

NITROGEN SUPPLY IS NOW ASSURED

Fostering of Infant Industry Necessary to Maintain Soil Fertility.

Washington.—Effective action of the federal government in five years has brought America from ignorance to prominence in the nitrogen fixation industry. Dr. Harrison E. Howe, editor of the official journal of the American Chemical Society, declares in a plea for further development in the interest of the farmer and national preparedness. He asserts that the plan at Muscle Shoals is an entire success from the technical standpoint. The fixed nitrogen research laboratory at Washington has been a powerful stimulus to both large and small scale operations. It is imperative, he says, that government activity continue because Muscle Shoals constitutes only one part of the nitrogen problem. Few people recognize the far-sightedness of congress in assuring an adequate national supply of nitrogen according to Doctor Howe, who adds:

"Nitrogen is necessary to maintain the fertility of the soil. In many sections of the country crops are depleting the soil of its nitrogen, and this is not being replaced. In time of war nitrogen is an absolute necessity in the manufacture of explosives. There are three sources from which nitrogen is obtained—the natural deposits of nitrates in Chile, by products of coke ovens, and the air.

An infant industry.

"The industry which is based upon the recovery of nitrogen from the air is an infant industry in the United States. The domestic demand for nitrogen materials cannot be met by the by-product of our coke ovens. The supply from this source has remained almost constant over a period of years in spite of an increasing demand for nitrogen fertilizers. At the present time we are importing more than half the nitrogen we use from far away Chile, and obtaining less than 2 per cent from the air which is immediately around us.

"Due to the national importance of an adequate supply of nitrogen, the responsibility for fostering the infant air nitrogen industry has rested with the government. What has the government done toward meeting this responsibility?

"First, congress passed the National Defense act in 1916 authorizing the President to make such investigation as he deemed necessary to determine the best, cheapest and most available means of producing nitrates. On the basis of the information thus obtained the government built the nitrate plants at Muscle Shoals and Sheffield, Ala. The fixed nitrogen research laboratory now of the Department of Agriculture was established at Washington, D. C. to determine the possible peace-time utilization of the product from the Muscle Shoals plant in case it were operated, to supply such technical information as would assure a successful operation of the Sheffield plant, which information was not available at the time of its construction, to study new methods of nitrogen fixation with the aim of reducing the cost of nitrogen in fertilizers; to supply the newly developed nitrogen industry in the United States with the information which could be obtained only by intensive research and involving financial consideration beyond the scope of individual concerns.

Commission Appointed.

"A commission was appointed through the Department of Commerce in 1923 to ascertain the present economic situation in the nitrogen industry. Congress is considering the peace-time utilization of the Muscle Shoals properties, as is evidenced by its recent debates and subsequent discussions.

"The results of these activities of the government have been effective and far-reaching. In the brief time of five years America has emerged from a state of total ignorance of many of the more important features of the nitrogen fixation industry to a position of prominence among those nations which have been fostering the air nitrogen industry for a much longer period. While it is true that we have no large production at the present time, yet in case of emergency the country can now proceed with confidence to erect large plants which would have an enormous output.

"The plant at Muscle Shoals proves to be an entire success from the technical standpoint. It has, during a six weeks' test, produced fixed nitrogen from the air in the amount for which it was designed and could resume equally satisfactory operations at any time. While it is true that the total capacity is 40,000 tons of nitrogen per year, this output is but a small fraction of the nitrogen consumed yearly in this country.

"A further source of fixed nitrogen is in sight from the numerous smaller private plants which are being planned or are actually under construction. These enterprises are securing co-operation and valuable technical information and advice from the fixed nitrogen research laboratory, which is an important activity in the government's nitrogen program.

Consistent Work.

"The laboratory's staff of experts, which has been working consistently and with marked success for a period of four years, has placed America in the forefront in the matter of technical and practical knowledge concerning the recovery of nitrogen from the air. Not only has the government improved on the common

methods been made, but certain new and undeveloped methods have been investigated.

"As a further result of this work the Sheffield plant can now be redesigned and operated successfully. Moreover, the laboratory has determined how best to convert the wartime product of the Muscle Shoals plant into fertilizer materials.

"The laboratory has also been a powerful stimulus to the small scale developments in this industry. The concerns financing these developments find here the results of scientific tests which they cannot afford to make for themselves, together with advice on technical and construction details which are not available elsewhere in the country, and without which they could not proceed. Through this agency the government is thus contributing materially to its plan for the building up of a nitrogen industry in the United States which will make us independent in time of war and secure in a time of peace.

"To such enterprises the government must afford the same generous treatment which would benefit any private company or individual that may acquire Muscle Shoals. Out of smaller plants to which reference is made there may grow future large developments and new centers of technical experience always important, for they involve the development of trained personnel.

"Since the assistance of the government, which is principally research and advice, is necessary in the establishment of a nitrogen industry, it should be effectively applied to the whole industry. Therefore, following the ultimate disposition of Muscle Shoals, the least the government may effectively do will be to continue the research program to which it is already committed, for which funds have been appropriated, and the results of which will benefit all alike.

UNITED STATES OIL LANDS HELD FAST

Four Million Acres Withdrawn by Presidents.

Washington.—Public lands, believed to contain almost incalculable quantities of oil, aggregating more than 4,000,000 acres in continental United States, and approximately 25,000 square miles, have been withdrawn from entry by successive presidents since 1900.

This was learned from a further examination of the records of the Department of the Interior, particularly those of the geological survey, which made the original surveys of the oil resources of the properties owned by the government and many of the recommendations which brought about the withdrawals.

This does not mean, however, that all the vast area of oil lands have been set aside for a future petroleum supply for the navy. Apart from the Alaska reserve, only a relatively small part of the acreage has been dedicated to naval use.

This acreage in continental United States is composed of naval reserve No. 1, Ekdalia, California, 18,662 acres, naval reserve No. 2, Buena Vista, Cal., 23,341 acres, and naval reserve No. 3 (Teapot Dome), Salt Creek, Wyoming, 9,181 acres. These are the reserves where the government leases to the petroleum and similar interests have resulted in the case now before congress.

The far greater areas of public lands withdrawn from entry are held by the government for general purposes. Some of the property may later be turned over to the navy, and some may be returned to entry and private prospecting operations.

Withdrawn by Taft

It was in 1909, during the Taft administration, Secretary of Interior Rudolph B. Healy, in a report to the President, recommended the withdrawal of 3,000,000 acres of land in Wyoming and California. Subsequent withdrawals took place as follows: October, 1909, 14,000 acres in Utah and 8,500 acres in Wyoming; December, 1909, 57,478 acres in Wyoming; January, 1910, 14,887 acres in California; February, 1910, 448,800 acres in California; February, 1910, 3,100 acres in Wyoming; April, 1910, 23,730 acres in Wyoming; April, 1910, 407,314 acres in Utah; May, 1910, 413,300 acres in New Mexico; and January, 1910, 3,900 acres in Wyoming.

Those withdrawals were all designated as "military." Soon after they were ordered some question arose as to the authority of the president to take such action and the matter came up in congress, where action was taken confirming the power of the president to provide for the oil reserve.

Still other withdrawals were ordered at the same time, all for the purpose of conserving oil resources of the nation, which happened to be located on government lands. The withdrawals all total amounted to 2,482,709 acres in California; 97,474 acres in Colorado; 314,730 acres in Louisiana; 41,991 acres in New Mexico; 71,810 acres in Oregon; 581,561 acres in Utah; and 25,661 acres in Wyoming.

The first suggestion of a government oil reserve policy for the benefit of the navy was in the form of a memorandum from George Otis Smith, director of the geological survey to Secretary Garfield in 1908 referring to the increasing use of fuel oil by the British navy and the possibility of the general use of such fuel by naval ships. A similar report was made by Dr. Smith in 1909 to Secretary Ballinger, who took the matter under a brief study and later laid it before President Taft.

The Taft order of 1909 followed withdrawing large tracts of oil lands from entry. Three years later President Taft created the first of the naval oil reserves, now known as Reserve No. 1 in southern California. This was in July of that year and set aside 79,028 acres of land for the exclusive use of the navy.

New Naval Reserve

Two months later, upon the recommendation of the Navy department, President Taft created Naval Reserve No. 2, also in southern California, amounting to 29,341 acres. Both tracts were believed to be rich in oil, the richest perhaps of any of the oil lands which had been previously withdrawn from entry by the general order of President Taft.

It was in April, 1915, that President Wilson, upon recommendation of Secretary Lane, decided to turn over to the navy the Teapot Dome area in Wyoming, creating what is officially known as Naval Reserve No. 3. This was known to be rich in oil, and was part of the Salt Creek oil region where vast quantities of oil had been found.

Three times the Teapot Dome tract had been withdrawn. The first time by President Taft in his general order; the second time by President Taft in his second order under the new law, and a third time by President Wilson, when it was found that the navy would need even greater quantities of fuel oil than had been calculated an earlier.

The last order of a president creating a naval oil reserve was that of President Harding setting aside 98,000 square miles of oil lands in Alaska, an area larger than the entire state of Maine, for the exclusive use of the navy.

Just how much oil there is in the oil reserve nobody knows. Geologists of the geological survey refuse to make any positive estimates. They have found seepage all along the Arctic coast and in many spots inland. Much of this area is totally unknown to man, except as it appears on the map.

Something to Think About

By F. A. WALKER

THE THOROUGH MAN

WE WHO by habit are inclined to fritter away our time should give close attention to the thorough man and strive to emulate his worthy efforts. Give heed to him as he confronts his task in the morning, whether it be at the desk or at the head of a great industry.

Observe the decisive directness with which he makes his approach, equipped mentally and physically to drive ahead at a gait that is maintained until the close of the day.

He knows what he wants to do and does it without hesitation.

He is every inch a thorough man. He knows his hand those about him know it. He unangles obstinate skeins, settles disputes and goes through stone walls without bluster. He permits nothing to annoy or disconcert him. His "yes" and "no" cut to the core, but they never exhibit anger.

About the only emotion he shows is his intensity of purpose, which in some subtle manner stirs the most idling, malle out within his presence to renewed activity.

He weighs his acts before he sends them out to do his bidding, having as a result no needless fear of the outcome.

Never dissatisfied to learn he is ever studying new ideas, getting new slants on old problems, shortening distances between starting points, and the goal he visualizes in the distance.

At his first shot he may miss the mark, but he comes back with a larger quiver of arrows, a stronger bow and keeps shooting until he scores a "bull hit."

He does not soil wrong hours when they frankly report but rather praises the moral courage that admits his truth. This is the thorough man who knows his duty to himself and others, who achieves his aims and whose the results look unshaken. If you ask him, he will tell you that his will, power and patience and endurance are given him by "faith in the vastness of things hoped for, and the evidence of things not seen."

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THE ROMANCE OF WORDS

"FRANK"

WHEN we say that a person is "frank" we are under the impression that he is candid, open in his manner and straightforward in his feelings, a meaning which, at least in its metaphorical sense, goes back to the powerful Germanic tribe of the Franks, the word meaning "free" or "unconquered."

The Franks were the mingling people, honorably distinguished from the Gauls and the degenerate Romans, of their love of freedom and their scorn of flattery. In short they possessed the virtues which belong to a conquering and dominant race in the midst of an inferior and conquered one. It was for this reason that the word "frank" came by degrees to mean not merely a national but a moral distinction. A man who was frank did not necessarily belong to the Teutonic tribes bearing that name but he was one who possessed certain moral qualities.

The words "franchise" and "franchisement" being derived from the same root as is the verb "to frank" meaning to send matter through the mail free of charge.

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LOYALTY IS MOST IMPORTANT WORD

Wins First Place in Lists of Six Supplied by Savants.

Princeton.—That "loyalty" is the most important word in the English language today is the consensus of a representative group of Princeton professors, a noted Egyptologist and the university professor here. The question was raised in a discussion in a preceptorial meeting, and to settle the discussion Prof. Christian Gauss, director of public relations, recently made inquiry among eight professors, Professor Boyce and Dr. David Paton, the Egyptologist.

President Hadden when asked for a list of six most important words in the language placed "loyalty" second only to "truth." Dean West of the Graduate college, foremost American educator, and Dr. Joseph K. Rayeroff, director of the department of physical education, both ranked "loyalty" first, an architect and a physical authority, three other men placed "loyalty" either first or second in their six word lists—Dr. J. Dunan Smith, professor of English literature and a rowing coach; David Paton, Egyptologist, and Professor Henry Boyce.

Courage Next to Loyalty.

"Courage" followed "loyalty" with four selections. Here again Dean West and Professor Rayeroff were at one in their choice. Prof. Duane Reed Stuart of the classics department also chose this word as did Dr. Stewart Paton, brother of the Egyptologist and noted anthropologist. Dr. Paton created an interestingly word list when he predicted that intercollegiate football must some day be abolished because of its cumulative damage, but he attributed great virtues to the game as a means of attaining sportsmanship and courage.

Although his chief interest is in education, Dean West placed "knowledge" after "loyalty" and "magnanimity." Dr. Henry van Dyke, formerly professor of English literature at Princeton, chose common every day words such as "yes" and "no," "the" and "a." David Paton concluded his list with "a catholic sense of humor" without which he said any man is certain to take himself too seriously. The complete word lists chosen follow:

Complete Lists of Words.

President Hadden, duty, loyalty, honor, self control, service, sacrifice.

Dean West, loyalty, magnanimity, knowledge, energy, courage, humor.

Dr. van Dyke, the, is, no, yes, do.

Prof. E. J. Smith, truth, head of the department of biology, sincerity, unity, humanity, love, truth, beauty.

Dr. Rayeroff, loyalty, courage, perseverance, self respect, sportsmanship, tolerance.

Professor Stuart, sanctity, restraint, sportsmanship, courage, self-knowledge, altruism.

Dr. Stewart Paton, liberty, loyalty, sympathy, justice, intelligence, character.

Dr. David Paton, loyalty (for friendship's sake), charity (for charity's sake), work (for work's sake), sport (for sport's sake), a catholic sense of humor.

Dr. Stewart Paton, truth, courage, perseverance, health, family, friends.

Professor Boyce, religion, loyalty, honesty, firmness, work, recreation.

Many Kinds of Animals Swept Up From Streets

New York.—If all the things the sanitary bureau of the department of health gathered from the streets of New York city in 1922, according to biennial reports for that year, were in good working order and assembled in one place there would be the nucleus for a good menagerie. The report shows that the bureau dragged up the bones of one lion, one bear, one alligator, 23 camels, three elephants, one deer, 5027 horses, 308 cattle, 16 ponies, 11 bulls, 8 mules, 4 donkeys, 254,803 cats, 4,338 dogs, 741 calves, 376 sheep, 347 goats, 43 hogs and 3 seals.

The report does not say where the seals, the alligator, the camels, the elephants, the lion and the bear came from. In fact the report has it that the bureau is as surprised as anybody.

Girl Dresses Doll in Lost Bonds Worth \$40,000

Chicago.—Eileen Berry, eight years old, playing along the street near her home, discovered in the snow an envelope containing several papers with gold edges.

"What have you there, Eileen?" asked her father, the next evening, as he noticed her marking out plans on the papers.

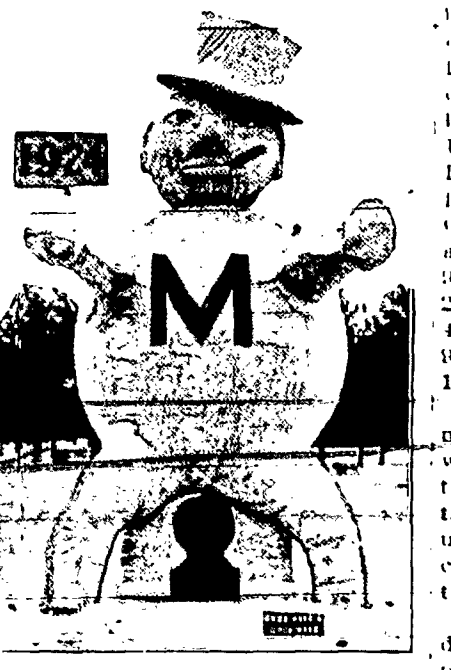
"Just some pretty paper to make dresses for my dollies," she said as she held up one of the papers.

Mr. Berry investigated and was struck speechless. The "pretty papers" were gold bonds, worth \$40,000, all negotiable, with \$900 interest coupons attached. Inquiry at the bank disclosed they had been lost by A. G. Becker, head of an investment company bearing his name, and he gave Eileen \$100 wherewith to buy less expensive material for her doll dresses.

Dog Bites Cost \$70,000

Jersey City, N. J.—It cost Hudson county \$70,000 to treat 900 persons who were bitten by dogs there last year, according to statements by Dr. John Von Der Leth, a veterinary surgeon, before the annual convention of the Veterinary Medical Association of New Jersey in Jersey City recently. Each person bitten had to undergo the Pasteur treatment, which costs the county \$75.

Said to Be Largest Snow Man in World



This huge monster was erected on Merrimac Common for the Manchester (N. H.) winter carnival. It was lighted at night by two powerful search-lights.

Biggest Generator in World Safely Installed

New York.—What is believed to be the world's largest turbo-generator, capable of developing 8000 horsepower, weighing 130 tons and costing \$1,000,000, was safely taken down the Hudson and East rivers on a lighter and put in place without mishap in the Edison company's new power plant on Hudson avenue, Brooklyn. The generator was assembled at the Holtz factory of the United Electric Light and Power company and was placed on the lighter, which, with the aid of two tugs, was then floated down stream to the Hudson avenue dock. The trip required two hours. Powerful cranes there lifted it from the lighter, and on large rollers it was slowly moved into position on a concrete base.

527,568,769 Acres of Land Still Unsurveyed

Washington.—Government surveyors have yet to focus their instruments on more than half a billion acres of the public domain, according to a report issued by the Interior department, and the potential wealth of this vast, virgin acreage may not be known for several score of years. A total of 376,492,000 acres in Alaska and 151,108,769 acres in the western states remain unsurveyed.

Tennessee's Wealth

Washington.—Tennessee's wealth is placed at \$4,228,253,000 in a census bureau announcement giving its preliminary estimate as of December 31, 1922. That is an increase of 129.2 per cent over 1912. Per capita wealth is estimated at \$1,733, an increase of 113.6 per cent.

German Mine Found Near Cape Hatteras

Norfolk, Va.—A grim souvenir of the World war was found by coast guards near Cape Hatteras. It was a floating German mine, capable of causing terrific damage to a ship that might come in contact with it. Naval authorities expressed the opinion that the mine had floated to the Atlantic coast from the North sea, where many were turned loose by the Germans during the war.

The Young Lady Across the Way



The young lady across the way says it's wonderful to think of Lady Astor, an American girl, being elected to the house of lords time after time.

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