Fences in the Ocean

By GEORGE BRINGMANN

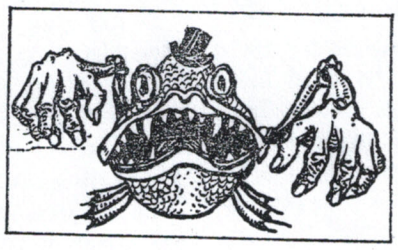
"Anyhow," we used to say, "the air and sunshine are free." It was some consolation. Nobody yet has found a way to enforce a title deed to the four winds and the blue sky. In point of fact, the State, in Elizabethan times, approximated just this feat when it levied a window tax; and since neither sunlight nor fresh air can be enjoyed in a zero-dimensional space, we may say that those who own the standing room we are using also own the sole means of access to the air and sunshine.

But on the surface of the ocean—ah, yes; there man might be free of landlords. No policeman pounds his beat on that watery expanse, no signs forbid trespassing with threats of prosecution, no lawyers consume endless time and paper with sterile arguments whose net result is merely to enrich them and defeat equity. Nobody can build a fence in the ocean.

And yet if we revise our idea of the nature of ownership just a trifle, we discover that the United States Government, not satisfied with giving away the people's resources imbedded in the earth's dry crust, has now given away the ocean. Not merely a certain area of the briny deep, but some of all of it! How this feat has been accomplished is news; how the recipient of this new bounty will enforce his claim, and how the same agency which created his title is now quarreling with him for using it—these will appear as we consider the latest developments in connection with magnesium, the lightest structural metal known, the third most abundant of the earth's metallic gifts.

For many years magnesium was important only in the form in which most people first meet it today—the sulfate, Epsom salt. The familiar "milk of magnesia" is a suspension of the oxide. Asbestos, meerschaum and talc are other common magnesium compounds. Uses of these substances are familiar enough, but uses for the metal itself were very slow in appearing, due partly to the difficulty of preparing it by the old methods, and partly to the fact that it corrodes rapidly in moist air.

When photography advanced to the "flashlight" stage, magnesium became for the first time an article of commerce. This curious metal catches fire rather easily, and burns with an intense blue-white light to which photographic film is extremely sensitive. For this purpose it was sold in the form of powder or ribbon. A striking peculiarity of the metal is that it will even burn in an atmosphere of carbon dioxide, and combines directly with nitrogen. The



latter property is made use of in the manufacture of radio tubes; in order to secure an exceedingly high vacuum, the tubes are exhausted as far as a pump will take them, then sealed, leaving a bit of magnsium inside. After the tube is sealed, the magnesium (called a "getter") is "flashed" by electricity. The metal combines with the few remaining molecules of gas inside the tube, and produces a vacuum as nearly perfect as any we know.

A few years after the World War interest in magnesium began to increase. The pure metal, of course, could not be used commercially because of its tendency to corrode; but researchers found that by mixing aluminum with it they could make a usable alloy. The number of such alloys, with miscellaneous variations, is now quite large; the most important of them are "Duralumin" and "Dowmetal."

In the early days of American production there were five or six companies engaged in the extraction of the metal; today the Dow Chemical Company is the sole producer, and Dow has just been absorbed by the Aluminum Company of America. In the meantime, Dow and five other concerns in allied fields have been indicted by the Federal Government for alleged violations of the anti-trust laws. Two of the five co-defendants are Alcoa and the gigantic German dye trust, the I. G. Farben Industrie. The Government alleges that Dow sold its magnesi-

um at German docksides at 21c a pound and charged American fabricators 30c.

The Dow connection with magnesium goes back to 1915, when the late Dr. Herbert H. Dow became interested in the electrolysis of brine. At that time Michigan was offering a bounty to salt producers, and Dr. Dow built his plant in that state, near some suitable brine wells. His primary interest was in bromine, for which there was very little demand; but he produced chlorine and alkalies as by-products, and, of course, salt as well. In 1930 Dr. Dow died and his son Willard became president of the company. It was about this time that the market for bromine took on a considerably brighter aspect; the element is used in the manufacture of anti-knock fluid for gasoline.

In 1933 the Ethyl-Dow Company was formed and built a plant at Kure Beach near Wilmington, N. C. Water was pumped from the sea, bromine extracted from it, and the waste dumped into a convenient river which, running parallel with the beach, carried the waste far enough southward to keep the ocean outside undiluted.

The company's venture into magnesium production began in Michigan, and little by little it boosted its capacity to 12 million pounds a year. In 1938 it was under five million pounds, and even this quantity was hard to sell; American fabricators were slow to recognize the metal's advantages. Germany was more alert; she produced 26 million pounds in 1938 and 40 million in 1939, and devoted persistent research to discovering new uses. The modern alloys are strong and durable, and above all they are light in weight—twice as heavy as water, a quarter as heavy as iron. Wherever it is important to save weight, magnesium alloys merit consideration. The most obvious use, of course, is in airplane construction.

In 1939 America began to wake up, and nearly 11 million pounds of magnesium were produced. Dow decided to enlarge its capacity, and designed a plant for operation at Freeport, Texas, to extract magnesium from sea water, just as the Wilmington plant was extracting bromine. With this additional plant, production capacity is expected to be 25 million pounds a year.

So far, the history of the industry seems fairly innocent. With the substitution of other names, places and figures it might fit almost any successful industrial development. There is no suggestion of monopoly, and while we have mentioned sea water, there is no indication that the magnesium content of the ocean has been given away. But now the question arises: how did Dow manage to emerge from its early competitive battle as the sole American producer? And how could Dow sell its product nine cents a pound cheaper in Germany, after a 3,000 mile haul, than in the United States? The answer is: patents.

The Government charges that a patent pool exists among the co-defendants. Dow has replied that all the patents it uses are its own. Whatever the truth may be, it is of secondary importance in an economic study. The fact remains that the process of extraction is protected by patents. Where real estate law has not sufficed, patent law has stepped in and accomplished the impossible: it has built a fence in the ocean.

Patents, whether in the hands of a pool or of an individual, have monopolistic tendencies. We note that the same agency which granted the patents in the first place is now bringing the grantees into court; in a private citizen this might be called welching. After all, the most that can be said against the defendants, assuming the truth of all charges against them, is that they are working their State-granted monopoly for all it is worth. No man may take magnesium from the sea and hope to sell it competitively except as a licensee of the owners of these patents. Even if a new producer should enter the field with a new process, more efficient than Dow's, the people would continue at the mercy of a monopoly; there would be a change of masters only. In fact, if such a process were discovered the present patentees would probably buy up the patents and either use them themselves or bury them; it has been done before. Indeed, it's nothing more than good business.

Does the suggestion of fences in the ocean still seem overdrawn? When does a man "own" something? Can students of economics concern themselves with documents covered with fine print and sealed with wax and ribbons, which proclaim that by the grace of the almighty legislature so-and-so is owner of such-and-such?

A little reflection will make it clear that, whatever courts and lawyers may say, ownership in the economic sense may exist without legal ownership, without either possession or title deeds. If you own a house, and I own nothing (in law) but the privilege of building a wall around your house in such a way that you cannot reach your own property except through my gate, then I am your master, and in economic verity the owner of your place. In such circumstances I can (if the policeman on the beat will back me up) make you pay me rent, just as if I were your landlord; and I can make you pay just as much.

In order that ownership should exist in the economic sense, it is enough that control exist. Without control, no form of ownership has practical meaning; with it, technical details retire to the status of superficialities. A bus company may own little land, or none at all; but if it has a charter which keeps competing buses off the streets, and pledges the aid of the policeman to enforce it, then in the economic sense it is a limited owner of the streets. The public has no access to them except for purposes which do not conflict with the charter.

When we remember that ownership has no economic meaning except in the sense of privileged access, the economic theories of Henry George take on a new meaning. One wonders whether history might have taken a different course if a certain Man, sitting at the edge of the Well of Jacob in Sychar, which is a city in Samaria, had been left with His thirst unquenched because He had no vessel of His own to draw Himself a drink, and because the woman of Samaria had replied to His request, "Rabbi, my bucket is patented, and I may not draw from this well for strangers without written permission from the patentee."

The ethics of patents are another matter, but not one which need cause trouble. Every scientific discovery rests upon the work of thousands of students and researchers, each of whom contributes a mite toward the end product. For the most part, their exertions go unrewarded and unrecognized. The law selects the last of their number, the single individual who, so to speak, put on the final dab of paint, and rewards him with a patent. The validity of this patent can be ascertained only through litigation; thus the poor patentee is handicapped from the start, and the practical value of his patent largely nullified. Well intentioned as our patent laws are, the fact remains that they have been ineffective to protect either the scientist against exploitation, or the public against suppression. Even the poor practical excuse that patents encourage invention has no support from facts; the truth is, that genuine scientists need no incentive save the joy of their own work, and that the best spur ever found for inventive ability is, not monopoly, but competition.

Patents on extraction processes have built a fence in the ocean. We shall probably have plenty of magnesium, and the price will not be extortionate — that is, not high enough to kill the business. In 1915 the metal cost $4.50 a pound; in 1925, 50c; in 1940, 21c. But the marginal producer will be excluded from this natural opportunity while the patents remain alive, and those of us who want magnesium will buy it from the Trust, or go without. What is a poverty-economy but a simple repetition of this simple story, with unimportant variations?