Memories From the SEAS Time Capsules

The Tenth Decade: 1955-1964

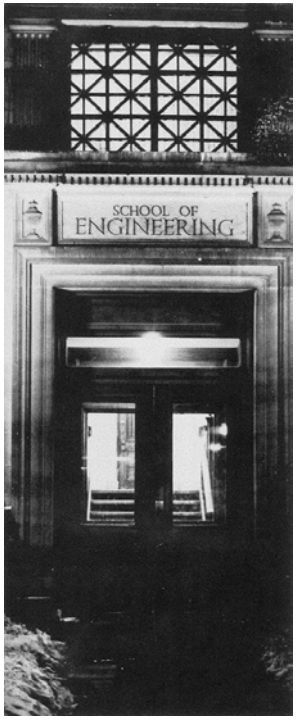
150
COLUMBIA | ENGINEERING
The Fu Foundation School of Engineering and Applied Science
1864–2014

Created by Irving P. Herman,
Professor of Applied Physics

New York Moments
The Tenth Decade: 1955-1964

- 1955 – The Lincoln Center for the Performing Arts project begins with Lincoln Square (so named in May 1906) designated for "urban renewal." Some of the tenement locations (upper right) in Lincoln Square (which is on the West Side) are used in the 1961 film *West Side Story* (upper left) and are later razed as part of the Lincoln Center project. (Some playground scenes are filmed on 110th St. on the East Side.)
  - Groundbreaking on May 14, 1959 (below).
- 1962 – Avery Fisher Hall (right in lower left photo) (formerly Philharmonic Hall) in Lincoln Center opens, followed by the David H. Koch Theater (formerly the New York State Theater) in 1964, and the Metropolitan Opera House (left in lower left) in 1966.

From the SEAS Time Capsules
The Tenth Decade: 1955-1964



- The Oct. 10, 1955 *Spectator* reports on plans for a new Engineering Center at Amsterdam Ave. and 120th St.
- Currently, many School activities are in the Mines (far left) and Engineering (near left and below) Buildings.
  - Photos from the 1957 (left) and 1959 (below) *Columbia Engineer* yearbooks.

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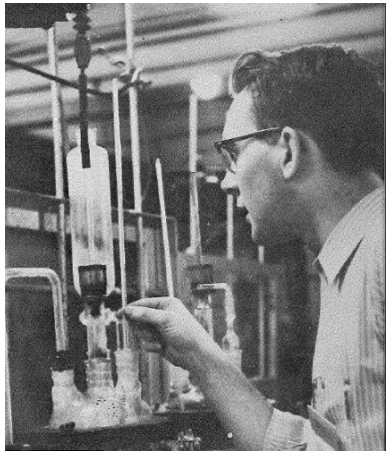
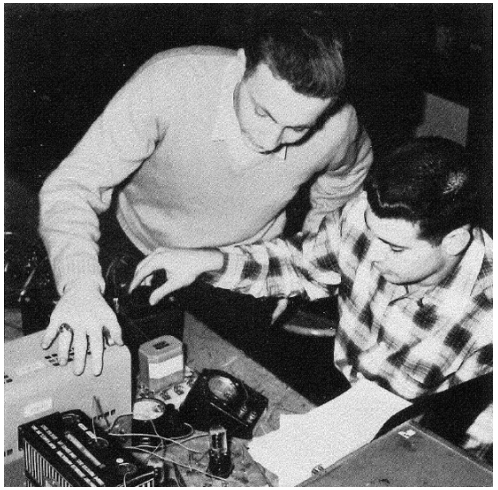
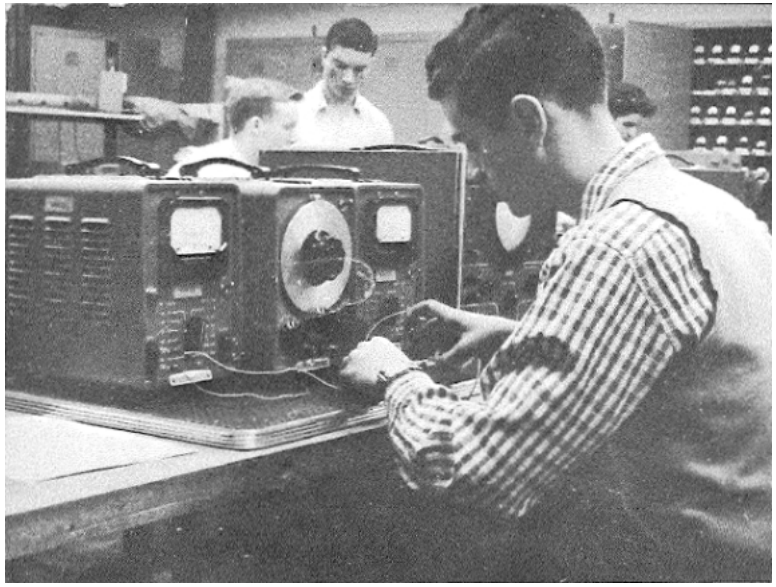
The Tenth Decade: 1955-1964



- Students working in the laboratory.
  - Photos from the 1953 (upper far left), 1956 (lower left), 1957 (upper near left), and 1959 (below) *Columbia Engineer* yearbooks.





From the SEAS Time Capsules
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- The Class of 1957 presents to the chemical engineering faculty a wooden screw signed by all members of the class.

New York Moments

The Tenth Decade: 1955-1964

- September 24, 1957 – The Brooklyn Dodgers play their last game in Ebbets Field (shown in 1913), as they prepare to leave town, to the dismay of their many fans.
- It had been the home of the Dodgers since 1913, and was demolished on February 23, 1960.

From the SEAS Time Capsules

The Tenth Decade: 1955-1964

Engineering School To Admit Freshmen

Dean John R. Dunning

Ends Present Policy Of Taking Students Only from Colleges

By Morris Dickstein

For the first time since 1914, the School of Engineering will open its doors to freshmen next year. A selected pilot group of 50 to 60 students are to be under the new program.

This major policy shift was announced by Dean John R. Dunning.

- As reported in the Dec. 4, 1958 *Spectator*, Engineering will directly admit freshmen, starting with the incoming class in Fall 1959.
  - Since 1924 "pre-engineering" undergraduates have needed to transfer as juniors from the College to the Engineering School.
  - Since 1951, upperclassmen also entered the School from other colleges through the Combined Plan.

From the SEAS Time Capsules
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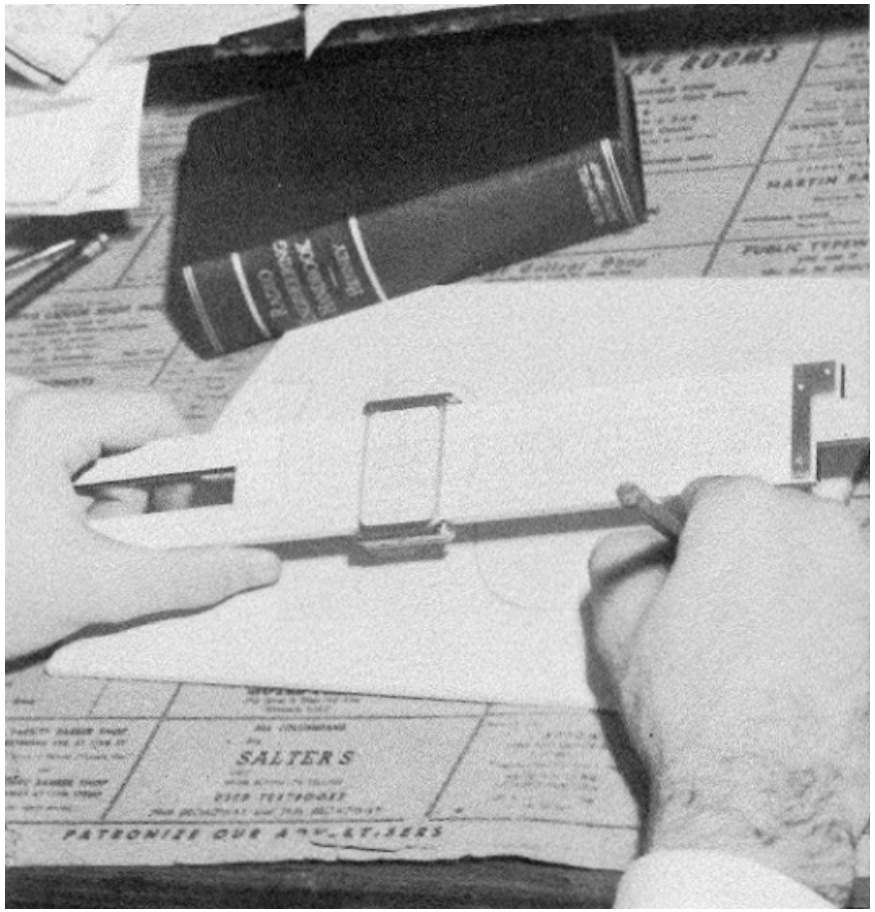

- Slide rules* in action in the days before calculators.
  - Photo from the 1959 *Columbia Engineer* yearbook.

* Slide rules operated on the principle that multiplication and division involve the addition and subtraction of logarithms (base 10).

From the SEAS Time Capsules

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COLUMBIA UNIVERSITY
engineering newsletter

- The Columbia University Engineering Newsletter team is shown with a mimeograph machine*, photo from the 1959 *Columbia Engineer* yearbook.

* Mimeograph machines were low-cost printing presses that worked by forcing ink through a stencil onto paper, and were first patented by Edison and in common use before xeroxing.

From the SEAS Time Capsules

The Tenth Decade: 1955-1964

April 4th, 1959
OUR MOST IMPORTANT DATE SINCE 1864
Mail Your Reservations Now!

COLUMBIA
engineering alumni times

VOL. 2, NO. 3 — MARCH 1959

Busy Dean's Day Is Scheduled

Engineering Dean's Day '59 has scheduled a full day of functions on Columbia Campus April 4.

Beginning at 10 o'clock in the morning, registration takes place on the second floor balcony of Schermerhorn Hall, where coffee and doughnuts will be served.

From 10:30 to 11:30 the first lecture of the day will be presented by Jack Henry Schulman, Stanley-Thompson Professor of Chemical Metallurgy. Dr. Schulman has prepared a unique presentation entitled "Seeing is Believing," which will feature illustrations made with a high resolution electron microscope.

These slides will be of outstanding interest since, in some cases, they have never been on public view before, and will present revolutionary aspects of molecules, molecular aggregates, microemulsion and molecular leaflets and will demonstrate adsorbed molecules on metal surfaces.

Groundbreaking for the first unit of the new Engineering Center will take place at 11:45 with President Grayson Kirk and Dean John R. Dunning officiating. The shovel used by Mrs. Seth Low on June 18th, 1895, for groundbreaking of Low Library, the first building on Morningside Heights, will be used in this ceremony, and both President Kirk and Dean Dunning will speak briefly on the outstanding significance of the occasion.

Following the groundbreaking, alumni and guests will meet at the Faculty Club for a reception and the Dean's luncheon at which major donors and Trustees of the University will be present to honor Dr. Dunning. A highlight of the luncheon program will be the presentation of the Michael I. Pupin Medal to Dean Dunning. The Pupin Medal is given for "service to the nation" and is awarded in this 100th anniversary year of the birth of Professor Pupin by the Columbia Engineering School Alumni Associa-

(Continued on Page 6)

Groundbreaking!

Historic Dean's Day

Ground will be broken on Engineering Dean's Day, Saturday, April 4, for the new Columbia Engineering Center. At 11:45 A.M. President Grayson Kirk and Dean John R. Dunning will turn over the first two spadefuls of earth at the site of the first building of the Center, to be known as the Seeley Wintersmith Mudd Building, on the Campus at 120th St. and Amsterdam Avenue.

In the presence of major donors to the Engineering Center, Trustees, engineering alumni, Faculty and friends of the School of Engineering, the two Columbia officials will use the same spade with which Mrs. Seth Low, wife of a past Columbia president, broke ground for Low Memorial Library, the first new building on the Morningside Heights campus, June 18, 1895.

The long-awaited first major building of the Engineering Center will be a thirteen story edifice containing 160,000 square feet, which will house classrooms, laboratories and administrative offices for Mining, Metallurgical and mineral engineering, Mechanical, Civil, Electrical, Industrial and Chemical engineering.

The Mudd Building will contain the Ambrose Monell Library and Student Center; the Charles F. Hayden Laboratory of Extractive Metallurgy; The Henry Krumb School of Mines; The Marcellus Hartley Laboratories of Electrical Engineering and the Edwin H. Armstrong Memorial Laboratory of Electrical Engineering; The Daniel and Florence Guggenheim Institute of Flight Structures; the Western Electric Instruments Laboratory; The Walter Hull Aldridge Laboratory of Mining Geo-Physics and others.

This modern, fully air-conditioned building, the largest presently to be constructed at Columbia, marks the beginning of the results of a ten-year effort by the School of Engineering and its alumni.

Robert A. W. Carleton '04 Egleston Medalist

Robert A. W. Carleton, president and founder of The Carleton Company, Inc., construction engineering firm, has been named the 1959 recipient of the Egleston Medal, Columbia University's highest award for "distinguished engineering achievement. The announcement was made by Louis H. F. Mouquin, president of the Columbia Engineering School Alumni Association, which sponsors the annual Egleston Medal.

ROBERT A. W. CARLETON

This Award will be presented to Mr. Carleton at ceremonies to be held in the Rotunda of Low Memorial Library as a part of the annual Dean's Day program on Saturday, April 4th. At that time a specific citation of the award will be made public.

Mr. Carleton was graduated from the School of Engineering in 1904 with the

(Continued on Page 6)

Pupin Medal Awarded To Dean J. R. Dunning

Dr. John R. Dunning, Dean of the Columbia School of Engineering, who has played a key role in the development of the United States' atomic energy program, will address the Engineering Dean's Day Luncheon of the Columbia Engineering School Alumni Association, on Saturday, April 4th. Dean Dunning's talk will be entitled: "The Engineer and the Next Civilization."

Dean Dunning will be awarded the Michael I. Pupin Anniversary Medal for distinguished "service to the nation." This is the third in a series of similar medals awarded during 1858-1950, 100th

(Continued on Page 6)

—1—

- March, 1959 – Announcement of several momentous SEAS events in a single issue of *Columbia Engineering Alumni Times*.
  - Upcoming groundbreaking of the Mudd Building.
  - Alumnus Robert Carleton C.E. '04 named the Egleston Medalist.
    - Carleton Lab to open in the planned Engineering Terrace Building.
  - Dean John R. Dunning awarded the Pupin Medal.
    - In the 1930s he developed stronger neutron sources using cyclotrons, in 1939 he was on the first team to achieve nuclear fission in the United States, and during WWII he made important advances in gaseous diffusion to separate uranium isotopes for the Manhattan Project.
  - Henry Krumb bequest.

From the SEAS Time Capsules
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CU Breaks Ground Saturday For New Engineering Building

ARTIST'S DRAWING of the Seeley Wintersmith Mudd Building, first unit of Columbia's Engineering Center.

- Construction on the Seeley Wintersmith Mudd Building, the first unit of Columbia's Engineering Center, is imminent, as reported on March 31, 1959 in The *Spectator.*
- "Three large gifts in recent months have permitted expansion of plans for the center and an immediate start of construction."
  - The start of construction was made possible by a gift from the Seeley Wintersmith Mudd Foundation (as well as by the one from the Krumb Foundation).
  - The bequest from the late Henry Krumb E.M. '98, will be divided between the Engineering Center and The School of Mines.
  - The gift from the Ambrose Monell Foundation of New York will be used to provide a library and student center in the new building, named for Ambrose Monell, who graduated from Engineering in 1896.

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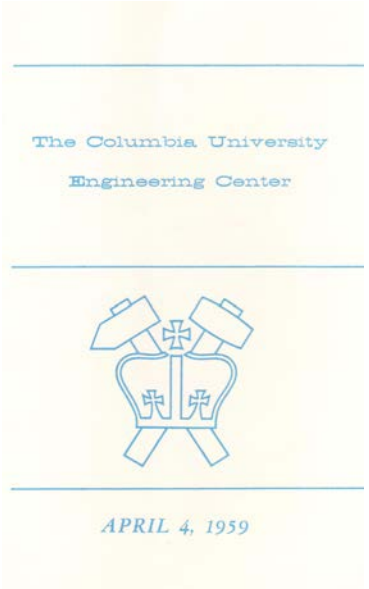

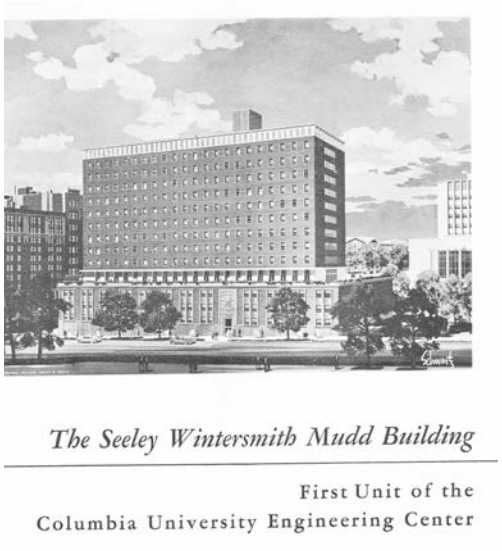

- April 4, 1959 – Program of the groundbreaking for the Mudd Building.

Ground-Breaking Ceremony

11:45 A.M. Saturday, April 4, 1959
Corner Amsterdam Avenue and 120th Street

CALL TO ORDER	Hon. Felix E. Wormser, Chairman
INVOCATION	Chaplain John M. Krumm
REMARKS	Dean John R. Dunning
REMARKS	President Grayson Kirk

(The first spadeful of earth is turned by President Kirk, the second by Dean Dunning, using the historic spade with which Mrs. Seth Low broke ground for Low Memorial Library, June 18, 1895.)

CONCLUSION	Hon. Felix E. Wormser, Chairman

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- April 4, 1959 – Groundbreaking for the Mudd Building, (below) with the same silver spade used to begin work in 1895 on the first Morningside campus building.

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Bequest From Henry Krumb

Henry Krumb, distinguished mining engineer and graduate of the Columbia School of Mines in 1898, who died on December 27, 1958 at the age of 83, has made a bequest to Columbia in support of engineering education, believed to be one of the largest single bequests in the University's 205-year history.

The bequest may reach a total of $6 million and eventually $10 million.

Mr. Krumb left one half of his estate to Mrs. Krumb, the former LaVon Duddleson, whom he married in 1914. The other half, after deduction of taxes and direct gifts to individuals, religious, cultural and charitable organizations, was left to Columbia. In addition, Mr Krumb gave $500,000 to establish and maintain the "Krumb Chair of Mining" and added $100,000 to the Henry Krumb Mining and Metallurgical Scholarship Fund, which he had set up at Columbia in 1945 with a similar grant.

He directed that one-half the amount now left directly to Columbia be applied toward the construction of the Engineering Center. A similar amount was left "for improving and building up the School of Mines," as stated in his will that the School of Mines should become "one of the most efficient, best-known and largest schools of its kind in the world, with a reputation second to none."

- 1959 – After Krumb's bequest the School of Mines/Department of Mining, Metallurgy, and Mineral Engineering was renamed the Henry Krumb School of Mines.
- As of 1962, Henry Krumb and his wife Lavon Duddleson Krumb had left nearly $16,000,000 to Columbia.

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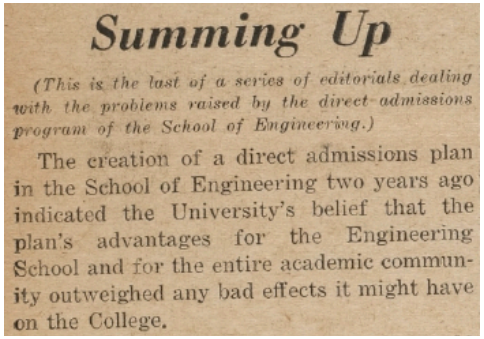
CU's Newest College—1

Freshmen Begin Era At Engineering School

- September, 1959 – The Engineering School admits and registers freshmen directly from high school for the first time since 1912-1913. (See The *Spectator* Oct. 28, 1959 headline, above, and March 10, 1960 editorial remarks, below.)
  - Freshmen and sophomores still take primarily liberal arts and fundamental science courses, while the last two years stress engineering work.
  - There is concern that the proposed increase in direct admissions, from 150 to 400 per year, will require extra resources, but such an increase does not occur.


Summing Up

(This is the last of a series of editorials dealing with the problems raised by the direct-admissions program of the School of Engineering.)

The creation of a direct admissions plan in the School of Engineering two years ago indicated the University's belief that the plan's advantages for the Engineering School and for the entire academic community outweighed any bad effects it might have on the College.

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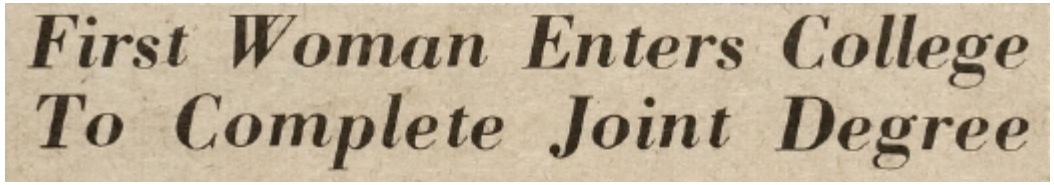
- This first class directly admitted to SEAS of ninety-two freshmen includes four "coeds."
  - The March 10, 1960 *Spectator* editorial remarks "The presence of girls in the engineering program" reflects "haphazard planning" and "the admission of girls into the program implies a covert, if unplanned, introduction of coeducation into Columbia College."
  - 1970 - SEAS women are now living in Carman (Sept. 29, 1970 *Spectator* photo); several had lived in Johnson Hall, limiting studying with classmates.
  - The first woman in the College is the Engineering undergrad Anna Kornbrot, a 4-1 student who first got her B.S. in SEAS in 1974, and then her B.A from the College in 1975; shown, headline from the Sept. 9, 1974 *Spectator*.
  - The first women are directly admitted to the College in 1983.


First Woman Enters College
To Complete Joint Degree

From the SEAS Time Capsules
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Architect's conception of Mudd Hall, new Engineering School, currently under construction.

- Direct admissions and the construction of a new Engineering Center, including the Mudd Building (shown, sketch from The Nov. 25, 1959 *Spectator*), are hallmark events in SEAS history.
- The February 13, 1959 *Spectator* notes "In spite of cramped facilities, Columbia's School of Engineering has been ranked seventh in the nation, by a recent Chicago Tribune poll. But its potentialities are unlimited."

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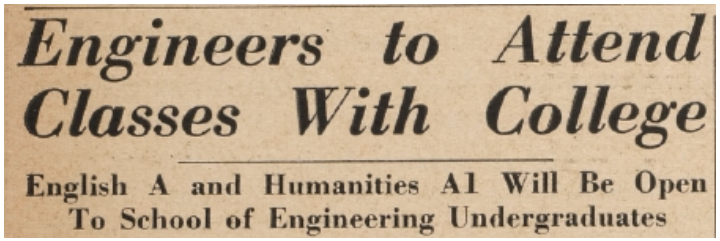

Engineers to Attend Classes With College

English A and Humanities A1 Will Be Open To School of Engineering Undergraduates

- The April 20, 1960 *Spectator* reports that undergraduate students in the School of Engineering's direct admissions program will be allowed next year to take their English A and Humanities Al courses with Columbia College students.
- Professor of English Charles W. Everett explained that the plan to have the new undergraduate engineers attend classes separate from the regular college students last September was prompted by "the fear that engineering students have only utilitarian objectives which would make them bad liberal arts students." But this fear has not materialized, he said. "If the quality of the undergraduate engineers continues to be as high as it has been this year," he stated, "there will be little difference between them and the regular College students."
- Engineering Dean John Dunning stated that "we have been in favor of integrated classes all along. It is most unwise to segregate engineers and liberal arts students."

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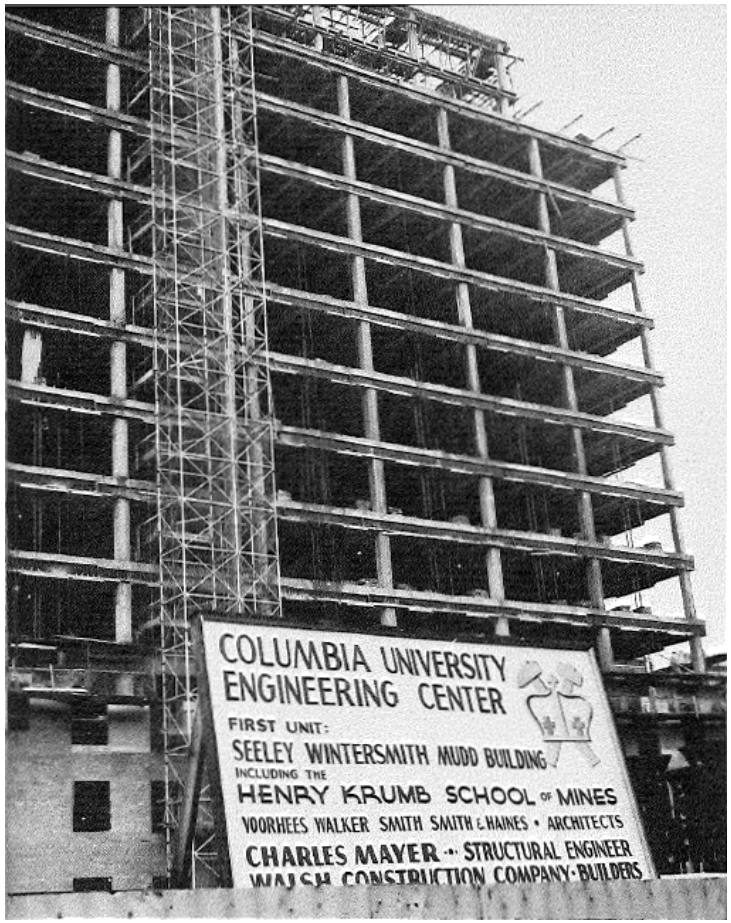
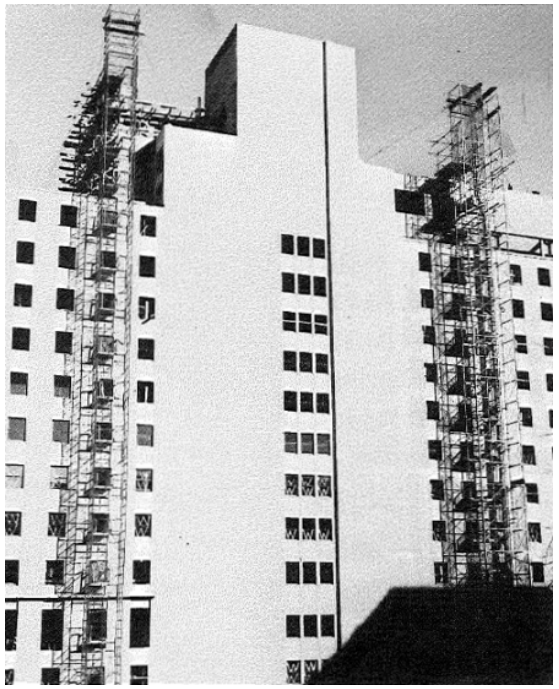


- The Mudd Building under construction; photos used from the 1969 *Columbia Engineer* yearbook.

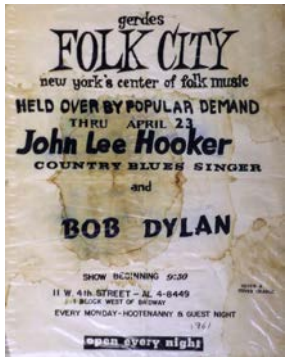


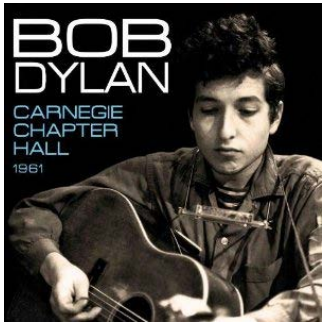
From the SEAS Time Capsules

The Tenth Decade: 1955-1964

- 1961 -The new Seeley W. Mudd Building opens, as shown in the early 1960s.
- With this move the School name changed from School of Engineering to School of Engineering and Applied Science (SEAS) to reflect new activities in the school.

New York Moments
The Tenth Decade: 1955-1964





- 1961 – New York City is a major center in the new age of folk music.
- Bob Dylan's career takes off, nurtured by this environment.
  - Nineteen years old, he arrives on Jan. 24, 1961.
  - His first major gig in New York City is on April 11, 1961, opening for iconic blues artist John Lee Hooker in Greenwich Village.
  - Shown in Columbia Studio A, Sept. 29, 1961: (l-r) Bruce Langhorne, Carolyn Hester, Bob Dylan, Bill Lee (below), and recording first album (middle of left column), and at the Bitter End in 1961 (lowest row on left).
  - On the evening of Nov. 4, 1961, nine days after signing with Columbia Records, he performed 22 songs at Carnegie Chapter Hall in New York City, an auxiliary practice room to the "Carnegie Hall" prestigious main hall.

From the SEAS Time Capsules
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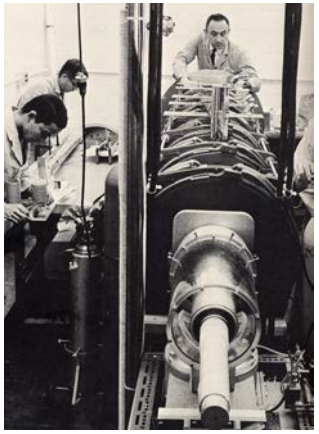

- 1961 – The Plasma Physics Laboratory is established by several faculty, including Profs. Robert Gross and C.K. (John) Chu.
- This begins a long tradition at the forefront of high-temperature and fusion plasmas and prominence in applied physics, including a major expansion of the fusion effort in 1975.

New York Moments
The Tenth Decade: 1955-1964

- 1962 – The New York Metropolitans (Mets) are established, bringing National League baseball back to the city.
- Shea Stadium (left) opens in 1964, and is the home of the Mets until Citi Field opens in 2009.

New York Moments
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- Summer in the City, Washington Square in 1962.

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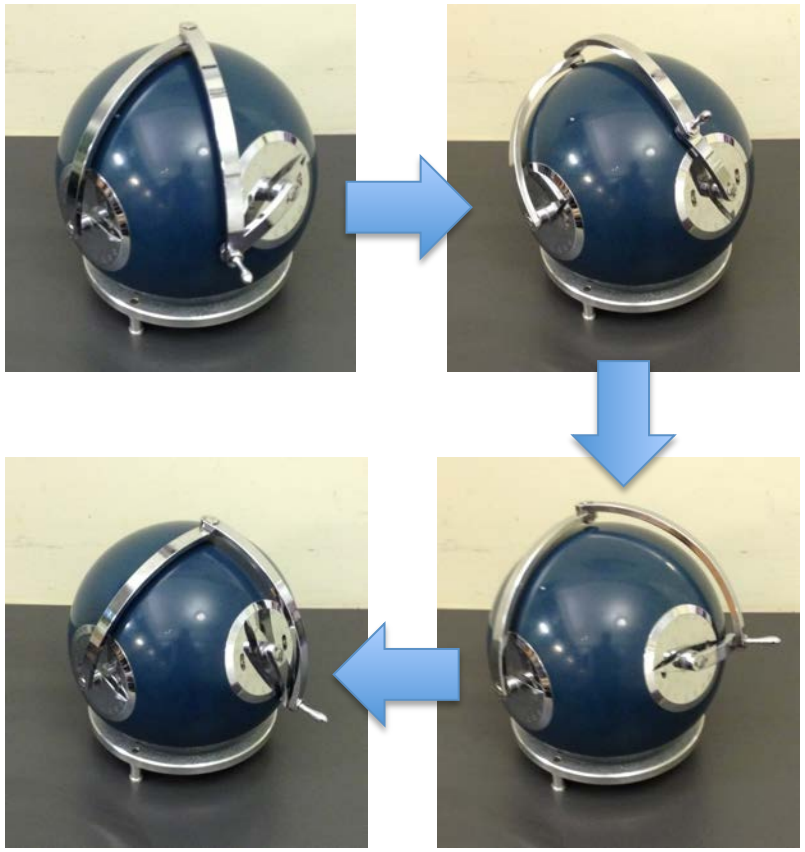
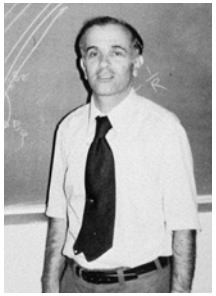


- Ferdinand Freudenstein, a Columbia ME professor from 1954-2006 is known as the "Father of Modern Kinematics". In the 1960s he revolutionizes mechanical design by using computers in kinematics synthesis and the design of mechanism.
- In his Ph.D dissertation (Columbia, 1954), he develops what is later called the Freudenstein Equation, to determine the position of an output lever in a linkage mechanism.
- Illustrative of his work is the sequence on the left: the four-bar linkages used on 2D planar surfaces are seen to also be usable on the 2D surfaces on spheres.



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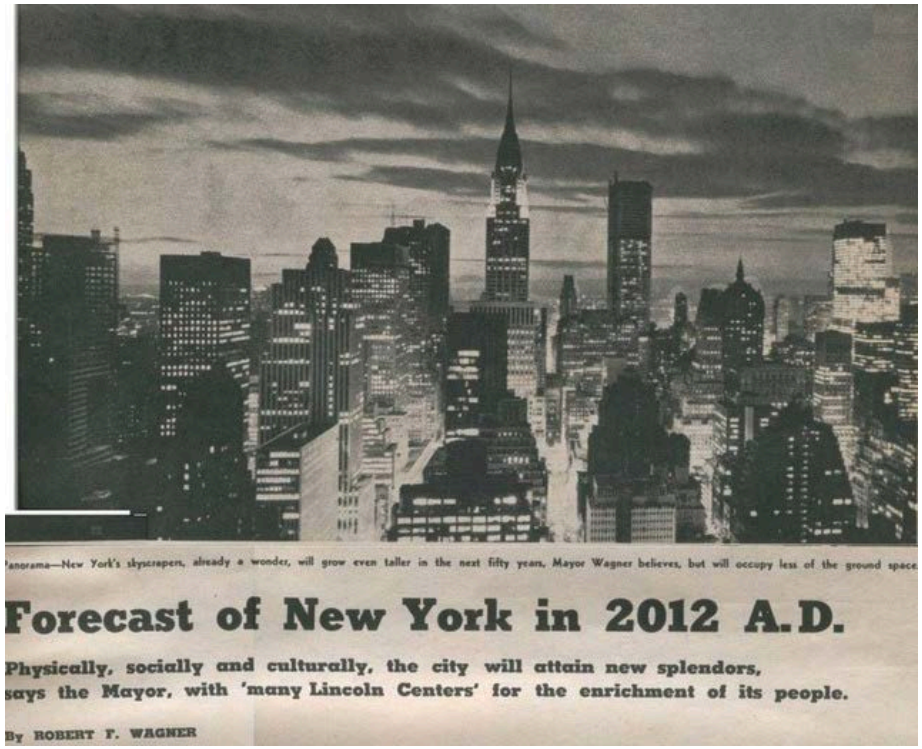

anorama—New York's skyscrapers, already a wonder, will grow even taller in the next fifty years, Mayor Wagner believes, but will occupy less of the ground space

Forecast of New York in 2012 A.D.

Physically, socially and culturally, the city will attain new splendors, says the Mayor, with 'many Lincoln Centers' for the enrichment of its people.

By ROBERT F. WAGNER

- 1962 – Mayor Robert Wagner (mayor from 1954-1965) makes predictions about New York City in 2012 in the *New York Times Magazine*, Oct. 7, 1962. He predicts:
  - Commuters will travel by "rocket-powered vehicles suspended from monorails, or by huge vertical-rising helicopters".
  - There will be "more sunlight, grass and greenery" to "balance skyscrapers".
  - That "shopping streets and centers will become malls".
  - "We may safely say that in 2012 New York City will be a city where all races and nations meet and mingle, a city of many cultures, each of which will be respected and prized. The prevailing spirit of this city in 2012 will reflect the spirit of individual enterprise, of economic opportunity, of social ferment and of cultural excitement. At the same time it will bespeak social pioneering, progress and justice."

New York Moments
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- 1962 – Andy Warhol creates his iconic Campbell's Soup can painting, which is displayed at the Museum of Modern Art (MOMA).
- It is included in his first New York solo pop art exhibition, at Eleanor Ward's Stable Gallery Nov. 6–24, 1962.
- MOMA hosts a symposium on pop art in Dec. 1962 where artists like Warhol were attacked for "capitulating" to consumerism.
  - But "the times they are a-changin'" and Warhol becomes the center of the change in the art world.

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Columbia Engineer to Advise Opera Company on Acoustics

Cyril M. Harris, associate professor of electrical engineering at Columbia, is one of the acoustical consultants for the new Metropolitan Opera House scheduled to be constructed at Lincoln Center for the Performing Arts. Professor Harris says that he and his colleague, Dr. D. L. Jordan of Copenhagen, Denmark will spend over three years working on the acoustical design of the $36 million opera house.

The new Met is to open in 1965. According to Professor Harris, the objective of the acoustical design is to produce "an acoustical environment fully in keeping with the rich tradition of grand opera."

Professor Harris joined the Columbia faculty in 1952 and has since taught acoustics in the Department of Electrical Engineering. He is now engaged in a research project for the University dealing with the problems of room acoustics. Dr. Harris has lectured around the world on acoustics and has co-authored an internationally noted book on the subject.

- Prof. Cyril M. Harris advises concert halls on acoustics, starting in the 1960s, including the Metropolitan Opera House at Lincoln Center (The Dec. 3. 1962 *Spectator*).
- Later, in 1976 he redesigns the acoustics of Avery Fischer Hall at Lincoln Center
- Shown, Prof. Harris with students, c. 1982.

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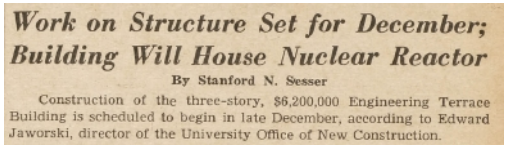
- Photo from the establishment of the Robert A. W. Carleton Strength of Materials Laboratory in 1963 (Carleton seated on the sofa). The lab moves to Engineering Terrace in 1966 from the Engineering (now Mathematics) Building where it began in 1918.
- Robert A.W. Carleton, C.E. 1904, built many of new York's subway and railroad tunnels. He served as president and chairman of the Board of the Hudson and Manhattan Railroad Company, and was a principal endower of this lab.

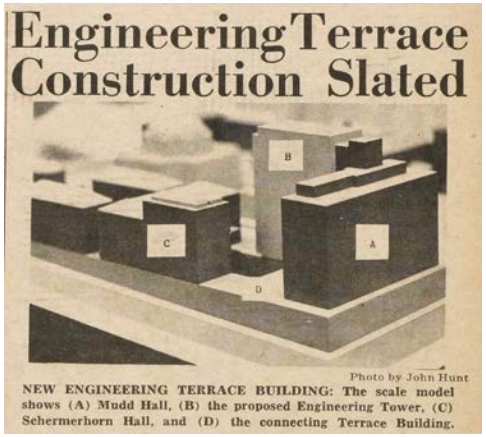
From the SEAS Time Capsules
The Tenth Decade: 1955-1964



Work on Structure Set for December; Building Will House Nuclear Reactor

By Stanford N. Sesser

Construction of the three-story, $6,200,000 Engineering Terrace Building is scheduled to begin in late December, according to Edward Jaworski, director of the University Office of New Construction.



Engineering Terrace Construction Slated

Photo by John Hunt

NEW ENGINEERING TERRACE BUILDING: The scale model shows (A) Mudd Hall, (B) the proposed Engineering Tower, (C) Schermerhorn Hall, and (D) the connecting Terrace Building.

- As reported in The Oct. 1, 1963 *Spectator*, the School has moved to the thirteen-story Seeley Wintersmith Mudd Building, which was completed late in 1961.
- The second phase of the Engineering Center is now under construction.
  - The Eng. Terrace (ET) Building, to be built between Schermerhorn and Mudd Hall, will include nuclear, mechanical, and chemical engineering laboratories, and will also have a strength of materials laboratory to be named after Robert A. W. Carleton. Chemical engineering laboratories are now in Havemeyer Hall and in Chandler. Funds to complete the building are now available, through new gifts, particularly from the estate of Mr. and Mrs. Henry Krumb.
- The third phase in construction of the Engineering Center is the projected Tower building attached to Mudd above the Terrace level. (It is never built and the space over ET is later given to Biology.)
- A possible auditorium-classroom group between Mudd and Pupin laboratories would represent the fourth phase of the construction program. (It was never built and this space is later used for the Schapiro CEPSR Building.)

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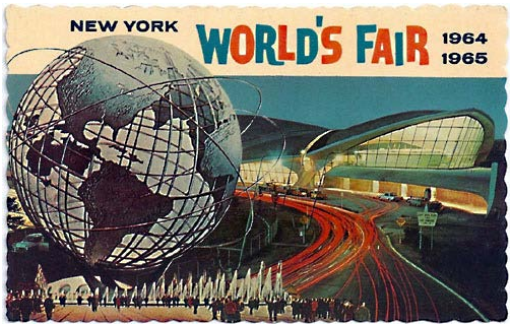
- Working on a laboratory assignment involving microwave generation and transmission.
  - Photo from the 1964 *Columbia Engineer* yearbook.

New York Moments

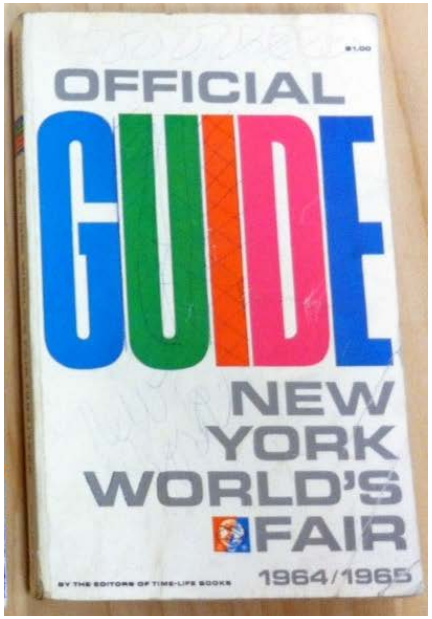
The Tenth Decade: 1955-1964

- February 7, 1964 – The Beatles arrive in New York at JFK Airport and are greeted by 3,000 screaming fans.
- Two days later, they make their first appearance on the *Ed Sullivan Show,* with 73 million U.S. television viewers, or about 40 percent of the U.S. population, watching. Their impact provides a bit of healing for a nation mourning the recent assassination of John Kennedy.
- The Beatles spelled their name with an "a" partly as a reference to the Beat Generation, whose beginnings can be traced to Columbia University.

New York Moments
The Tenth Decade: 1955-1964



- 1964-1965, New York World's Fair.



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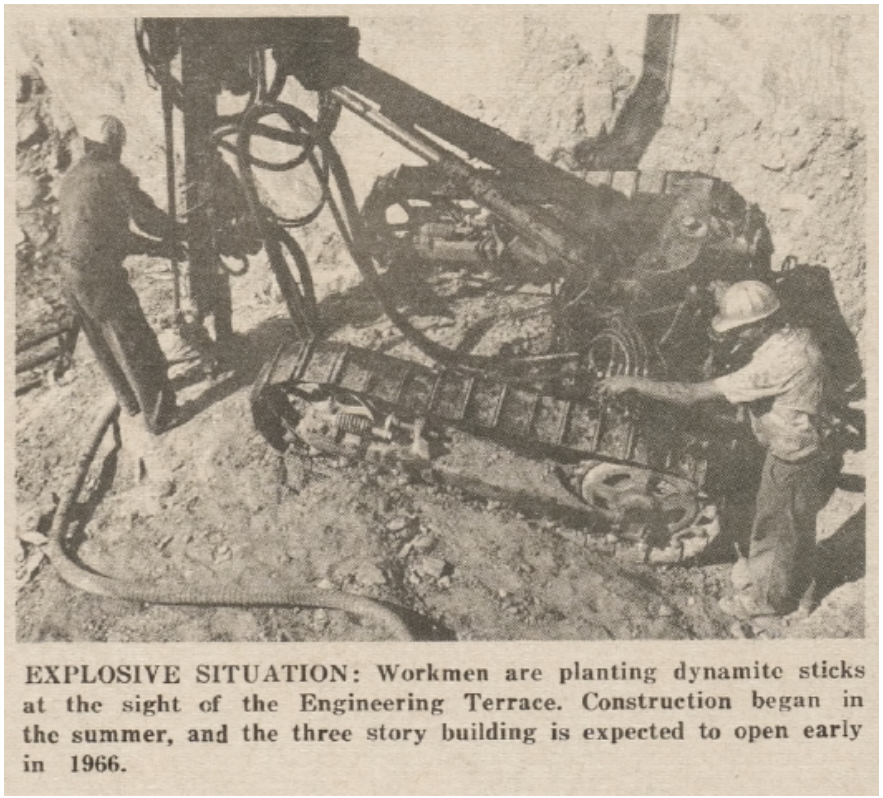
The Tenth Decade: 1955-1964

Engineering Terrace Bldg. Begun



EXPLOSIVE SITUATION: Workmen are planting dynamite sticks at the sight of the Engineering Terrace. Construction began in the summer, and the three story building is expected to open early in 1966.

- 1964 – Construction of Engineering Terrace begins, as depicted in the Sept. 25, 1964 *Spectator.*
- It is expected to be completed in 1966.

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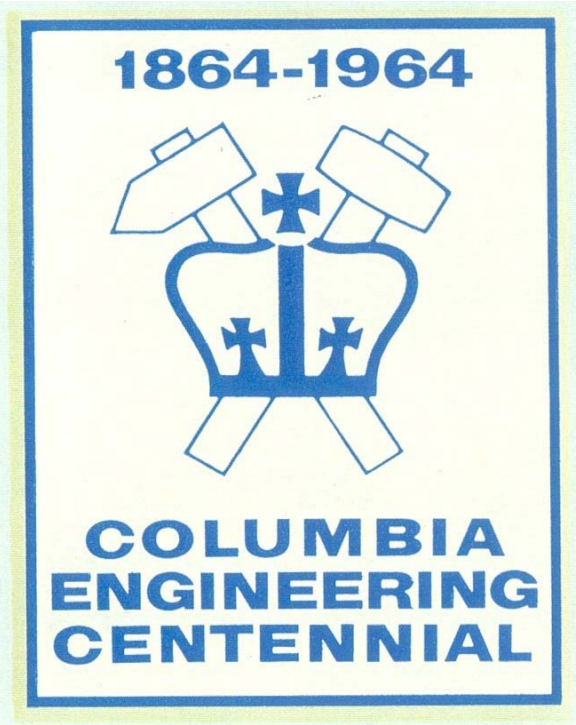
The Tenth Decade: 1955-1964



- 1964 – Celebrating the SEAS Centennial.