is insufficient to raise all of the cable from the bottom. We read further:

"To the float is attached a towing hawser, the other end of which is made fast to a towing engine in the bow of the vessel to be anchored. The engine would be designed to automatically take up the slack in the hawser, while the propelling equipment of the vessel proper would be employed, on the other hand, to relieve the strain on the line in severe storms. The float would be equipped with apparatus for discharging oil to calm waves in bad weather.

"As an example, Mr. Armstrong, assuming a sea station or an anchored vessel of approximately 1,600 tons, arranges the anchorage and proportions the weights of anchor, cable, float, and sea stations as follows:

"The anchor, of the mushroom type, weighs 5,000 pounds and is attached to the cable by 1,000 feet of steel chain cable, two inches in diameter and weighing 230 pounds a fathom.

"To the chain cable are attached 5,000 feet of galvanized steel cable 1½ inches in diameter; then 5,000 feet of 1¾-inch steel cable; then 5,000 feet of two-inch steel cable; and then the last upper stretch of 5,000 feet of 2¼-inch steel cable, secured to the float, the entire cable weighing about 75 tons.

"The anchorage float is 36 feet in diameter and 15 feet deep, with a displacement of 380 tons, made of steel plating and provided with a signal mast. It is equipped with a shackle to which is attached the end of the 1¾-inch galvanized steel deep-sea towing hawser, 1,200 feet long; the other end of the hawser being connected with the winding drum of the automatic steam towing-machine in the bow of the sea station.

"Under abnormal climatic conditions the entire apparatus is designed to respond to the drifting force of the wind and waves merely by lifting a greater or lesser part of the anchoring cable from the bottom of the ocean, while maintaining a balance of all the component forces. The anchored vessel has a drifting radius of more than two miles.

"Assuming that the drift of the float and sea station has been 2¼ miles from the line perpendicular to the position of the anchor, and assuming a backward drifting force by the sea station of 30,000 pounds (which might be the drift of a 2,000-ton vessel in a violent hurricane), the backward drifting force results in an increased displacement of the anchorage float of about 51,000 pounds which in turn increases the strain on the anchoring cable 60,000 pounds. The result is the raising from the bottom of the ocean of such a weight of the anchor chain and cable as will produce the necessary downward strain at the angle derived by balancing the resulting forces.

"A sufficient length of the anchor chain and cable will always remain on the bottom and cause the anchor to act always in its most effective position. The various forces resulting from wind and waves merely vary the displacement of the anchorage float and the length of cable in contact with the bed of the ocean.

"The inventor proposes to equip the sea stations, anchored at intervals of about 500 miles, with flying-decks 180 feet broad and 800 feet long, available alike as landing-fields for small single-seated racing land airplanes or multimotored, heavy tonnage flying-boats.

"Each station also would have its radio equipment and operators 'trouble ships' to rescue disabled airplanes forced to descend to the water between stations, floating landing-platforms for the benefit of seaplanes, complete crews of mechanics, spare pilots, and meteorological personnel and instruments, including kite balloons for conducting weather observations.

"The vessels would also contain comfortable quarters for housing travelers who, because of darkness or inclement weather obtaining at the time or forecast, might prefer to wait over for a later transport."

POISON-PROOF HENS

FROM JOHN BURROUGHS'S last book, "Under the Maples," the editor of *The Guide to Nature* (Sound Beach, Conn.) calls what he terms "this astonishing statement": "You can not poison a hen with strychnine." On reference to Dr. A. K. Fisher, in charge of Economic Investigations for the U. S. Biological Survey, this was found to be sober fact. He wrote:

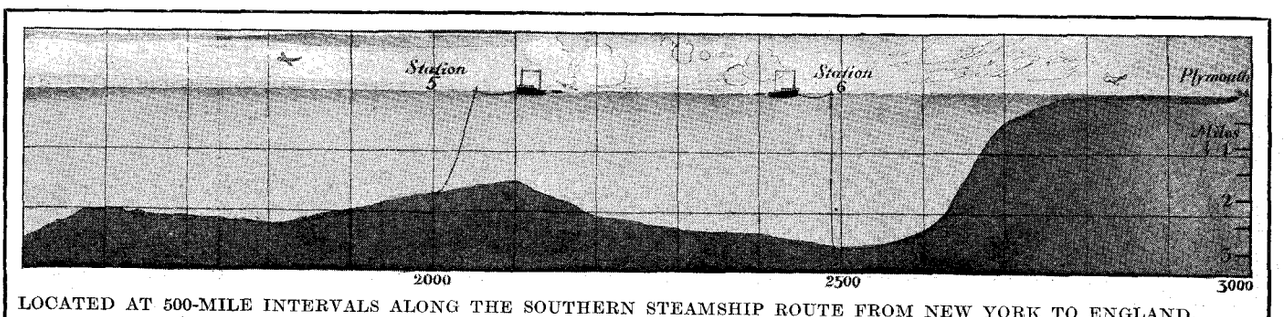
"Chickens and the wild gallinaceous birds seem to be practically immune from the effects of strychnine. Just why they have this immunity is a point to be learned. Extensive field operations and operations carried on in the laboratory by the Canadian Government, the Biological Survey, and the Public Health Service show that a quail weighing not over five or six ounces will eat with impunity enough strychnine poisoned grain to kill squirrels weighing in the aggregate twenty pounds. In our extensive operations in the Western States against injurious rodents, we have distributed over 5,000 tons (165 carloads) of poisoned grain. Altho the assistants carrying on this work are skilled in finding dead animals, up to the present time we have been unable to find one single game bird destroyed by our operations. It may be of interest to you to know that we have further safeguarded the birds by using barley and oats instead of wheat as a vehicle. At the present time this grain is rescreened so as to remove all weed seeds which, when poisoned, might be taken by small seed-eaters."

The editor comments thus:

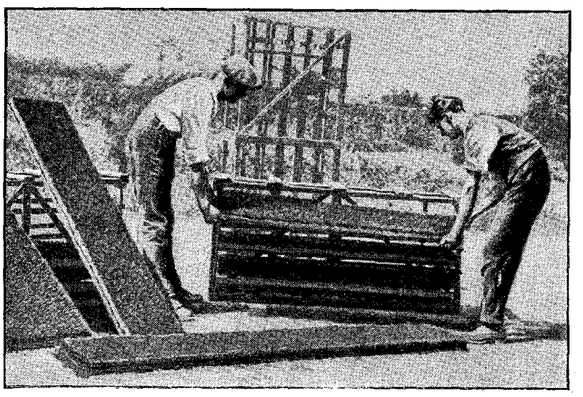
"This is indeed an astonishing situation and it opens up interesting suggestions and great possibilities. Why not get rid of rats around poultry yards by using strychnine? Rodents are susceptible to strychnine, and as the hens are immune we shall escape the danger that most of us have feared if the hen by chance should eat the poisoned grain. We wonder if anybody has experimented along those lines."

FOILING THIEVES WITH A FLEXIBLE KEY—A flexible key, one that will go into and work in a tortuous hole, has been developed in Germany. The many robberies that are constantly reported everywhere have created a demand for such a key, we are told by *The Scientific American* (April). Says this paper:

"According to a British writer's description, the wards and the bow are not connected by a stiff stem, but by four superimposed strands of ribbon steel which prevent any sideways movement when the key comes into play. Thus there need not be a straightway between the escutcheon on the front of the door and the actual keyhole in the lock-case, which can be fixt at an entirely different level, and the point of introduction for the key is independent of the locking point. Between the outside and inside fittings there is a tubular channel with a slit in the bottom to allow the passage of the wards. This channel in German is called *Schlusselzufuhrungsschiene*, or literally 'key-conveying rail,' a word long enough to insure the prevention of burglary. The housebreaker is unable to determine the position of the locking mechanism, nor can he open it with a false key, a wire brush, or a strip of lead. To burst it open is out of the question, as the explosive would fall out through the slit in the keyway made for the passage of the ward. The flexible key is not as unwieldy as one might expect, because it can easily be rolled up into a spiral and put into a neat case to fit the pocket of its legitimate proprietor."



LOCATED AT 500-MILE INTERVALS ALONG THE SOUTHERN STEAMSHIP ROUTE FROM NEW YORK TO ENGLAND.



THE LAWN ARRIVES—

A SUGAR CINDERELLA

"THE CINDERELLA of the sugar industry" is what *The Louisiana Planter* (New Orleans) calls uba, or zwinga cane, a half-wild variety extensively grown in India, whence it has traveled to all tropical cane countries. There is a good deal of it in Cuba. It is the chief variety grown in Japan and the Loo Choo islands, and the only variety of commercial importance in Natal, South Africa. H. P. Agee, director of the Hawaiian sugar experiment station, has found something of the kind in those islands, the Hawaiian correspondent of the *Planter* writes. He proceeds to give us this interesting account:

"B. E. D. Pierce, a Natal sugar planter now in Hawaii on his way round the world, is high in his praises of the particular 'uba' variety grown in South Africa, but Agee is in doubt whether the variety rather extensively grown here as stock feed is the same thing. The name is the same, and in a general way its habit of growth is similar, but not knowing when, how and whence it came to Hawaii, there is doubt.

"The 'uba' cane of Natal, India, Japan and Cuba grows any place, with or without cultivation, from sea-level to mountain-top, under heat and cold, flood and drought. Whether the soil is rich or sterile is the least of its worries. In Natal it stands up against frost in a truly remarkable manner and runs along yielding crops carrying the ratio of 9 or 10 tons of cane per ton of sugar with minimum cultivation and no fertilizer, Pierce stated. It is harvested every other year and ratoons almost indefinitely.

"The Cuban planters swear by it, for it has the same hardy characteristics in that part of the sugar world. In Cuba they have compared the uba of Natal with the uba of Japan and are inclined toward the African strain as being the better.

"Agee says he believes there is a niche in Hawaiian agriculture for the uba cane. There is a likelihood that the Natal uba would grow in many of the poor uplands of Hamakua where the standard cane varieties make but a sorry showing.

"There used to be a patch of so-called 'uba' at the Waipio substation, but Agee had to throw it out because the manager of Oahu Sugar Company strenuously objected to milling 'just a lot of hay' to see whether there was any sugar in it, and plantation managers have to be humored even by experiment-station scientists.

"Down at Waipio 'uba' never seemed to pay any attention to high-grade fertilizers, careful cultivation and rich soils. Under ideal conditions it threw its opportunities away, Agee said. So it was ejected into outer darkness.

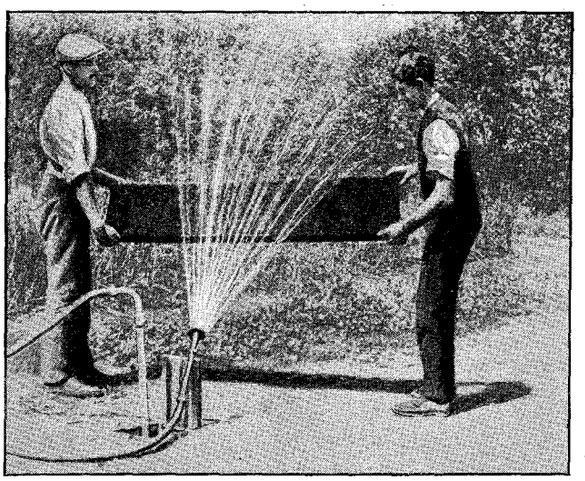
"However, conditions throughout the sugar-cane countries have changed and there is a premium on varieties that will yield fair returns with no care. Cuba is harvesting uba cane that has never had a hoe or a pound of fertilizer put into the soil, and is making money out of it. Japan, India and Natal are doing likewise.

The question naturally arises whether Hawaii might not find it profitable to do the same thing during the lean years of low prices and a labor shortage.

"Uba cane is a tough citizen. Its stalks are small, hard, siliceous, and when ripe, covered with wax. It plays havoc with mill rollers, is high in fiber, but fairly rich in sucrose. Its good qualities which distinguish it are its hardiness under the most adverse environment, the freedom with which it ratoons, and its uniform yields.

"In Natal, wax is one of the standard by-products from every sugar mill, about 13 per cent. of wax being extracted from the press cake. This goes to London. It is used in the manufacture of candles, shoe polish and phonograph records."

READY-MADE LAWNS—Why not buy your lawn ready-made? asks a contributor to *Conquest* (London). Both temporary and permanent lawns are now obtainable "from stock" by those who care to pay the price. It goes on:



—IS WATERED—

"The three photographs on this page show how a temporary lawn—of real live grass, not the imitation variety—can be ordered by post and delivered by the railway company or the carrier at your door. Wooden trays of a suitable size are filled with soil and planted with grass seed, the nurseryman tending them carefully until a suitable crop of fresh, green, closely trimmed grass is produced. If necessary hundreds of these trays can be kept in stock, ready for orders. When a lawn is required, a suitable number of trays are packed into crates (one of which can be seen in the background of the first photograph), and dispatched by suitable means to the purchaser. The method of laying will be understood from our photographs. For those who require permanent lawns 'ready-to-wear,' grass can be grown on a layer of soil spread over sheets of canvas. The 'finished' lawn can be rolled up, sent by rail, and unrolled over a suitably prepared and leveled surface of ground, whereupon the roots will penetrate the canvas, enter the prepared soil, and flourish, the canvas rotting away after a time and providing no hindrance to growth."

—AND DULY LAID IN PLACE.