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Microfilm also makes possible for the first time the protection of the essential records of business and government, Mr. Davis said. This is the first practical method of insuring deed books and other legal documents which, if destroyed, could not be replaced.

Mr. Davis visualized the libraries and intellectual institutions of the world co-operating to provide microfilm services that will greatly speed the communication of scientific information. Already the great bulk of the world's literature can be obtained in microfilm form upon specific order at a few cents a page.

Microfilm, upon which a conventional letter or book page is not much larger than a postage stamp, is read by optical enlargement in a special reading machine. This device is used in the office like a typewriter, but costs less.

*Science News Letter, June 18, 1938*

## ENGINEERING

## Army Blasts Military Road From Hawaiian Lava

ONLY now, that the job is done, is the U. S. Army talking about its new, strategic military road across lava-lined Kole Kole Pass on the island of Oahu, Hawaii. Although only six miles long, the road rises from 450 feet at its western end to 1635 feet at the pass and then drops to 1,063 feet at its eastern terminus. Schofield Barracks and the Naval Reservation in the Lualualei pocket are the terminals of the strip.

At Schofield Barracks is important Wheeler Field of the U. S. Army Air Corps. The post has often—and rightly—been called the hub of a spoked wheel in Hawaiian defenses. The new Kole Kole Pass Road, together with other highways recently completed, will link Schofield Barracks with the defenses of Oahu previously connecting only through vulnerable approaches.

Much of the highway was dug and blasted from lava cliffs. Three hundred thousand cubic yards of earth and rock were moved but some 30,000 cubic yards had to be handled five times, so that the figure mounts to more than 500,000 cubic yards total excavation.

At one stage, reports Col. Robert S. Thomas, who completed the job, 24 tons of explosives loosened 31,000 cubic yards of rock. But the rock hung tenaciously to the mountainside and could not be undercut for fear of starting tremendous avalanches. Thus it was removed, from the top down, by a series of terraces states Col. Thomas (*Civil Engineering*).

The road has a minimum width of 18 feet and consists of six inches of macadam base with over two inches of wearing surface of hard rock and bitu-

men. Lying in the severe rain belt of the Koolau mountains, where 24 inches of rain have fallen in a single day, the Kole Kole Pass Road was completed in 18 months despite severe rainfall.

*Science News Letter, June 18, 1938*

## PSYCHOLOGY

## Religious Attitudes Are Difficult To Analyze

WHAT 107 persons from the Emergency Relief Bureau think about God, the Bible, Sunday observance, censorship and the proper treatment of criminals has provided a contribution to the knowledge of the human mind. (*Science*, May 27)

Tests for these religious and social attitudes were administered by Dr. Irving Lorge, of Teachers College, Columbia University. Statistical analysis of the results showed that attitudes of this sort cannot be profitably taken apart or broken down into their basic elements in the way that a chemist can break up a compound, or an artist resolve a delicate hue into its primary colors.

When the psychologist becomes too devoted to the factor method, "psychological nonsense" is likely to result, Dr. Lorge and his assistant, N. Morrison, said in their report.

"Traits beyond the first will be inadequately identified and, hence, frequently misnamed," they declared.

*Science News Letter, June 18, 1938*

## THE AUTOBIOGRAPHY OF GENERAL ISAAC J. WISTAR (1827-1905)

Almost hermetically sealed for 32 years after his death, the autobiography of General Isaac J. Wistar, colorful character of a colorful period, gives the American reading public a fresh, first-hand account of the nation's roisterous makers, from the Forty-Niners to the early industrialists.

Written from his diary and contemporary notes, Wistar's opus was intended only for close kinsmen's consumption. It tells with especial frankness of the gunfights and slayings, raw deals and chicanery of the opening of the Far West. In these Wistar, though of heroic stature, is not a hero to be emulated by good little boys. His will, upon his death in 1905, prohibited publication of the autobiography for at least 5 years. In 1914, The Wistar Institute of Anatomy and Biology, which he endowed, cautiously printed 250 copies with a foreword which bound their select readers to confidence.

This new limited edition is published, turning new light on historical controversies of the Civil War period and giving naturalists one of the few eye-witness accounts of the virgin wonderland of the Northwest by a nature lover who literally blazed its trails.

## Recent Reviews

"This autobiography reveals one of the most colorful characters and careers in American history."

Westchester Feature Service.

"Valuable adjunct to historical records."

Boston Sunday Post.

"A strange adventure tale interlarded with the vigorous opinions of a man who knew his own mind better than most, it relates many striking incidents."

Time.

"Easy, smooth, readable literary style."

Florida Times Union.

"Unusually colorful and frank."

The Enquirer, Cincinnati.

"The book is a fortunate combination of historical material with vivid narrative and unquenchable personality, at all times vigorous, shrewd and veracious record."

Cornelia Meigs.

Pages viii + 528. Illustrated. Cloth, 8vo.

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