

State Seen Biggest Helium Source

By W. G. KNEELAND

The wonder gas of the miracle age—that's helium.

And Arizona, long ignored and unexplored as a possible source of the odorless, colorless, non-inflammable gas, may soon become the world's principal supplier.

But when the question is asked, "Just what is helium?", there is no full and complete answer.

DISCOVERED first by spectroscopist, and not found on earth until 1894, helium still is shrouded in mystery—and at least some of its potentialities in this atomic age may remain hush-hush until the U.S. government sees fit to tell the world just what helium can do in the development of atomic power and jet air transport.

Scientists at Las Alamos, N.M., the nation's most carefully guarded atomic research center, are mum on the subject of helium after a decade of study.

One thing is conceded: Helium is a product of radioactive disintegration of radium, uranium, and others of the world's scarce elements. And it has secret "miracle age" uses.

It is the lightest known gas, except hydrogen, with an atomic number of 2 and atomic weight of 4.

EFFORTS to learn more about it led to the discovery of three other "new" gases—neon, krypton, and xenon—and to the fact that there are "several kinds" of helium—each, however, essentially like the other but with enough differences to bear separate designations.

Previously, helium's recognized and principal use was its lifting power, plus the fact that it was noncombustible, and therefore of prime value for balloons and dirigible and semi-rigid airships.

Prior to World War I—when it was virtually unknown except in laboratories—it had a value of \$2,000 to \$3,000 a cubic foot.

Now its rated value is only \$21 per 1,000 cubic feet. But that value is not based upon its "lifting power." Rather, it is upon its unstated defense uses, a few of which are not secret.

ONE OF THESE is its use as a "blanket" or "cover" to ward off oxygen or other gaseous elements in the wonder-welding of some of the newest of rare metals that are being secretly used in the manufacture of super-hot jet plane engines.

Another is in the refining (extraction) and fusing of some of these same rare metallic elements.

But just exactly how helium is being used in those processes remains hush-hush and not even the metallurgists and chemical engineers who pioneered in the research work are ready to tell, yet, the important part which helium plays in defense.

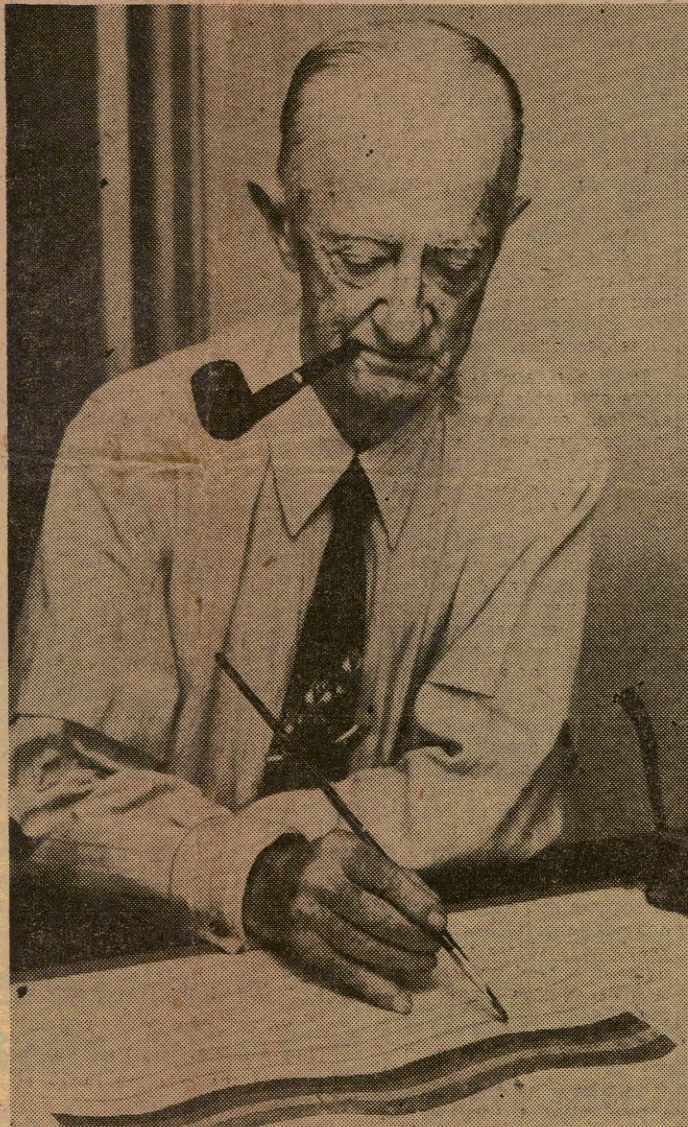
All of these things combine to make Arizona's helium well and its planned industrial harnessing one of the most important single factors of the era.

FOR EXAMPLE, this single helium well is capable of producing 6.4 million cubic feet of helium daily—all on license under the government and the entire yield subject to government disposal. If fully utilized, that is equivalent to more than \$130,000 a day. Because the well is on state land, Arizona will get an eighth of whatever is paid for the gas.

This single well, known as Macie No. 1, in Sect. 34 of T-20-N, R-26-E, a few miles south of the little community of Navajo on U.S. Highway 66, was drilled several years ago by C. M. S. Kipling, then head of Kipling Petroleum Co.

Kipling, a petroleum geologist for more than half a century and the discoverer of producing wells in Calgary, Alberta, and the states of Washington and California, struck the rich helium producer in Arizona during a quest for oil and natural gas.

HIS HOLDINGS, and those of Kipling Petroleum Co., now are



Helium Finder Marking off a stratigraphic map of Arizona area near Navajo, where richest-known helium well in the world is waiting to be harnessed for defense needs, is C. M. S. Kipling, veteran petroleum geologist and consultant for Arizona Gas & Chemical Co. The company is preparing to develop the field.—(Republic Photo, Rod Moyer)

consolidated with those of Arizona Gas & Chemical Co., one of the state's youngest corporations, which plans a \$20 million development in a 30,000-acre area around the discovery well. However, the additional wells will not be for helium, but for oil or gas which, Kipling says, are below the helium-nitrogen strata.

Commercially, the development also provides for the liquefaction of nitrogen for fertilizer. Nitrogen gas composes 89 per cent of the 80 million cubic feet of flow of the Macie No. 1 helium well. Natural gas content is slight, but its very presence is taken as an indication of commercial quantities at lower and yet undrilled depths.

Kipling, as consulting geologist for the AG&C Company, has independently developed theories about helium and the generation of helium.

HE CITES, first, the fact that when Macie No. 1 test well blew in, its flow was estimated at 24 million cubic feet a day. Since then, though capped, it has generated a flow estimated at more than 80 million cubic feet a day.

When the valve on this well is opened, the din of the out-surging gas will drown out the noise of a dozen jet planes. A gallon tin can, empty, if placed in front of the open valve, will be blown a mile.

The resulting theory—with scientific findings and deductions to support it—is that helium keeps building itself up . . . making more of the same . . . and indicating that a well such as the one soon to be placed in production will grow stronger instead of weaker.

"HELIUM GAS," says Kipling, "is formed in the radioactive changes of the chemical elements uranium, radium, thorium, and actinium.

"Minerals which contain these elements are constantly giving off alpha particles, each of which is the electrically-charged nucleus of a helium atom. In the natural process, these particles lose the charge and become helium.

"The minerals carnotite and tobernite," Kipling adds, "have been discovered in Northeast Arizona. These minerals contain the element uranium, and many uranium-producing mines have been located in the area."

IT IS KIPLING'S belief—unrefuted—that the element helium is recreated throughout the period of disintegration of the stratum which it contacts as a result of its continuous bom-

arded such conditions," says Kipling, "could last forever."

Apart from helium for defense or nitrogen for fertilizer, however, is an idea for utilizing the tremendous pressure in the Macie No. 1 discovery well. It is the generation of electricity through a turbine engine, gas-pressure activated.

Such a plan amounts to perpetual motion—something that theoretically just doesn't exist.

BUT, ASKS Kipling, supposing the tremendous pressure of this well is piped to a monstrous tank—passing through and turning a turbine engine en route; then, suppose the only outlet from this tank is one which runs downward into the ground and into the zone of helium; what would happen?

Would the sun-seeking (rising) tendency of the helium, helped by tremendous pressure, turn the rotors of the turbine? Would the pressure then force the gases back into the ground, to be used again?

One thing is certain, helium is noninflammable and nitrogen is incombustible, and no spark from static electricity could damage the forces that might be harnessed.

The program, however, is to produce helium for defense, and nitrogen for fertilizer.

Butter Point Proved; Price Cut, Sales Up

WASHINGTON (UP)—Secretary of Agriculture Benson today released figures to prove what he has claimed all along: housewives will buy more butter if the price is cut.

His proof turned up in a first-of-a-series report which showed household purchases of butter in April—after a government-induced price slash—were up seven per cent from an average 28-day period in November - January. The total was 58 million pounds.

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By Summer

NEW YORK (AP)—The first week of summer brought an upsurge in retail trade and a new high in stock prices. It also produced signs of a mid-year lull in factory output.

Hot weather accompanied by hoopla and aggressive promotions helped merchants reduce their stocks of sportswear, men's summer suits, garden tools, electric fans, and room air conditioners.

There were indications that the furniture industry was getting back on its feet after several months of faltering sales.

STEEL production showed little change as negotiations for U. S. Steel Corp. and the CIO continued their efforts to hammer out a new wage agreement.

Auto output held close to the levels of the previous week, but was 21 per cent below the year-ago production pace. A further decline was expected in July with the end of the peak selling season. Latest industry statistics showed new car sales holding up, but dealer profits at their lowest point since 1947. There was some concern about the effect reduced output of automobiles would have on steel consumption.

Whatever the immediate future might hold, one thing seemed certain: There would be no shortage of bank funds for business borrowing. The Federal Reserve Board announced a further reduction in reserve requirements of member banks—a move expected to enlarge the nation's credit supply by \$9 billion.

FORD Motor Co. announced tentative plans for a program of expansion and modernization which "may carry the biggest single dollar sign" in the company's 52-year history. It all depends, said Vice President Benson Ford, on whether "we will be free to manage our own affairs today, tomorrow and five years from now."

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