

**The Knowledge Bank at The Ohio State University**  
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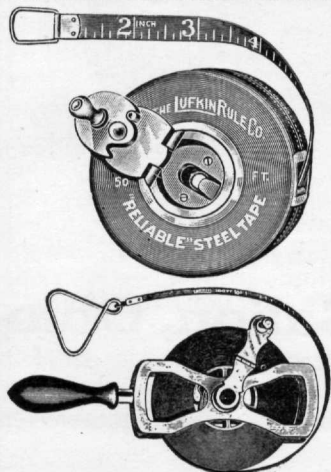
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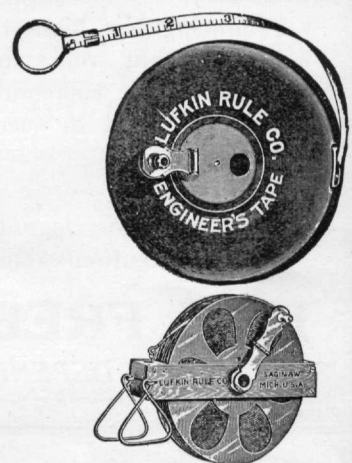
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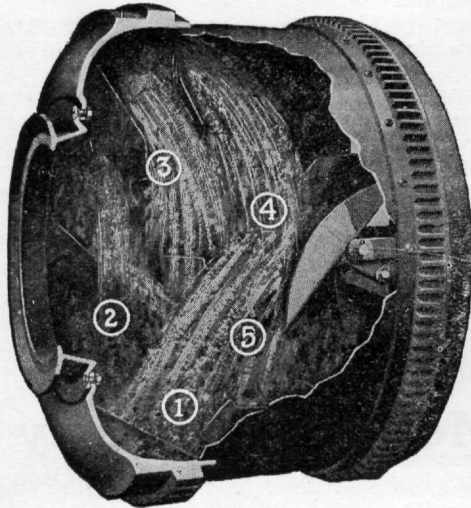
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# Standardized Concrete

## — on what does it depend?



(1) Blade cuts through materials with churning action. (2) Blade carries materials up, spilling down again against motion of drum. (3) Materials hurled across diameter of drum. (4) Materials elevated to drum top and cascaded down to reversed discharge chute which (5) with scattering, spraying action, showers materials back to charging side for repeated trips through mixing process.

**T**HE production of standardized concrete — concrete of absolutely uniform dominant strength — depends on three essentials in addition to the use of proper aggregates.

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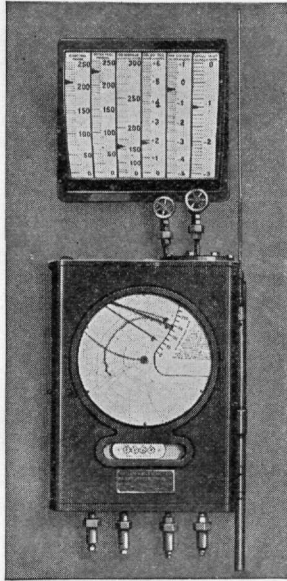


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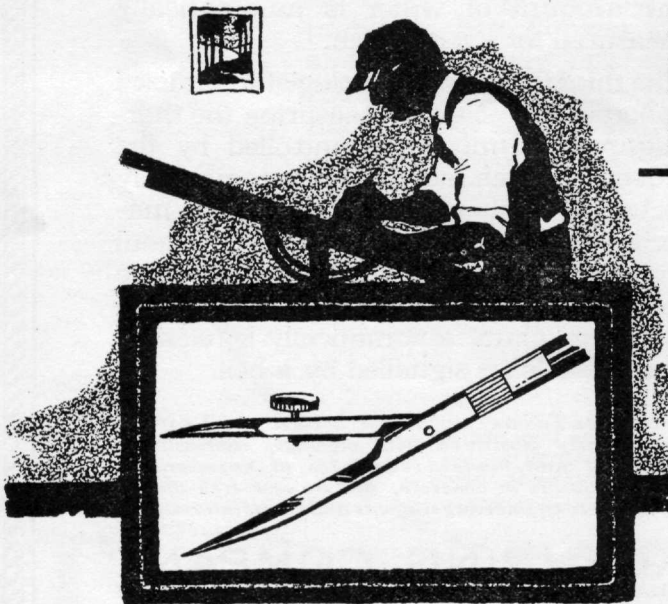
OTHER TYPES of Meters as well as recording and indicating Gages are made for different purposes, so that nearly any problem in connection with the metering of fluids can be handled.

*Bulletins Sent on Request*

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## INDUSTRIAL LIGHTING CODES.

In order to protect workers from accidents and eye sight damage, no less than five states, New York, New Jersey, Pennsylvania, Wisconsin and Oregon have now in force lighting codes for industrial establishments. Other states are now considering the adoption of an industrial lighting code, and it seems only a question of time when all the states will adopt such a code.

Proper lighting of work places is not only of great importance to the operators working therein, directly affecting their safety and eyesight, but it is a factor of equal importance to the employer, as quality and quantity of output are deciding factors of profit or loss in the operation of the plant.

The introduction to the Wisconsin code reads as follows: "Insufficient and improperly applied illumination is a prolific cause of industrial accidents. In the past few years numerous investigators, studying the cause of accidents, have found that the accident rate in plants with poor lighting is higher than similar plants which are well illuminated. Factories which have installed approved lighting have experienced reductions in their accidents which are very gratifying.

"Of even greater importance, poor lighting impairs vision. Because diminution of eyesight from this cause is gradual, it may take the individual years to become aware of it.

"This makes it all the more important to guard against the insidious effects of dim illumination, of glaring light sources shining in the eyes, of flickering light, of sharp shadows, of glare reflected from polished parts of work. To conserve the eyesight of the working class is a distinct economic gain to the state, but regardless of that, humanitarian considerations demand it.

"Finally, inadequate illumination decreases the production of the industries of the state, and to that extent, the wealth of its people. Factory managers who have installed improved illumination, are unanimous in the conviction that better lighting increases production and decreases spoilage."

The Wisconsin Commission has adopted a rule to the effect that, "diffusive or refractive window glass shall be used for the purpose of improving day light conditions or for the avoidance of eye strain, wherever the location of the work is such that the worker must face large window areas, through which excessively bright light may at times enter the building."

A glass is now available which meets the above requirements. It properly diffuses the light and prevents sun glare passing into the building and is known as Factrolite.

Engineers of to-day are making a thorough study of illumination, so that they may be able to plan and lay out industrial plants, to scientifically increase their efficiency to as near the maximum as possible. This accomplished the engineer is not only doing something worth while for his employer, but is doing quite as much for himself by coming into prominence with modern ideas.

If you are interested in the distribution of light through Factrolite, we will send you a copy of Laboratory Report—"Factrolited."

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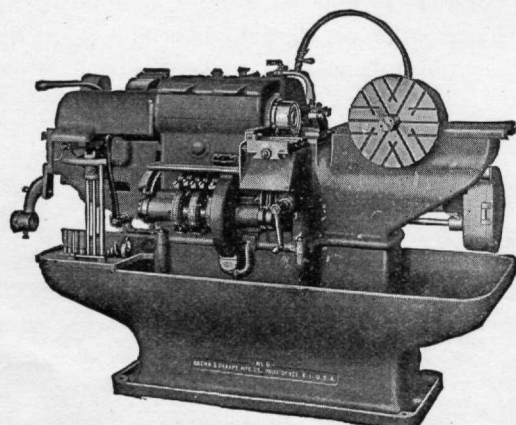
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## The Tomb of Tutankhamen

More than three thousand years have passed since Tutankhamen supervised the construction of his rock-hewn tomb. After he died, his paraphernalia of pomp and pleasure, war and worship, were laid away with him, because in those days the tomb was regarded as the eternal abode of the soul.

In Tutankhamen's time, gold, silver, copper, lead, and tin were mined; bronze vessels and tools were wrought and cast; large blocks of stone were quarried and long underground passages were driven.

These early Egyptians broke rock by driving wooden wedges into grooves chipped out with bronze tools. The swelling of the wedges, after they were wet with water, was sufficient to crack the stone. Thus they tunnelled the tomb of Tutankhamen.

The Pharaohs of Egypt had countless slaves at their command. Therefore, they disregarded

labor costs. Far different is the situation of the modern miner, quarryman, or contractor. Now, even the concentrated energy of dynamite—the great labor-saver of this age—must be carefully conserved.

For work on which it is suited, there is no dynamite more economical than Hercules Special No. 1. It averages about one-third more cartridges per box than 40 percent dynamite, which it frequently replaces, cartridge for cartridge, thereby reducing explosives costs more than 25 percent. Hercules Special No. 1 contains nothing but the highest grade of standard materials and, on many kinds of work, has thoroughly proved its dependability.

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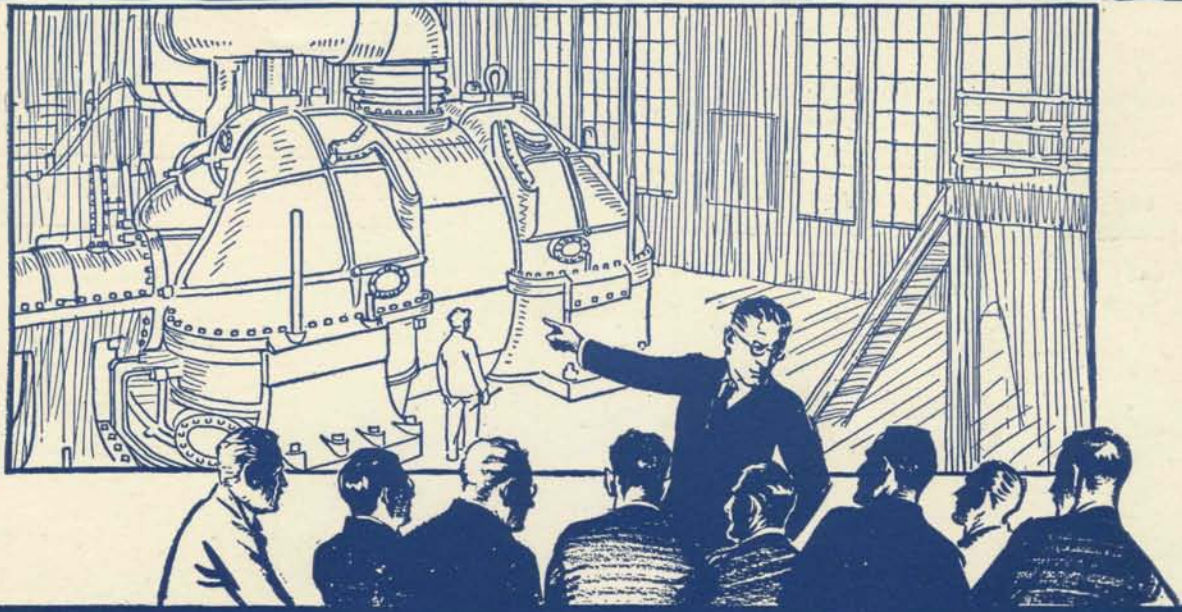
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# The University of Engineering

Of all the things that go to make the successful engineer, none is more important, nor more in step with the spirit of the profession, than a studious attitude. One man says about another—"he is always willing to learn," "he doesn't think he knows it all"—and he intends to pay a high compliment when he says it.

The great engineers are always at school, always learning, always seeking for more knowledge. They begin with this desire for fuller understanding, and they keep it up to the end.

Any engineering operation, over and above the primary purpose for which it is carried out, is an active and post-graduate class in engineering, also. So that Westinghouse, or any other great business,

is, of its very nature, a University where theory and practice combine to make bigger, broader and more practical engineers.

The courses in this University are not limited to prescribed subjects nor terms—the subjects are almost infinite, and the semesters are endless. Men with the weight of years on their shoulders work and learn side-by-side with those whose day has just dawned.

This post-graduate school fits men for almost anything. Fits them for it, and makes them continually fitter. Out of this continuing fitness have grown the engineering accomplishments on which this institution has grown. It is, perhaps, one of the great educational institutions of its day.

# Westinghouse

**ACHIEVEMENT & OPPORTUNITY**



of PORTRAIT OF



SIR ISAAC NEWTON

## James II is Dead— NEWTON Lives

**I**T has always been known that free bodies fall. The earth has a strange attraction. How far does it extend? No one knew before Newton, sitting in his garden, one day in 1665, began to speculate.

"Why should not the attraction of gravitation reach as far as the moon?" he asked himself. "And if so, perhaps she is retained in her orbit thereby." He began the calculation, but overwhelmed by the stupendous result that he foresaw, he had to beg a friend to complete it.

In Newton's *Principia* were laid down his famous laws of motion—the basis of all modern engineering. The universe was proved to be a huge mechanism, the parts of which are held together in accordance with the great law of gravitation.

James II was reigning when

the *Principia* appeared in 1687. He is remembered for the Bloody Assizes of Jeffreys, for his complete disregard of constitutional liberties, for his secret compacts with Louis XIV and the huge bribes that he took from that monarch, and for the revolution that cost him his crown; Newton is remembered because he created a new world of thought, because he enabled scientists and engineers who came after him to grapple more effectively with the forces of nature.

When, for instance, the Research Laboratories of the General Electric Company determine the stresses set up in a steam turbine by the enormous centrifugal forces generated as the rotor spins, they practically apply Newton's laws in reaching conclusions that are of the utmost value to the designing engineer.

General  Electric  
General Office Company Schenectady, N.Y.