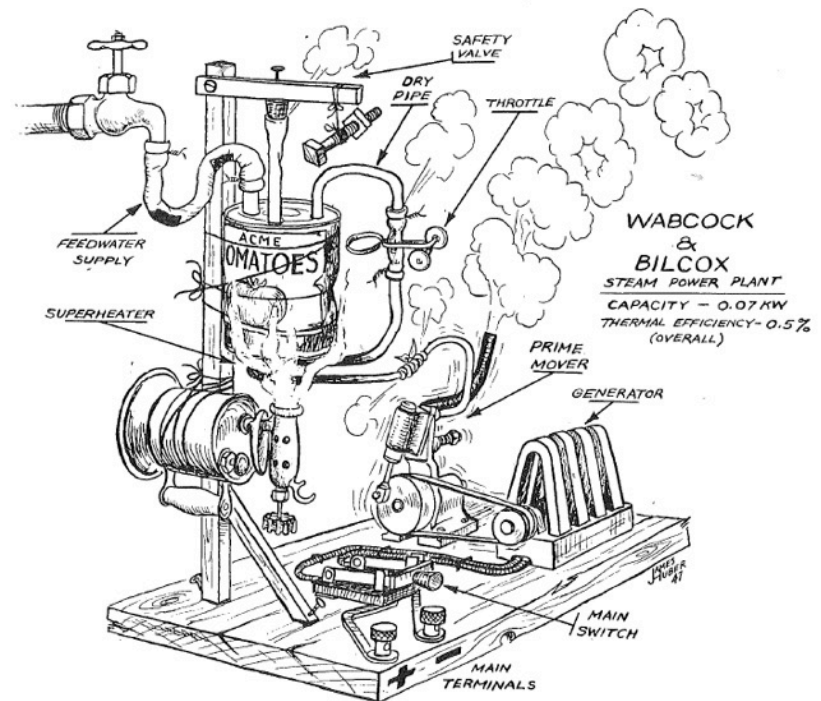
From the SEAS Time Capsules

The Ninth Decade: 1945-1954



"HERE'S the trouble, George!"

- Cartoons from the 1947 *Columbia Engineer* yearbook.



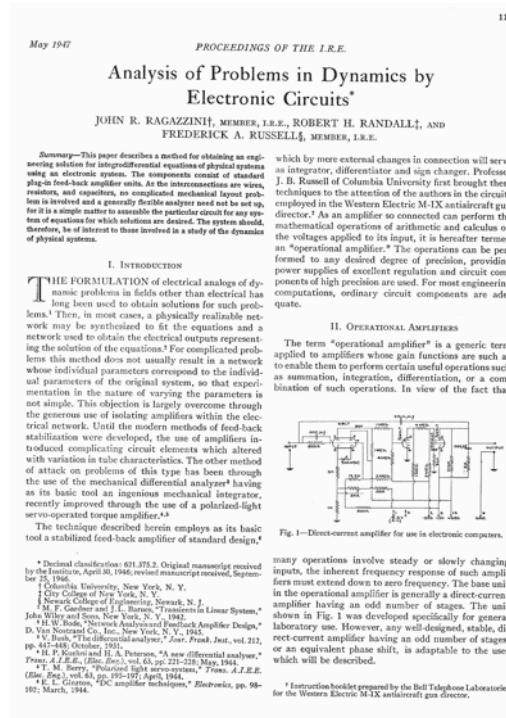
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The Ninth Decade: 1945-1954



- 1947 – In his paper (left) Prof. John R. Ragazzini MA'39 PhD'41 notes a development by student/engineer Loebe Julie that leads to the first modern, differential operational amplifier (op-amp).
 - This op-amp design has two major innovations: (1) the first op-amp design to have two inputs (one inverting, the other non-inverting) and (2) an input stage that uses a long-tailed triode pair with loads matched to reduce output drift.
 - In this paper Prof. Ragazzini is credited with coining the term "operational amplifier."
- Shown is the first commercial op-amp, from George A. Philbrick Researches, Incorporated (1953), which is based on Loebe Julie's 1947 design.

From the SEAS Time Capsules

The Ninth Decade: 1945-1954

- The October 1, 1947 *Spectator* editorial follows up its March 25, 1947 editorial on the perceived separation of Engineering and the College.
 - “According to the new eligibility regulations for AA books (to attend athletic events, such as football games, for free), undergraduates in the engineering school who did not come from Columbia College are not given the free student tickets for the football games. As far as we are concerned, this is a pure case of discrimination against this minority group of "strangers" in the Engineering school. They are undergraduates, paying the same fees as any one of their fellow students, and we are certain, they are just as much "college men" as any liberal arts student in the college.”
 - “Participation in College non-athletic extracurricular activities has already been denied to all Engineering School students. What assurance do we have that they will not be denied the right of participation on Columbia's athletic squads next year?”
 - “AA books have now been denied to Engineering students who have come from other schools. What assurance do we have that next year AA books will be denied to all Engineering School students?”

Engineering School

Last March the following editorial excerpts appeared in this column. We believe that they are even more appropriate at this time, in view of the recent ruling in regard to AA books for Engineering School students.

“Columbia College and the Columbia School of Engineering are two separate and distinct units within the University. They will continue to be distant relatives until the College and the Engineering School redefine their policy. We can't see such a system producing active, interested Columbia alumni. We cannot believe that separatism will produce engineering students with a background of communal interest. This policy of separatism is diametrically opposed to the will of the engineering students. It is diametrically opposed to the announced policy of the College to promote active students and active alumni. Let's redefine this antiquated policy to conform with the facts of education.”



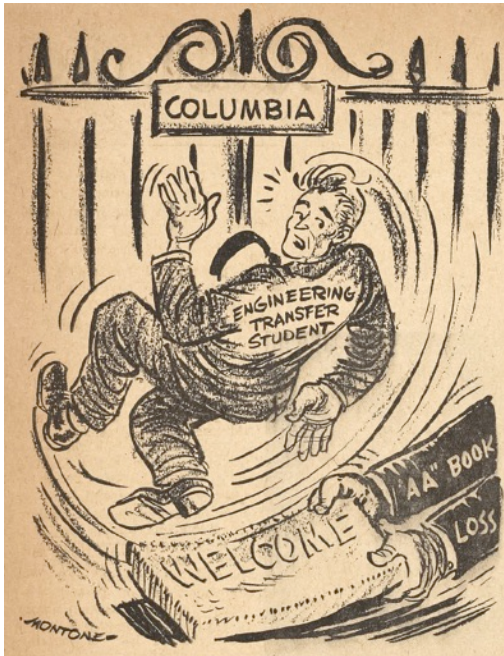
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- The October 6, 1947 *Spectator* presents the first official reaction to recent student complaints concerning the distribution of AA books (cartoon from the October 1, 1947 *Spectator* editorial) by Provost Albert C. Jacobs and Engineering Dean J.K. Finch.
 - Provost Jacobs: “... The University is faced with a most difficult problem in the distribution of Student Athletic Ticket Books. It is impossible to apply the AA ticket ruling to all undergraduates. ... some groups may feel that they have been overlooked. ... a special committee is now studying the problem, endeavoring to arrive at a satisfactory ruling which may be applied next year.”
 - Dean Finch: “... it is ... discouraging to find that our students are to be discriminated against in the matter of participation in sports, either as players or spectators. ... We understand that this matter is under careful study by a special committee, and that the present inequitable rulings will be revised.”

New York Moments

The Ninth Decade: 1945-1954

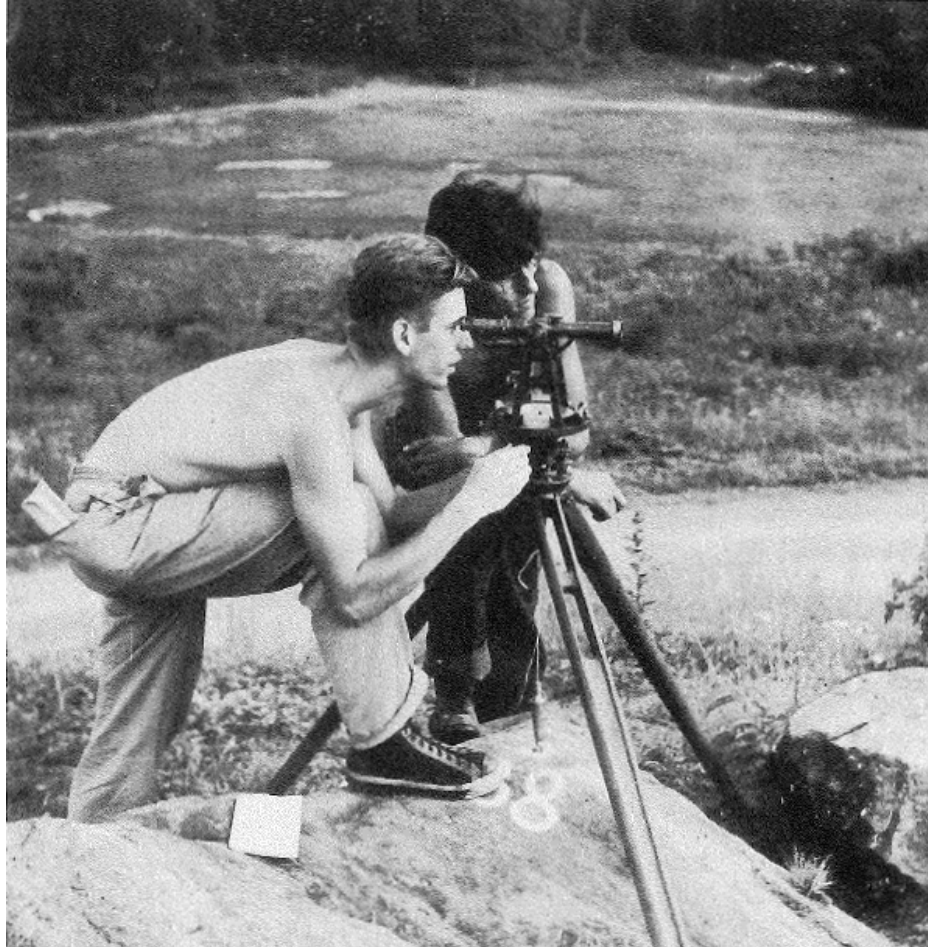


- New York children at play.
 - 1948 – ‘Boy jumping into the Hudson River’ (left).
 - 1950 - Playing in the street in Prospect Place, Brooklyn (Arthur Leipzig's ‘Chalk Games’) (below).



From the SEAS Time Capsules

The Ninth Decade: 1945-1954



- Camp Columbia, from the 1948 (lower) and 1949 (left) *Columbia Engineer* yearbooks.



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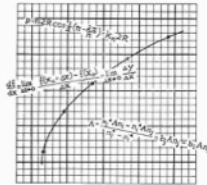
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From the SEAS Time Capsules

The Ninth Decade: 1945-1954

- 1949 – In the days before computers were generally available, Prof. Mario Salvadori explains numerical methods for performing calculations.



Approximations and Extrapolations (or how to get something almost for nothing)

Mario G. Salvadori
Associate Professor of Civil Engineering

This article may be summed up by saying that in it the author shows four different ways of computing π . Author's comments: a) True; b) This goes to show how often this irrational number appears in our computations; c) The methods illustrated are general and can be shown to apply to more practical problems.

METHODS of successive approximation are becoming more and more popular in mathematical engineering for at least three good reasons: a) Rigorous solutions of even moderately difficult problems are unobtainable most of the time; b) Electrical calculators are commonly available at reasonable prices; c) Engineers are not particularly in love with what is called "higher mathematics."

Thus the "moment distribution" method has supplanted most of the classical procedures in the study of statically indeterminate structures. Southwell's "relaxation methods" have been adopted widely by engineers, and finite differences are commonly used to obtain, by means of simple arithmetic, approximate solutions of great practical value in the field of differential equations.

But while successive approximation methods are well known to engineers, few of them are aware of the fact that these procedures may be implemented, in many cases, by simple extrapolation formulas, which allow a considerable saving of time and labor. This short paper gives a few examples of the use of extrapolations in connection with successive approximations, and shows one way of being intelligently lazy in mathematical work.

THE CIRCUMFERENCE OF THE CIRCLE

A simple and classical way of measuring the circumference of a circle consists in evaluating the perimeters of regular polygons, with an increasing number n of sides, inscribed in the circle. The larger n , the nearer is the perimeter of the polygon to the circumference of the circle. Calling R the radius of the circle, a the side of the polygon and p its perimeter, we have (See adjoining figure):

$$p = n a = 2R \cos \frac{1}{2} \left(\pi - \frac{2\pi}{n} \right) = k_n 2R$$

The first 3 columns of Table I give the values of the constant k_n for $n = 2, 3, 4, 5, 6$ and the percentage of error in k_n when compared with its true value π .

n	k_n	$e\%$	n	K	$e\%$
2	2.0000	-36.0	2, 3	3.0764	-2.0
3	2.5980	-17.0	3, 4	3.1216	-0.5
4	2.8284	-10.0	4, 5	3.1356	-0.2
5	2.9390	-6.4	5, 6	3.1386	-0.1
6	3.0000	-4.5			

It is seen that even after 5 steps the error in the perimeter is still -4.5% and that it would take a polygon with a large number of sides to give a good approximation.

Here is where the extrapolation comes in. It may be proved that the error e_n in the value of k_n is roughly proportional to $1/n^2$, i.e., that, calling K the true value of k_n :

$$e_n = K - k_n = c/n^2$$

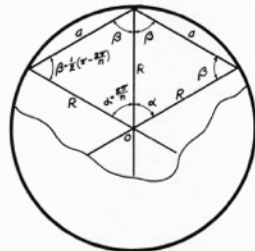
where c is an unknown constant of proportionality. Consider two successive approximations k_{n_1} obtained with polygons of n_1 and n_2 sides ($n_2 > n_1$) and apply the error equation to both of them:

$$K - k_{n_1} = c/n_1^2 \quad ; \quad K - k_{n_2} = c/n_2^2$$

This is a system of two simultaneous equations in the two unknowns K and c , which, when solved for K , gives:

$$K = \frac{n_2^2 k_{n_1} - n_1^2 k_{n_2}}{n_2^2 - n_1^2} = a k_{n_1} - a_1 k_{n_2}$$

This formula is called the n^2 -extrapolation formula. The coefficients a and a_1 computed once and for all and given



in Table A for the most common values of n , allow the evaluation of K by means of two multiplications and one subtraction.

n_2/n_1	a	a_1
2/1	4/3 = 1.33333	1/3 = 0.33333
3/2	9/5 = 1.8	4/5 = 0.8
4/3	16/7 = 2.28571	9/7 = 1.28571
5/4	25/9 = 2.77778	16/9 = 1.77778
5/3	25/18 = 1.5625	9/16 = 0.5625
6/5	36/11 = 3.272727	25/11 = 2.272727
7/5	49/25 = 1.96	25/24 = 1.041667
7/6	49/15 = 3.26667	36/15 = 2.4



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THE AUTHOR

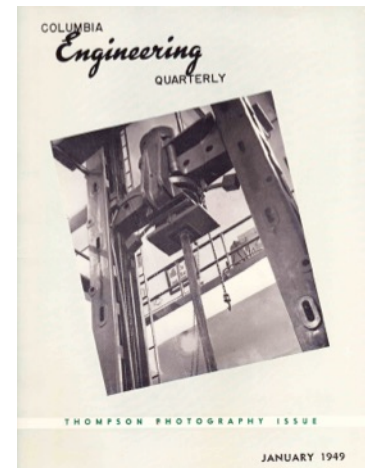
Professor Mario G. Salvadori received the degree of Doctor of Civil Engineering from the University of Rome in 1930 after five years' study. He continued his studies there for an additional two years and received the degree of Doctor of Mathematics. Not content with this extent of higher education, he then engaged himself in a year's research study at University College, London.

After leaving University College, Prof. Salvadori returned to the University of Rome where he joined the faculty of the School of Engineering in the capacity of Assistant, and later Instructor and Assistant Professor. He also acted as a permanent consultant to the Institute for the Applications of the Calculus while in Rome.

In 1938, Professor Salvadori came to the United States. His first occupation here was that of a time-motion study "expert." In 1940, he joined the staff of the School of Engineering and has since progressed through the various faculty grades from Lecturer to Associate Professor, in the Department of Civil Engineering. His work in that department has been principally to develop courses in engineering mathematics and mechanics.

The Professor is a member of the ASCE, SESA, Tau Beta Pi, and Sigma Xi. He has written many papers and recently added a book to his collection of writings which is reviewed elsewhere in this issue of the Quarterly.

COLUMBIA ENGINEERING QUARTERLY



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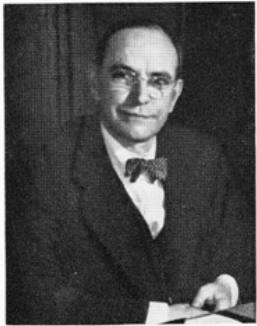
THOMPSON PHOTOGRAPHY ISSUE

JANUARY 1949

From the SEAS Time Capsules

The Ninth Decade: 1945-1954

Opinion . . .



Should Columbia University Grant The Doctor of Engineering Degree?

This question has been formulated to replace the question originally intended for this issue, "Is Engineering A Basic Science?" The Quarterly is grateful for the cooperation afforded by members of the faculty, the alumni, and the student body. The next topic to be discussed will be, "Why Do You Participate in Extracurricular Activities?" in accord with the theme of the issue.



David H. Cheng



Arthur F. Taggart



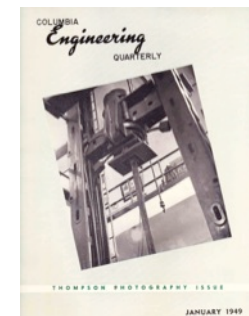
Donald B. Miller



Ruth B. Blumberg

1949 – Because engineers are becoming very interested in getting doctorates, there is discussion about establishing an engineering doctorate in the School (which students could pursue instead of the Arts and Sciences Ph.D.). This is debated in the Jan. 1949 issue of the *Columbia Engineering Quarterly* (by the faculty shown).

- In 1902 the power to grant Ph.D.s had been moved from the School of Applied Science (renamed from Mines) to the new Faculty of Pure Science.
- 1950 – The Eng.Sc.D. is adopted.
- 1953 – Eliahu I. Jury is awarded the first SEAS Eng.Sc.D.
- Most students still pursue Ph.D.s.



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From the SEAS Time Capsules

The Ninth Decade: 1945-1954

- 1949 – GE advertises in the *Columbia Engineering Quarterly* to recruit graduates.

CAREERS AT GENERAL ELECTRIC



General Electric is not one business, but an organization of many businesses, offering opportunities in virtually all the professions. Here three G-E men brief the career-possibilities which the company offers to the student of advertising, the physicist, and the accountant.

FOR A FUTURE IN ADVERTISING
D. S. Mix (Yale), Manager of Personnel and Training Programs, Advertising and Publicity Dept.: Besides our A & P Department here in Schenectady, there are eight G-E operating departments, each with its own advertising staff. These provide the career-opportunities. Our Training Program, including six months' work and study here followed by a year on rotating assignments with various staffs throughout the company, opens the door.

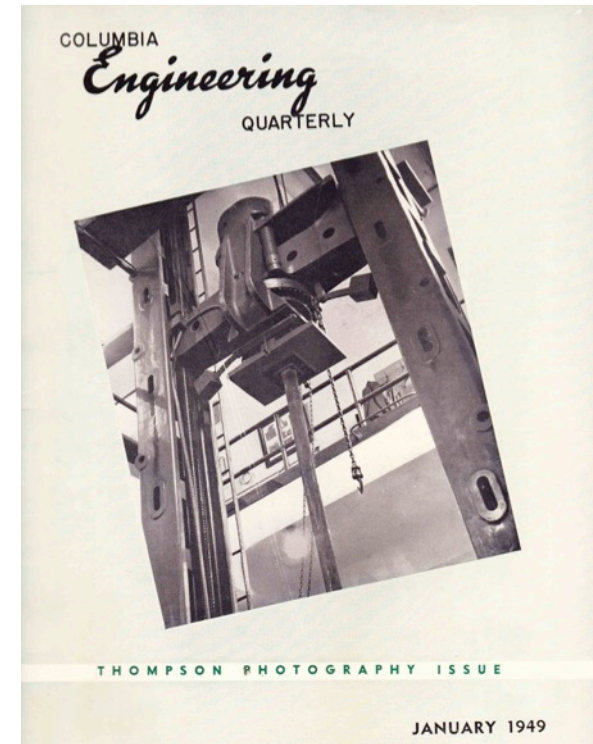
PHYSICIST
August Binder (Carnegie Tech), of the G-E Physics Program: I've been one of the first group of physicists taking part in this program. We've changed assignments every few months, trying out interesting lines of work, and have chosen permanent positions in everything from research to sales. My assignments: nuclear instrumentation, research in cathode spot phenomena, quality-problems in fluorescent lamps, which I've selected as my permanent assignment.



TRAVELING AUDITOR
E. B. Murray (Princeton), Chief Traveling Auditor: After our business administration and liberal arts graduates finish the G-E Business Training Course, certain of them are transferred to the auditing staff as traveling auditors. It's my job to assign these men and co-ordinate their activities at G-E locations in this country and abroad. The varied experience acquired in this work fits them well for responsible accounting and financial positions.

For further information about a BUSINESS CAREER with General Electric, write Business Training Course, Schenectady, N. Y. — a career in TECHNICAL FIELDS, write Technical Personnel Division, Schenectady, N. Y.

GENERAL  ELECTRIC



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New York Moments

The Ninth Decade: 1945-1954

(1950 Models)



TVhistory.TV

\$239
table model, mahogany finish, Persimmon cabinet (blond finish...\$249)

Gimbels & Televista break the record again . . . lowest prices for TV sets with Tel-O-Tube 16" tube!

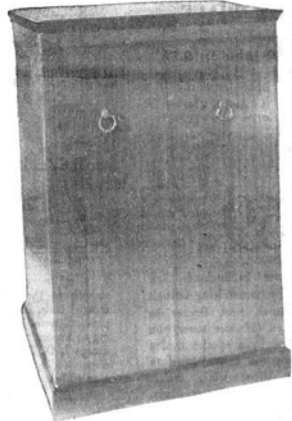
Gimbels 9th floor

33rd & Broadway, New York 1, N. Y. Call PE 6-5100 Today 1-5 P. M. In Westchester call Mt. Vernon 4-2920 or White Plains 6-7820

Dec 4th, 1949 - New York Herald Tribune



\$269
console, mahogany finish, Persimmon cabinet (blond finish...\$279)



\$299
console with doors, mahogany finish, wood (blond wood...\$309)

• YOU GET A GIANT 16" TEL-O-TUBE—BIG, CLEAR PICTURE
• COMPARE THESE SUPERB SETS WITH \$400 AND \$500 SETS
• WE WILL DELIVER AND INSTALL IN TIME FOR CHRISTMAS
Act fast and you'll have your Televista installed in your home in time for Christmas programs. More and more manufacturers are using Tel-O-Tube's gigantic 16" picture tube—one of the most reliable on the market. Use Gimbels easy payment plan (service charge). Federal tax and installation extra.

Mail, phone orders filled within following cities

1946 RCA 621TS 7" (USA)



© 2002 TVhistory.TV (Dunedin)

© 2002 TVhistory.TV (Dunedin)



1947 Du Mont - RA-102 "Clifton"

1948 Philco 48-700 7" (USA)



© 2002 TVhistory.TV (Dunedin)

1948 Admiral - 20X122



© 2002 TVhistory.TV (Dunedin)

- The "Golden Age of Television" begins.
- Many (live) TV shows are broadcast from New York, including
 - *Texaco Star Theater* (1948–1955), hosted by Milton Berle (below, left).
 - *Your Show of Shows* (1950-1954), featuring Sid Caesar and Imogene Coca (below, right).
- This leads to skyrocketing television sales (1949).

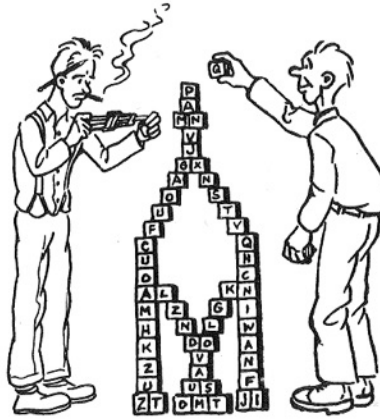


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The Ninth Decade: 1945-1954



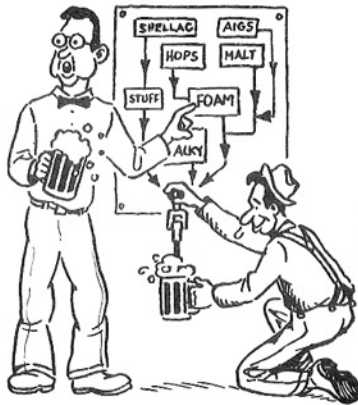
The Chemical Engineer



The Civil Engineer



The Electrical Engineer



The Industrial Engineer



The Mechanical Engineer



The Mining Engineer



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- From the 1949 *Columbia Engineer* yearbook.

New York Moments

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- Summer in the City, Coney Island.



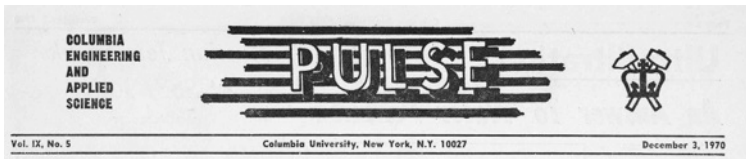
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Dr. Gaden Gets AIChE Award For Work In Bioengineering

By DIANA CURIEL

Dr. Elmer L. Gaden, of the department of Chemical Engineering, has received the first annual Food and Bioengineering Award. Presentation of this award was made in Chicago on December 1st by the American Institute of Chemical Engineers, who established it in order to promote and recognize outstanding contributions to the solution of the world's food problems through chemical engineering.

Dr. Gaden's diverse activities are both in the industrial and academic fields. Since 1959, he has served as the editor of the journal "Biotechnology and Bioengineering." He is secretary-treasurer of the International Organization for Biotechnology and Bioengineering and a mem-

ber of various professional societies. Dr. Gaden's achievements have been, in great part, towards the development of fermentation processes for the production of antibiotics, chemicals, and food proteins.

Recently, a panel of experts in the field of fermentation was convened in Vienna by the United Nations. Dr. Gaden was chairman of this group which sought to help improve the fermentation industries of emerging nations. The panel reported that fermentation was a promising solution to some of the economic and health problems of these nations, since it could be used to produce protein diet supplements sorely needed, and in the production of pharmaceuticals for export.



Dr. Gaden

- 1949 – The Ph.D. thesis of Elmer Gaden (later professor) is on the large-scale production of penicillin.
 - His groundbreaking dissertation focused on providing the optimal amount of oxygen to allow greater fermentation energy for penicillin mold to grow and multiply more rapidly.
 - This formed the basis for mass production of antibiotics, beginning with penicillin.
- Prof. Gaden is known as “The Father of Biochemical Engineering”, and later receives many awards (left).



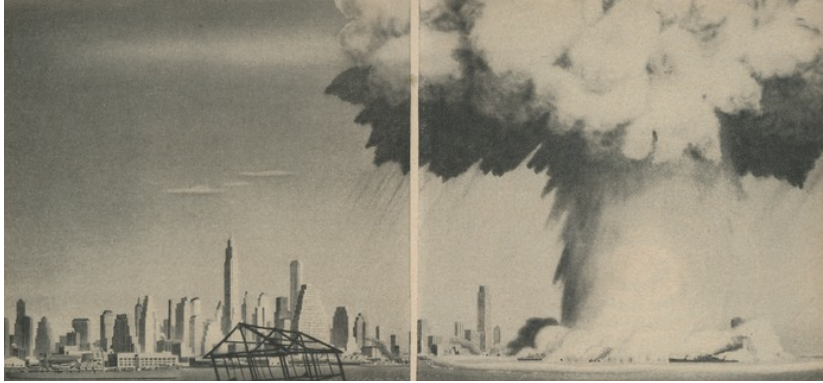
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New York Moments

The Ninth Decade: 1945-1954



- 1950 – Civil Defense pamphlets during the Cold War frequently portray a mushroom cloud over New York City, to illustrate the impact of nuclear weapons or represent everytown USA; portrayal of New York in this way also occurs in other art forms (lower left by Chesley Bonestell, *Colliers*, 1948).



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The Ninth Decade: 1945-1954



- Students working in the library; photo from the 1950 *Columbia Engineer* yearbook.



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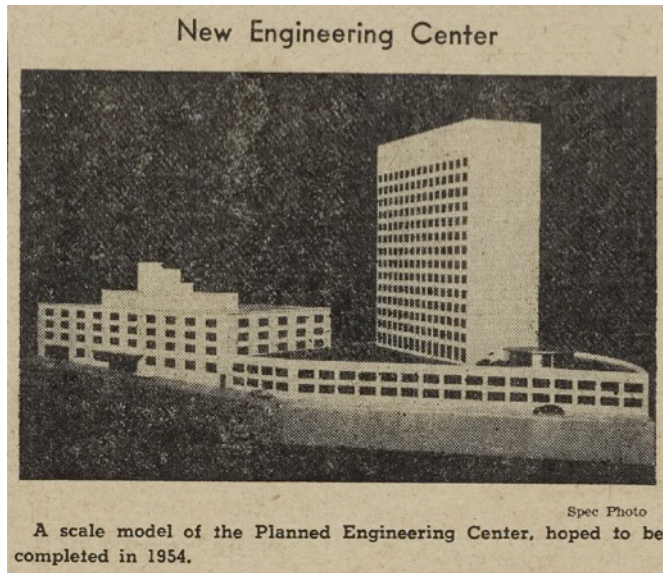
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The Ninth Decade: 1945-1954

Open Campaign to Build New Engineering Center



- Fundraiser for a new Engineering Center is held at the Waldorf-Astoria (with Herbert Hoover, below) on Nov. 7, 1951, as reported by *Spectator* two days earlier.
 - It is expected that with the establishment of this Center at 125th St. and Riverside Drive, the number of Engineering students can be doubled from the current ~300 juniors and seniors total (who had been pre-engineers in the College their first two years), by bringing in more 3-2 students (transfers from other colleges, which actually begins in the 1953-54 academic year).
 - Though parts of this facility are used by chemical, civil and electrical engineering faculty, this project is never fully completed and does not meet expectations.



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- Electrical testing equipment from the early 1950s (lower image) and earlier (upper image).



From the SEAS Time Capsules

The Ninth Decade: 1945-1954

Steel Most Important Advance In Past Century, Say Editors

The most significant engineering advance of the past century is the development in the production and use of steel, say a majority of the editors of 32 of the country's leading trade journals and business publications in a poll conducted by Dr. John R. Dunning, dean of engineering at Columbia University.

The editors who chose steel pointed to such achievements as the Bessemer converter, the construction of high-speed continuous mills for rolling steel, the skeleton frame-curtain wall concept of building, the development of many new alloys, and major improvements in the quality of steel. The application of the steel frame to structures, in the view of the editors, is the most-significant single development.

Other important developments

listed included the atomic bomb, reinforced concrete, assembly line production, and the diesel engine.

"The events and developments selected by the editors," Mr. Dunning said, "cover almost every field of human activity. The scope of this list provides impressive proof that the past century of engineering, which we are about to celebrate, has resulted in the greatest material progress of any century in the history of the world." "It is fitting," he went on, "that the opening of the second century of modern American engineering should be marked by the construction of the new Columbia University Engineering Center. This center, we are confident, contributes mightily to the even more remarkable progress which mankind can expect the engineering profession to provide in the years ahead."

- The Jan. 10, 1952 *Spectator* reports that a poll conducted by SEAS Dean Dunning concludes that developments in the production and use of steel are the most significant engineering advance in the past century.



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1864-2014

New York Moments

The Ninth Decade: 1945-1954



- 1953 – Broadway, Times Square.
- The Times Square area becomes less than desirable for several decades starting in the 1960s, until its revival that starts in the mid-1990s.

From the SEAS Time Capsules

The Ninth Decade: 1945-1954

Will Add 200 Pre-Engineers On Pro-Option

By Edward Cowan

A program permitting fourth-year undergraduates from 36 colleges and universities to attend the Columbia School of Engineering, beginning with the 1953-54 academic year, was announced yesterday by Dr. John R. Dunning, Dean of the school.

The program, known as the "combined plan", will bring some 200 students to the engineering school next fall. They will matriculate on the same basis as professional option students from Columbia College. That is, after three years of general college work and two years in the engineering school, they will receive a Bachelor of Arts degree and a Bachelor of Science degree.

- The new "combined" plan 3-2 program will begin in the 1953-54 academic year, with 200 new fourth year students from 38 colleges and universities coming to the School, as reported in the Oct. 22, 1952 *Spectator*.
 - After three years of general college work (elsewhere) and two years in the Columbia School of Engineering, they will receive a Bachelor of Arts degree and a Bachelor of Science degree.
- This is part of the School expansion, which includes the new Engineering Center at Riverside Drive and 125th St., which is expected to be completed in 1954.
 - Renovations on the first unit of the center, 632 W. 125th St., The Sheffield Building, are almost complete.



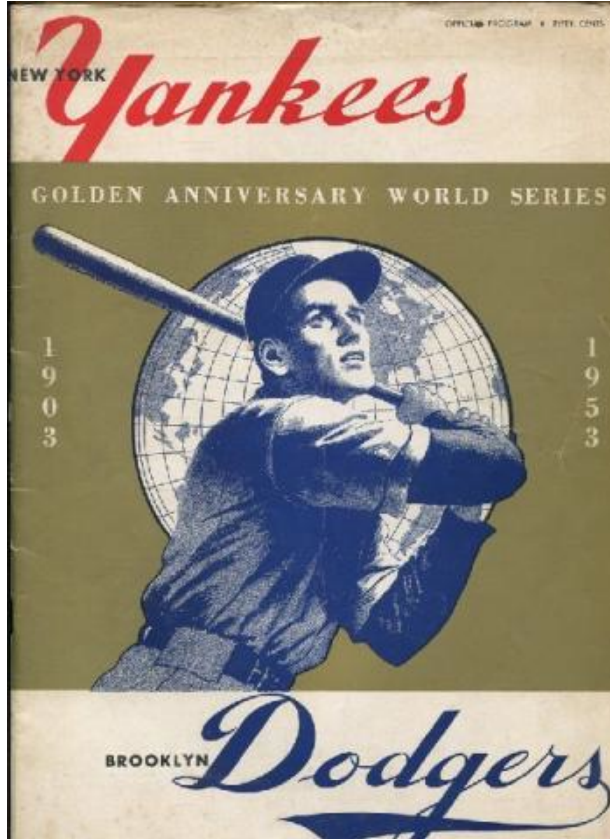
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New York Moments

The Ninth Decade: 1945-1954



- The ongoing rivalry between the American League New York Yankees and the National League New York Giants and Brooklyn Dodgers, particularly in the World Series, rivets New York.

New York Moments

The Ninth Decade: 1945-1954



- The NYC Subway Token is born in 1953.
- Nickels (from 1904-1948) and dimes (1948-1953) had been used in turnstiles.
- The new fare of 15 cents required new technology.
- Shown, token from 1953 to 1970 (left: obverse side, right, reverse side).

From the SEAS Time Capsules

The Ninth Decade: 1945-1954

- 1954 - Plans for a new Engineering building to be erected at 120th St. and Amsterdam Ave. are announced by Columbia President Grayson Kirk.
 - The April 20, 1954 *Spectator* reports “The new building will be used for "educational" purposes in contrast to the projected Engineering Center at 125th St. and Riverside Dr. which is planned to house facilities for research and technical development.”
 - In preparation for this construction, several temporary structures will need to be removed: the Mechanical Engineering Laboratory quonset hut, storehouses for physics equipment and for the geology and geo-physics departments, a statue and five tennis courts. “... the Trustees are aware of the unsightliness of these buildings...” as reported by the March 27, 1953 *Spectator*.
 - This building, to be named the S. W. Mudd Building, is built five years later.



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From the SEAS Time Capsules

The Ninth Decade: 1945-1954



- 1954 - Computing advances at Columbia as IBM's Naval Ordnance Research Calculator (NORC), the first supercomputer, begins operation at Columbia University's Watson Scientific Computing Laboratory, 612 West 115th St. It will be most powerful computer on earth from 1954 to about 1963, and operate until 1968, and was built between 1950 and 1954 for \$250,000 (1952 dollars).
- The dedication in the Watson Lab on Dec. 2, 1954 includes IBM Chairman Thomas J. Watson, Wallace Eckert and John von Neumann (upper left).
- The reception the same day at the Columbia Faculty club includes Wallace Eckert, Robert J. Oppenheimer, Thomas J. Watson, Sr., Columbia Vice President George Pegram (signing guest book), John von Neumann, and I.I. Rabi (lower left, photo: Herb Grosch).



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New York Moments

The Ninth Decade: 1945-1954



- 1954 – Joseph Papp founds the New York Shakespeare Festival, with the aim of making Shakespeare's works accessible to the public.
 - In 1957, Joseph Papp is granted the use of Central Park for free productions of “Shakespeare in the Park”, which has continued at the open-air Delacorte Theatre every summer in Central Park.
 - Shown (below) Papp amid construction of the Delacorte Theater in Central Park in 1961 and (upper) the June 17, 1964 performance of *Hamlet* there.
- He later starts the Public Theater for all-year theater in 1967 with Lafayette Street’s Astor Library.

From the SEAS Time Capsules

The Ninth Decade: 1945-1954

Dean Scores US Deficiency Of Engineers

Soviet Russia is rapidly outstripping the United States in the training and graduation of engineers and other technical manpower, John R. Dunning, Dean of the School of Engineering, claimed in a speech to the Pre-Engineering Society, yesterday.

He reported that the Russian government, through subsidies and other inducements has seen to it that three-quarters, of their students are studying the technical sciences in contrast to just an inverted ratio in the United States and that their graduates outnumber ours by 2½ to 1.



Dean Dunning

- In the postwar period, the Cold War influences the work and study of engineers, as reported in the *Spectator* on Oct. 5, 1954 and Oct. 10, 1957, below.

Dunning Warns U.S. of Red Supremacy in the Sciences



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