

RALPH PECK'S CIRCUITOUS PATH TO PROFESSOR OF FOUNDATION ENGINEERING (1930-48)

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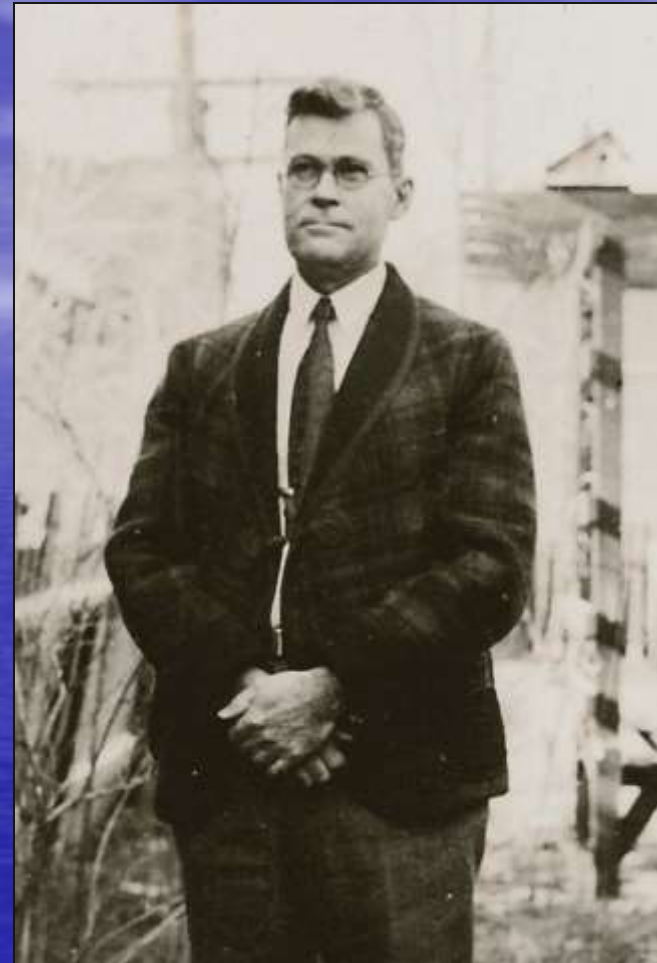
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Ralph's father Orwin K. Peck was a civil/structural engineer with the Denver & Rio Grande Western Railroad in Denver from 1921-56.



The Peck home at 825 Garfield Street in Denver

It was here that Ralph spent most of his formative years. An only child, he lived with his parents and maternal Grandmother Huyck. Years later, Karl and Ruth Terzaghi visited the senior Pecks when he came to Denver.



- **Right - The Peck family spent many of their evenings at home playing duets on the piano at left. Ralph and his father learned to play by ear. Left- Ralph and his namesake, Uncle Ralph Huyck**



Ralph's first exposure to "soils" was as the junior member of a Denver & Rio Grande Railroad signal gang, performing trackside work during the summer following high school (1930). The job paid 55 cents per hour, just 20 cents an hour less than he would make seven years later at American Bridge, with a doctorate in structural engineering.

Off to RPI

On September 5, 1930 Ralph said goodbye to his sweetheart Marjorie Truby as he departed for college. He was 18 and Marjorie 16 at the time.

Ralph declined scholarships to the University of Colorado and the Colorado School of Mines, Ralph enrolled at Rensselaer Polytechnic Institute in Troy, New York because his father knew that many of the country's finest bridge engineers had attended RPI. At that time RPI's student body was all male.





BUSY SUMMERS DURING COLLEGE 1930-37

Ralph's summer vacations from RPI were filled with surveying camps and report assignments. This shows the Peck family on a brief vacation tour near Shaffer's Crossing in the Colorado Rockies, in 1931, between Ralph's freshman and sophomore years.



**In late July 1936
Ralph and his father
toured the San
Francisco Bay Bridge
and Golden Gate
Bridge, then under
construction**



**Golden Gate Bridge
on July 30, 1936**



**D&RGW
Railroad
truss
bridge over
the Animas
River
designed
by Ralph
Peck**



**Ambridge-Woodlawn Bridge
over the Ohio River (1926)**

**Structural
detailer for
American
Bridge & Iron
in 1937-38**

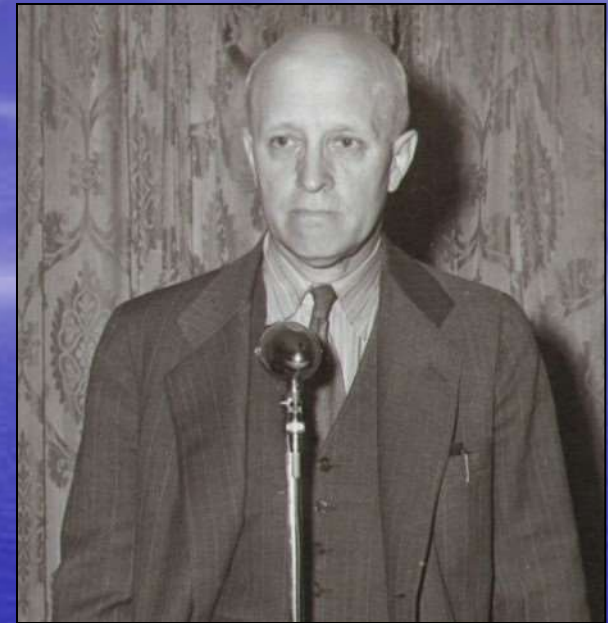


A MEMORABLE DAY

June 14, 1937

Doctorate awarded in the morning, marriage in the afternoon, honeymoon in the evening

Ralph and Marjorie on their wedding day. They were married at the home of Ralph's minister at the Second Presbyterian Church of Troy, Rev. Dr. Frederick W. Evans. They honeymooned at his structures professor's cottage by a nearby lake.



**Shortridge Hardesty
(1884-1956) was a 1906
graduate of RPI.**

- **Just as Ralph and Marjorie were about to depart for Cambridge, he received an attractive offer from Shortridge Hardesty of Waddel & Hardesty in New York, which he felt obliged to decline, because he had sent a letter of intent to Arthur Casagrande two days previous.**

A Harvard Man

April 1938 to January 1939



Grad students Bill Shannon (left) and Ralph Fadum (middle)



**Arthur Casagrande,
known as "Cassie" to his
students**

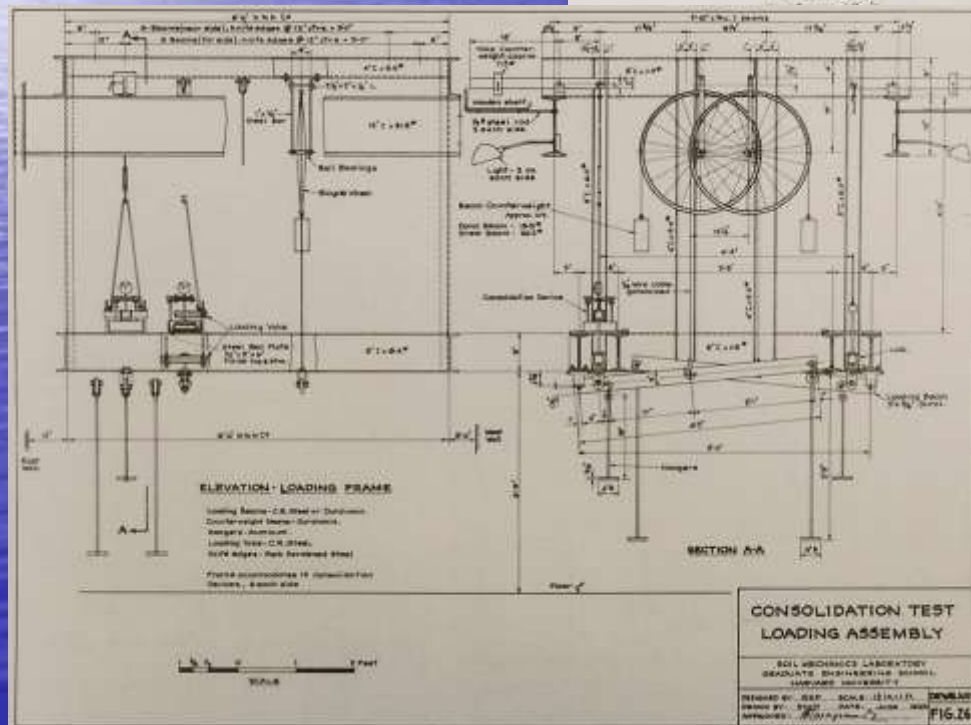
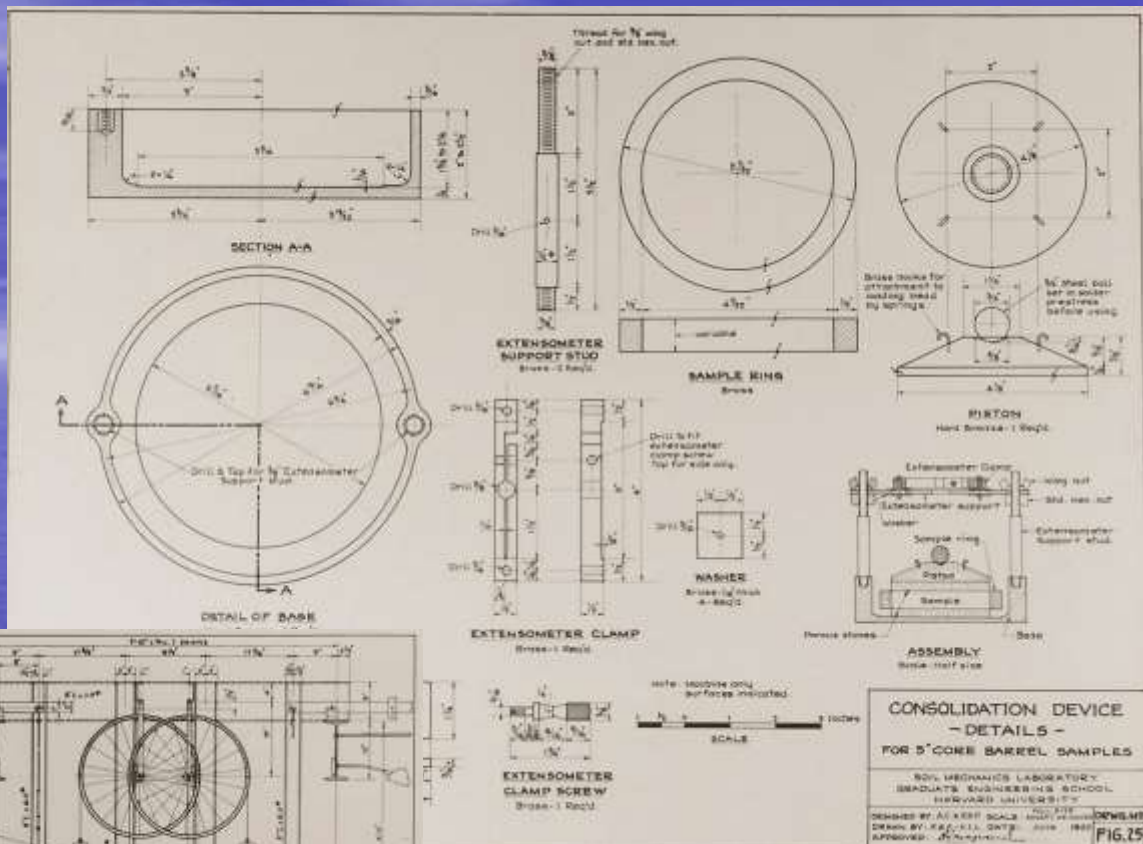
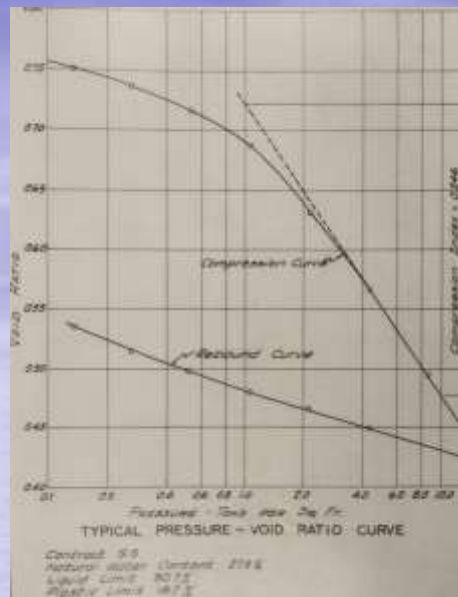


Stan Wilson

Bill Shannon

Arthur Casagrande

Stan, at left, Chen, Bill, Dr. Casagrande in soils lab, Harvard, 1938



Ralph's structural engineering and drafting expertise brought him into Casagrande's inner circle

DR. TERZAGHI

Karl Terzaghi sent his wife Ruth and son Eric to the United States in the summer of 1938.

He left all of his library and academic materials in Vienna, and made his way to Cambridge, MA in late September, 1938.

He gave one lecture at Harvard that fall while searching for consulting work to support his family.





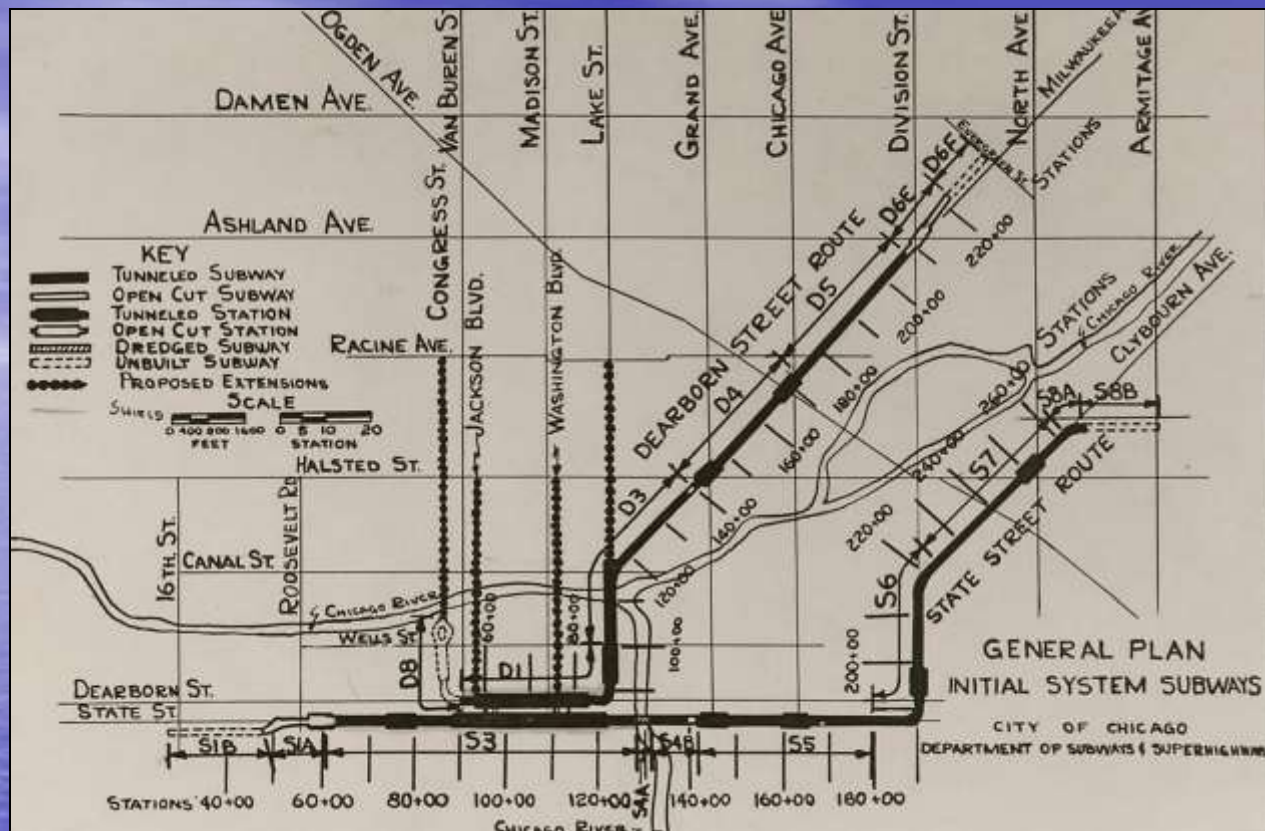
Al Cummings (1894-1955)
was one of Terzaghi's
confidants, who worked
for the Raymond Concrete
Pile Co. for 40 years.

An advertisement for Raymond Concrete Pile Co. The central image is a stylized globe of the Earth, showing the Americas, mounted on a vertical concrete pile. The globe is surrounded by horizontal, wavy lines suggesting motion or a globe being held. The text "The Raymond Concrete Pile" is written in a cursive font across the middle of the pile. At the bottom, there is a block of text providing company information.

*The
Raymond,
Concrete
Pile*

**THE WORLD'S
SECURE FOUNDATION**
"A Form for Every Pile — A Pile for Every Purpose"

RAYMOND CONCRETE PILE CO.
NEW YORK: 149 Cedar St. CHICAGO: 111 W. Monroe St.
Branch Offices in all Principal Cities
Raymond Concrete Pile Co. of Canada, Ltd., Montreal, Canada



Al Cummings was a self taught geotechnical engineer and pioneer in pile foundations, he played a key role in enabling Terzaghi's return to the United States in November 1938, by suggesting consulting projects that might support him. His first lead was the Chicago Subway project, for which Raymond provided the drilling rigs crucial to the work at hand.



Soil experts find ours good— Dr. M. J. Hvorslev (left), research expert for American Society of Civil Engineers, and Dr. Arthur Casagrande (right), co-founder of new science of soil mechanics, study sample of soft clay taken from Chicago subway, and assure R. S. Knapp and Dr. R. B. Peck that local underground project is "outstanding." (TIMES Photo)

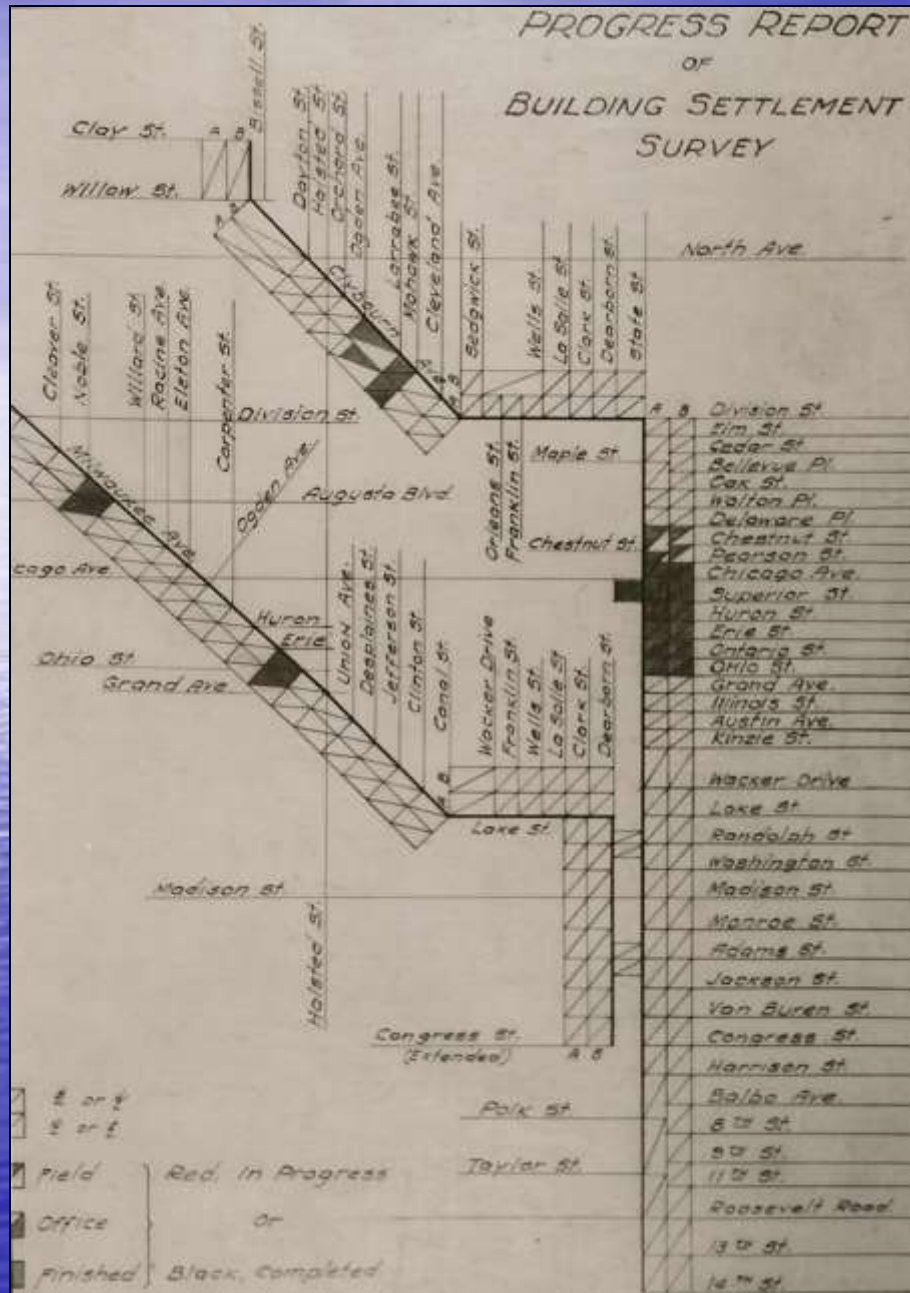
MASTER MANAGER RAY KNAPP

Juul Hvorslev, Ray Knapp, Peck and Arthur Casagrande in Chicago, 1940. Peck's immediate supervisor for the subway project was Ray Knapp. Peck said: *"I learned as much from Ray Knapp as I did from Terzaghi, not about soil mechanics, but about how a geotechnical engineer can go about doing some good in an organization. Ray Knapp served as the consummate interface between job site and management, facilitating whatever needed doing to accomplish the tasks at hand."*



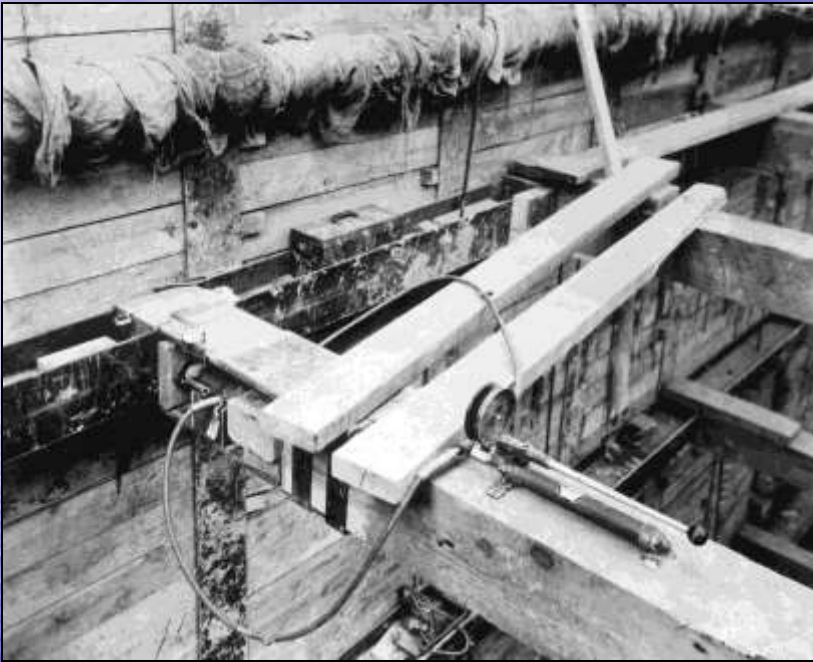
Ralph Peck logging his first soil boring for the Chicago Subway in February 1939 along the State Street Line. Note 140 lb donut weight, employed by the Gow Division of the Raymond Concrete Pile Co.

Impact on existing foundations



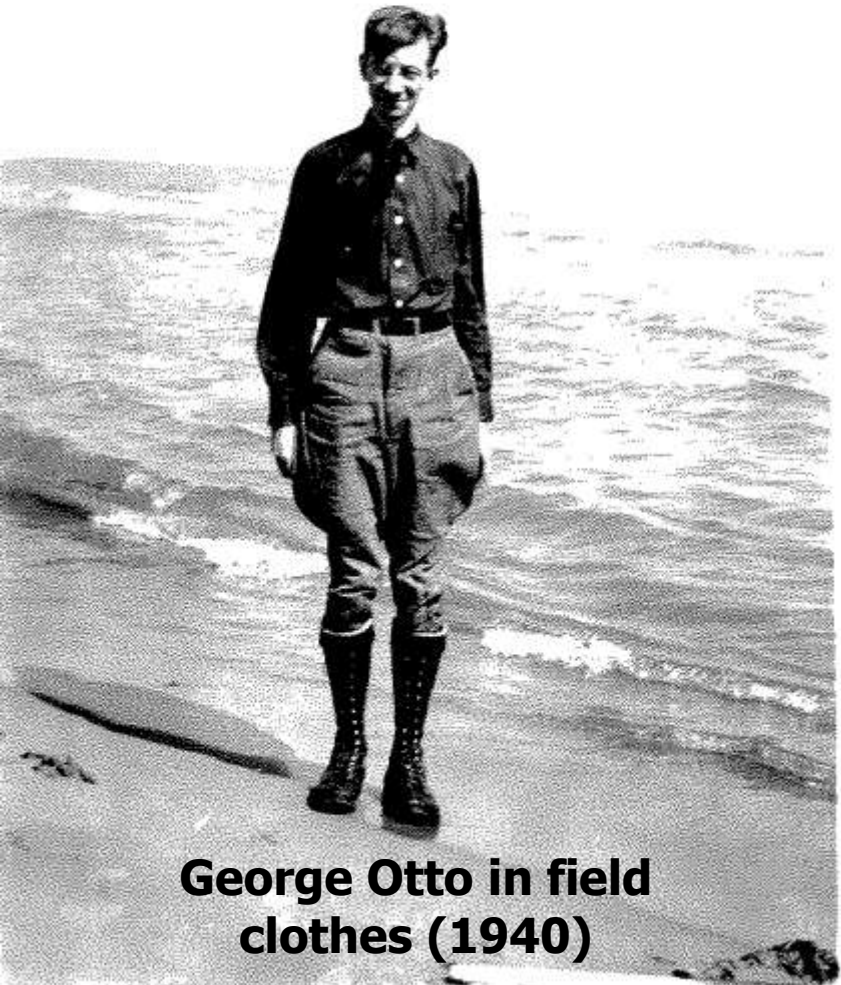
- The primary reason Ralph Burke engaged Terzaghi, and he, in turn, recommended hiring Peck, was to monitor deflections of adjacent building foundations and to advise the city on the best practices to avoid costly damage to these older structures

The birth of the Observational Method



Terzaghi charged Peck with making daily measurements and observations, which were typed up and sent to Terzaghi every day. These included strut loads and deflections in braced open cuts and inside driven tunnels of the Chicago Subway project between 1939-42.

George H. Otto, PhD Consulting Geologist



George Otto in field
clothes (1940)



George Otto
and wife



J Harlen Bretz

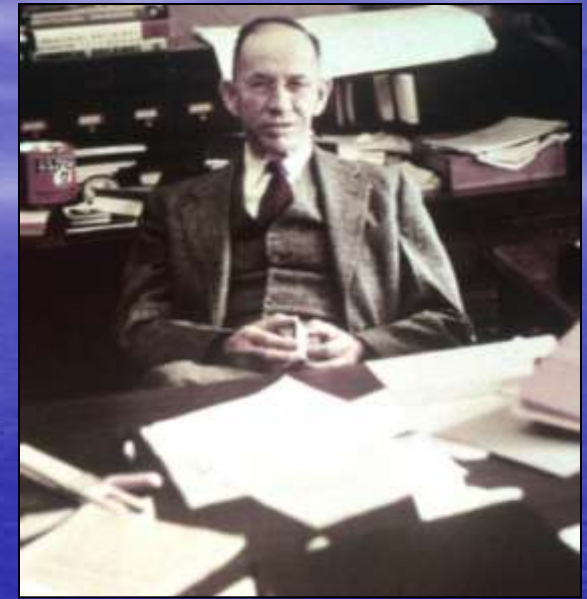
- **George Otto (1908-99) was a geology student of J Harlen Bretz (above right) at the University of Chicago, receiving his BS in 1931, MS in 1934, and PhD in 1942, working on the Chicago Subway project with Ralph Peck**
- **He was the first geologist formally trained in soil mechanics and a key consultant on the O'Hare Airport job, beginning in 1947.**



PASSED OVER FOR AN IMPORTANT POSITION - MARCH 1942

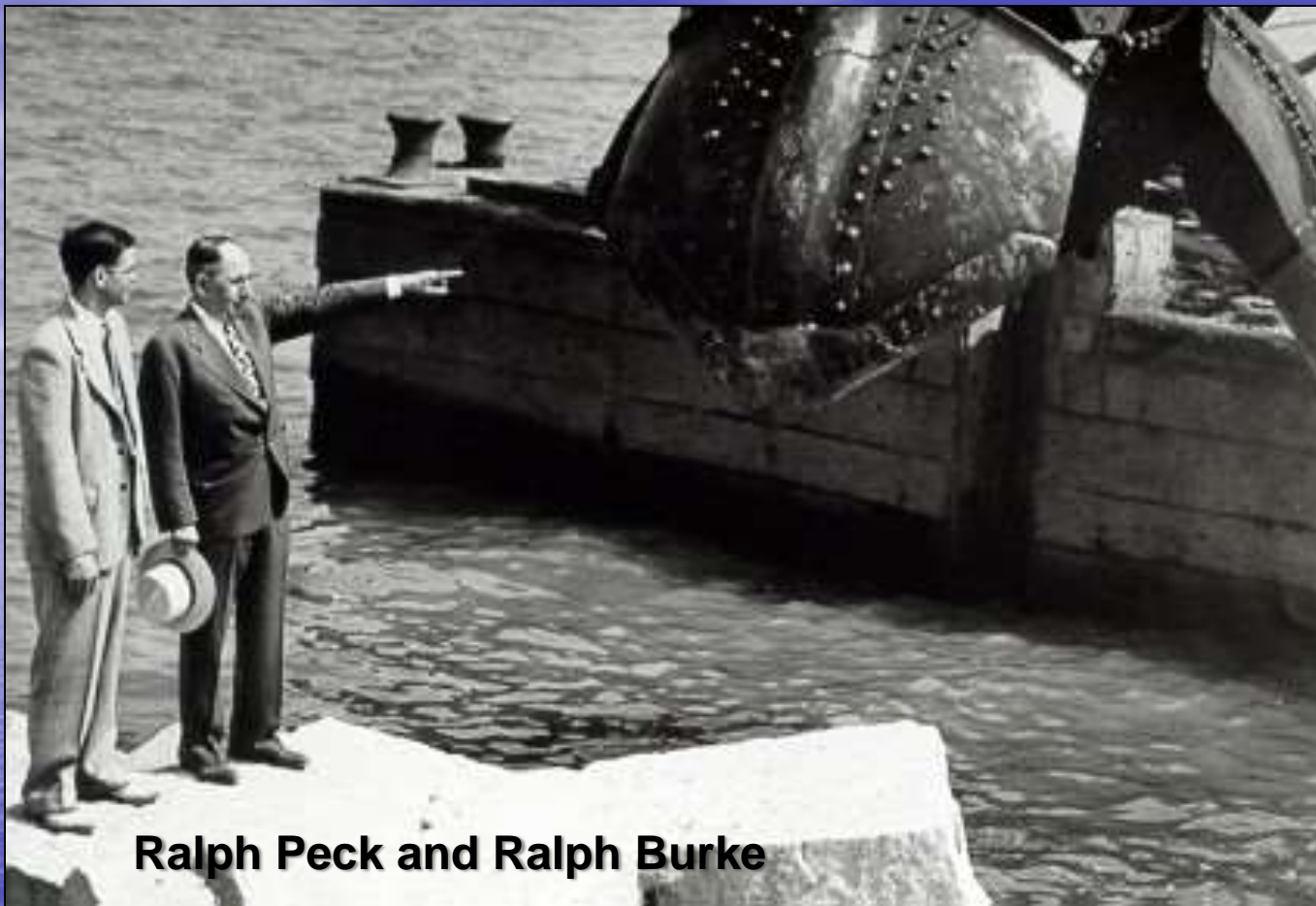
Peck with Bill Turnbull, Chief of the Soils and Foundations Division of the Corps of Engineers Waterways Experiment Station during the Second World War. In March 1942, Peck was one of three finalists who were considered for this position, which was given to Turnbull. The division's work on airfield pavements during the war proved crucial, but Peck felt he would not have been well suited to the administrative duties required of the position.

POSITION AT THE UNIVERSITY OF ILLINOIS



**Whitney Clarke Huntington,
Chairman of Civil Engineering
from 1926-56**

Republic Steel's Cleveland, Ohio Ore Yard in 1942. This was one of the consulting jobs where Peck acquired the experience Terzaghi had recommended. After this incident, Terzaghi told Peck he could accept the faculty position offered by the University of Illinois 7 months earlier. Prof. Huntington accommodated Peck's belated acceptance, and scrounged the funds to pay him at 7/8 salary the first year (1943).



Ralph Peck and Ralph Burke

Another man who shaped Peck's career was Ralph Burke, chief engineer of many notable Chicago projects, including: the Subway, Grant Park Garage, Meigs Field, and O'Hare Airport. When he opened up his own consulting firm in 1951, he offered Peck a position that would have tripled his salary.



- **Two of the projects Peck most often lectured on were with Ralph Burke & Company: the Chicago Water Treatment Plant (upper) and the Grant Park Garage (lower), for different reasons.**





Chicago O'Hare Airport in 1955

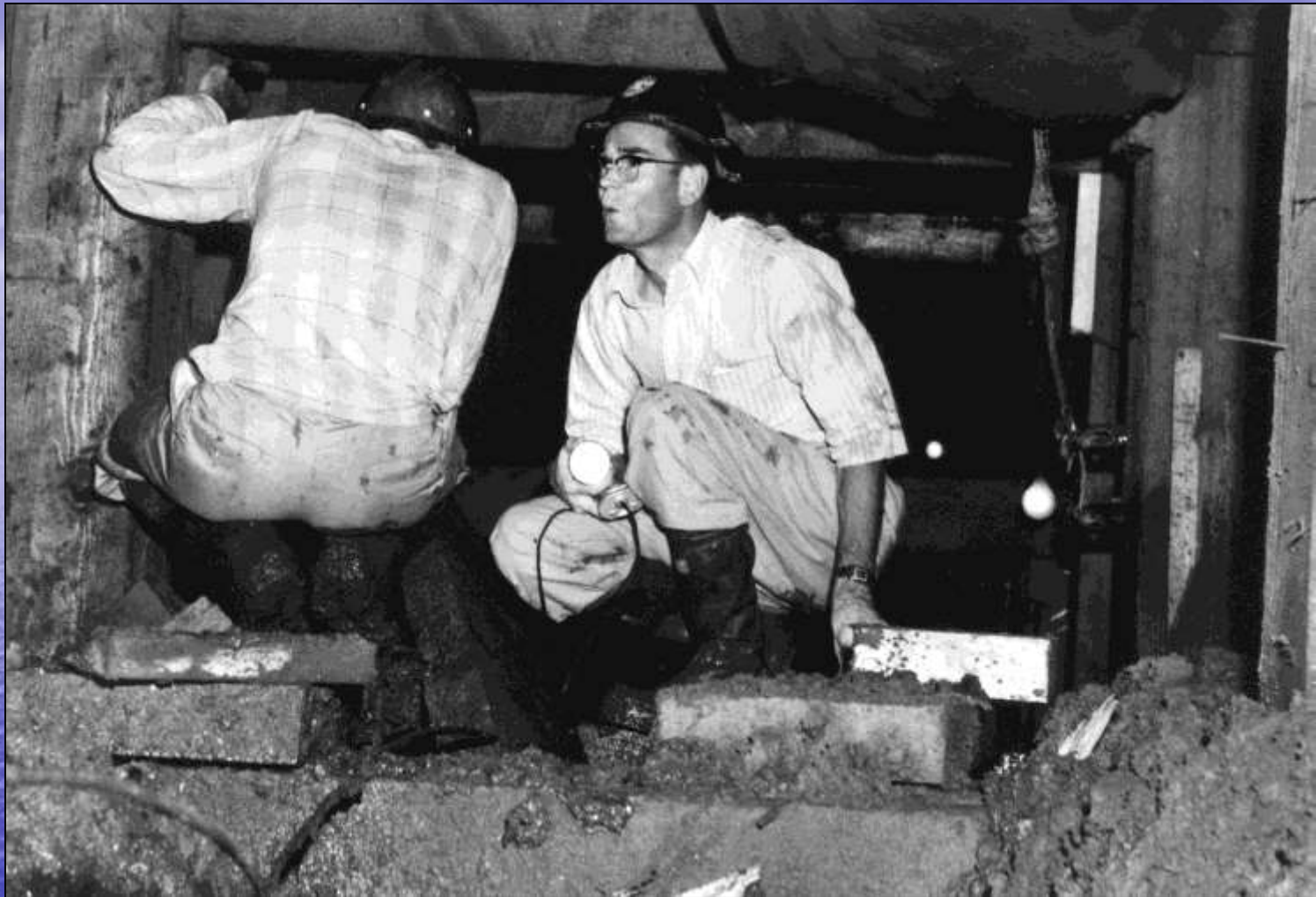


Concept rendering by Burke in 1947

The project that established the lasting reputation of the Ralph Burke Company was O'Hare Airport. Burke had the vision to see how it would shape the future of Chicago. The project began in 1947, but the first commercial flights were until 1956. Six years later it was the busiest airport in the nation.



- **Early in the O'Hare Field project Ralph Burke sent Peck to New York to interview Peck O. James Porter (1901-67) about using wick drains in the railroad relocations. Peck was reticent to bring him aboard because of his drinking, but Burke told him *"the construction industry is filled with brilliant alcoholics, you just have to know what sets them off..."***



- In July 1954 five tunnel workers were killed by cave-in in the Wilson Tunnel on Oahu, at the location shown here. Terzaghi and Peck were summoned to investigate. This shows Peck measuring deflections in the new pilot bore in April 1955.



LEGISLATORS MEET TUNNEL EXPERTS—Tunnel authorities Dr. Ralph B. Peck and Dr. Leo Casagrande met with members of the Territorial Legislature yesterday to discuss Wilson Tunnel problems. Peck is wearing a dark print aloha shirt. Casagrande sits to his left. Soil on the table was used in a demonstration. (Story on Page 5.)—Star-Bulletin Photo.

Special Board Meet Set

**E. E. Black Company Sues
Peck for \$1.5 Million**

Ralph Peck is grilled by Honolulu engineers and politicians following his investigation of the first Wilson Tunnel bore on April Fool's Day, 1955. Peck had submitted his letter of resignation to the mayor because the City had decided to retain the original contractor, contrary to his recommendation. Discharging the contractor was actually Terzaghi's recommendation, but Peck wrote the letter, so he was sued.

LARGEST LAWSUIT AGAINST AN AMERICAN ENGINEER



- In April 1955 tunnel contractor E.E. Black sued Ralph Peck for \$1.5 million because of statements he made in a report to the City about the tunnel collapse.
- The claim later rose to \$3 million, making it the largest legal action ever taken against an American civil engineer up until that time.
- Ralph Burke came to Peck's rescue, re-assembling the design team from the Chicago Subway to design the Wilson Tunnels. Sadly, Burke died on August 30, 1956 at age 72.

PROFESSOR OF FOUNDATION ENGINEERING

Peck received the support to build a credible geotechnical engineering program during the expansion that followed the Second World War. In 1948 he was named Professor of Foundation Engineering, he and Terzaghi's text *Soil Mechanics in Engineering Practice* was published by John Wiley, his monograph on *History of Building Foundations in Chicago* was published, he contributed eight articles for the ICSMFE Congress in Rotterdam, and he began work on a textbook about practical *Foundation Engineering*.





**Ralph B. Peck, D.Eng, P.E., S.E.,
DistM ASCE**

Above all else, PECK WAS A TEACHER

Ralph Peck aspired to be a professor, and despite all of the consulting he did, he was a teacher at heart. He felt students should be inculcated with a love of civil engineering, which, at its core, seeks to do “good works” for humanity.

RBP

RALPH B. PECK

CIVIL ENGINEER: GEOTECHNICS

Ralph also believed that we should educate students to be well-rounded civil engineers first, and geotechnical specialists second.

Thank You !

**This presentation will be
posted on my website at:**

www.mst.edu/~rogersda

in the folder titled

“Mentors”