

## COALING WARSHIPS WHILE AT SEA.

Experiments in coaling American warships at sea were continued last summer and fall and there is no longer doubt that the scheme is feasible. The chief experiments were made with the battleship Massachusetts and the collier Marcellus. The apparatus used was that invented by Spencer Miller and the experiments were practically a continuation of the crude attempts at coaling at sea that was made in 1899. Commander A. B. H. Lillis, Lieut. John B. Bernadou, Lieut. W. R. Rush and Warrant Mechanic Biggs made up the trial board to pass upon the efficacy of the machinery involved and to superintend the trials.

Five tests were made of the apparatus, according to Mr. Miller, who reported on them recently to the annual meeting of the Society of Naval Architects and Marine Engineers. The Massachusetts was towing the Marcellus at the rate of six knots an hour. Coal in bags was run from the mast of the collier to the top of two sheer poles on the after deck of the warship. On the first day of the experiments the adjustments of the apparatus were made and only nine loads of coal were sent from one ship to the other. On the second day there was an attempt to make speed in the delivery of coal. Thirty-eight loads, each load weighing 840 pounds, were sent from the Marcellus to the Massachusetts in 38 minutes and 40 seconds. This test of speed and utility was stopped because a workman allowed the steel cable on which the coal was sent from one ship to the other to be coiled all on one drum and the end of the rope slipped into the sea. It required an hour's work to get the cable into position again.

On the third day twenty-two tons of coal was sent over to the Massachusetts from the Marcellus in an hour and the work was discontinued because there was not sufficient men available to fill the bags promptly. An endurance test of four hours followed and that in turn was followed by a rough weather trial. The four hours' trial was conducted when the water was smooth, with only a ground swell on. In three hours and forty-three minutes seventy-five tons of coal was delivered to the Massachusetts from the Marcellus, the warship all the while towing the collier at the rate of six knots an hour and consuming three and a half tons of coal an hour in doing it. The rough weather trial lasted eighty minutes, and in that time exactly eighty loads of coal were delivered. The delivery of coal could have been continued indefinitely, but the board saw that nothing was to be gained thereby and it was discontinued.

In the rough weather trial it required an hour and a half to get the operation up. The cables and the low-line had to be pulled aboard the Massachusetts from the Marcellus, and the sheers on the stern of the warship had to be set up. The water was so rough that the bow of the warship plunged under the waves constantly. The two boats were steered head on against the waves at first and about twenty tons of coal were delivered in an hour, showing that there was very little difference in the action of the apparatus in heavy or light weather. A course quartering on the sea was then run with precisely similar results and then the vessels were steered into the trough of the sea. They rolled about seven degrees but the rolling had no more effect upon the prompt delivery of coal than upon the pitching. A speed of about five knots an hour was maintained during this test.

The naval officers, according to Mr. Miller, were greatly pleased and Mr. Miller, quotes Capt. Train of the Massachusetts as saying:

"There was no time during the Cuban blockade when this system could not have been used. It proves the system capable of supplying coal in almost any weather that is fit to coal ship."

What Capt. Train meant by 'almost any weather fit to coal ship,' Mr. Miller intimates is any weather except that when the sea would be so rough as to wet the bags of coal in transit from one ship to another. Mr. Miller insists that 'the motion of the ship in a heavy seaway does not effect the working of the device.'

The device for sending the coal from one vessel to another is quite simple. Practically two cables are used, but really only one is in operation for hauling the coal. A three quarter inch steel rope is run from a drum on the collier up through a pulley at the masthead and thence to a pulley at the top of sheer poles on the warship. Thence it runs back to another pulley at the collier's masthead and from that

down to a second drum on the deck of the collier. It is simply a continuous rope from the collier to the warship and back, although it looks at first as if there were two ropes employed. These drums upon which the cable is coiled are of the tension slipping variety. When the ships are plunging and there is strain on the cables, one of the drums gives away, and when the ships rise and the cables become slack the other drum takes up the slack at once.

Over the top of the coal delivering cable that looks like two cables in another, giving the appearance of three cable strung from the masthead of the collier to the sheers on the warship. It runs from a coil spring on the warship over the sheers, back to the masthead of the collier, back still to the mainmast and thence down into the water to a sea anchor, pulled several hundred feet astern. This sea anchor is made of canvas in the form of a cone, like all sea anchors, and in the trials that were made one seven feet in diameter at the base was used. Of course, there was a towing line and conveying lines, and arranging all these lines, as well as setting up the apparatus on each ship, required considerable work.

The sea anchor's use is to steady the ships. It is to act as a compensator and to keep the lines of the conveyer taut and firm. The towing ship tows the sea anchor as well as the collier and as the towing ship rises or falls the strain on the sea anchor is not uniform. The coil spring on the warship is needed to overcome this unevenness of strain. The one tried on the Massachusetts, although six feet long, was too weak and the line between the ships and out to the anchor at the stern of the collier rose and fell to much. Recovering the sea anchor and putting it out occupied so much time that Mr. Miller has recommended that a special drum with a slipping tension be placed on the colliers to be used instead of the sea anchor. He argues that this apparatus could take the place of some of the deck engines now in use for operating winches, and that it would really occupy no more space than is now given to deck machinery on such craft. He also urges that the sea anchor apparatus be taken along for use in case of necessity.

The process of delivering coal is simple. Stout canvas bags are filled with coal on the collier and then are hauled by an elevator to the masthead. There the bags are hooked to a conveyer which runs on the conveying line. A wheel on the top of the conveyer also runs along the sea anchor cable. An operator at one of the drums on the collier pays out the cable and an operator at the other drum takes up the slack. The loaded conveyer is slipped over to the warship at the rate of about 1,200 feet a minute. The bags are slackened in speed when they reach the sheers on the warship. Two seamen take them off the conveyer and dump their contents into a chute and then return to the empty bags on the conveyer to the collier's masthead. There the bags are sent down to the hold of the collier by the elevator and then they are filled again for another trip. A load of coal is thus delivered once a minute on the deck of the warship, the vessels proceeding at the rate of six knots an hour. It was found that to keep the conveying lines in proper compensation the speed for the delivery of the coal should be at least twice that at which the rear ship is being towed.

A force of about forty men was employed on the collier in sending the bags over. Twenty men were engaged in filling the bags and sixteen men carried them to the elevator that ran to the masthead. Two men were employed at the masthead in sending off the full bags and in receiving the empty ones. Then there were the men at the drums and the elevator. On the warship's side two men were employed at the top of the sheers to release the bags and their contents and then the regular crew of the warship took care of the coal in the usual way of stowing it.

Mr. Miller says that a prominent Vice-admiral of the Royal Navy said to him that this device of coaling at sea would be adopted generally if coaling could be carried on at the rate of forty tons an hour, the ships going at ten knots' speed. Mr. Miller asserts that this can be done by carrying loads weighing 1,500 pounds instead of 840. He says there is no difficulty in carrying the increased load. He also says that if a ten-knot speed is maintained, a smaller sea anchor will be necessary, that is all. Of course, if 400 tons of coal can be delivered to a warship going at the rate of ten knots an hour between

daylight and dark, a great problem in modern naval warfare will have been solved. Few of the moderate sized ships carry more than 400 tons of coal, Mr. Miller quotes Admiral Bradford's article recently in the Forum, saying of a warship:

"By far the most serious problem is to obtain an adequate supply of coal. It should be borne in mind that our warships now have no sail power. Without coal they are as helpless as a dismasted sailing vessel in mid-ocean."

Admiral Bradford recounts the difficulties of coaling during the Santiago blockade, and recalls the fact that the Massachusetts, Nashville and Marblehead were away at Guantanamo, forty miles, when the Spaniards came out. The Admiral then adds:

"Our ships can barely cross the ocean without coaling, not to speak of their return. Some of them even cannot do this. At present our ships in time of war can only cruise up and down our coast and advance to the eastward a limited distance, not exceeding half of their steaming radius, and must always keep a sufficient coal supply to run to a port where their bunkers can be replenished. Had Spain possessed sufficient moral courage to have kept her fleet at home and abandoned her West Indian possessions, which were lost to her the moment war was declared, as every strategical reason dictated, the problem would have been vastly more difficult than it was after the destruction of Cervantes' fleet."

At present no naval power is any stronger in warfare upon the seas than the strength of its coaling stations. An efficient method of coaling warships at sea simplifies naval warfare very much and frees every warship from the necessity of keeping within coaling distances of a given place on land. Coaling stations, if this method is a success, will hereafter become simply general supply stations, which is what originally they were really intended to be.

### READY TO INSURE ROYAL LINES

No Discrimination in American Companies Against Reigning Potentates.

In a cable despatch printed here recently it was stated that some insurance companies in Europe were refusing to accept risks on the lives of reigning potentates of the Old World, owing particularly to the menace of Anarchist violence, which had been brought pointedly before the view of insurance company officers by the tragic death of King Humbert of Italy. According to cable advices, one company which found itself compelled to pay \$600,000, the value of a policy on Humbert's life, recently refused to accept a risk on the life of Alexander of Serbia, who sought a policy for 10,000,000 francs. The cable despatch intimated that insurance companies doing business abroad had no more use for royal patrons who might desire to insure their own lives.

Inquiry among officers of some of the insurance companies of the United States which do a large foreign business developed the fact that there is no discrimination against royal applicants for insurance in American companies. Each application for a policy of insurance in American companies is received and acted upon on its own merits, without regard for the accidental fact that the applicant is a royal personage.

"There is no discrimination against kings, a high officer of one of the largest of the New York companies said. 'We do not boycott those seated upon a throne.'

He said that the danger from Anarchists might be considered in connection with an application for insurance, but that it would be considered exactly in the light of certain qualifications of various applicants in classes familiar in this country; that it would be considered among the moral hazards, but that merely in itself it would not operate to bring about the rejection of the applicants for insurance companies. The moral risks of certain kingships would probably be reflected in the premiums exacted in the case of accepted kingly applicants, but the accident of royal birth or legal place would not. American insurance men say, deprive a potentate of the privileges of insurance which he would enjoy if a private citizen of any of several walks of life.

### Seemingly Too Prosperous.

"We'll have to try and induce Dr. Goodthing to move away from here," said the burgess of lovely Agueville.

"My goodness! Why?" asked the prominent citizen. "He understands us so well that—"

"I know, but he looks so prosperous he's scaring prospective settlers away."

### Lord Bute's Beavers.

It is not often that an indifferent frontispiece of a volume of travel influences a man's ambitions, yet that was precisely what the view of a beaver village in a book about Canada did in the case of Lord Bute. He at once aspired to be the

owner of beavers; he sent for a little colony of them from Canada, and he enclosed for their habitation the shore of a lake in one of his own woods. The success of the experiment was complete, and other large landowners, seeing Lord Bute's beavers decided to do as he had done—the Duke of Portland among the number.

### BLIND MAN BOARDS A CAR.

Unusual Attention Shown Him by the Gripman and the Conductor.

Standing on a crosswalk in Columbus avenue the other night, waiting for an up-bound cable car to come along and take him home after his day's work, was a blind man, who carried by a strap over his shoulder a small hand organ, while in his right hand he held a cane. Standing at his other hand was a young girl of 12 or 14 years, who evidently accompanied and looked after him on his travels through the day.

The gripman saw them and held up for them all right, showing what he could really do in the way of stopping a car when he tried by halting this one with the rear step square in front of the blind man. All the blind man would have had to do if he could have seen, would have been to step up on the step, but being blind he didn't know that. He did know, though, that the car had stopped for him, and now he began feeling for it with his cane.

He felt to the left of him and then to the right. At the first try to the left he didn't happen to hit anything, but on the try to the right the tip of his cane landed on the body of the car, and he moved himself in that direction and went too far, going beyond the step.

"This way," said the girl. The blind man let the end of his cane fall then and reached forward with the hand and touched the side of the car. The rest was clear and simple. He ran his hand along back until it fell upon the hand rail at the end of the car body, and then he stepped confidently up. At the next step he stood secure upon the platform with the young girl beside him.

It had happened when the blind man hailed the car that the conductor was inside collecting fares, but he had faced to the rear when the car stopped, and now, when the blind man stepped aboard he reached up and pulled the strap, and then as the blind man came forward in the car he stepped backward himself to meet him and led him forward to where there was room for him and the girl to sit together. And so the blind man went home at the end of his day's work.

### Missed the Third Word.

The other day a Londoner said to a countryman:

"I'll bet you anything you like you cannot spell three simple words that I shall give you within forty seconds."

"I'll take that on. Now, then, what are they?" said the countryman.

"Well, here goes," said the Londoner, as he pulled out his watch: "London."

"L-o-n-d-o-n."

"Watching."

"W-a-t-c-h-i-n-g."

"Wrong," said the Londoner.

"What?" exclaimed the countryman, in surprised tones: "I've spelled the words you gave me correctly. I'm certain I'm not—"

"Time's up!" the Londoner said, triumphantly. "Why didn't you spell the third word—w-r-o-n-g?"

### A Catastrophe.

"Oh, Percy, your present was so beautiful! And you unintentionally left the price-tag on—forty dollars."

Percy—"Oh, how careless of me!"

Edith—"And I see you bought it at Dacey's. And I know you wouldn't mind taking it back and exchanging it for one of those lovely forty dollar brooches they have there, would you?"

Percy—"Oh, not at all! With pleasure!"

Percy (an hour later, in his room)—"That is what comes of buying a three dollar and ninety cent ring and sticking a forty dollar tag on it! Oh, Lord! won't somebody please kick me!"

### Pardonable.

"See here! I'm not going to pay any such rates as you charge. Do you think I'm a fool?"

Cabman (apologetically)—"What else could I think, sir, when you took a cab instead of a street car?"

THE EMPHATIC STATEMENT that The D. & L. Menthol Plaster is doing a great deal to alleviate neuralgia and rheumatism is based upon facts. The D. & L. Plaster never fails to soothe and quickly cure. Manufactured by the Davis & Lawrence Co., Ltd.

### Her Reassuring Answer.

"I suppose," said Willie Washington in a tone of apology, "that some of my stories remind you of Joe Miller's joke book."

"Not at all," answered Miss Cayenne. "If Joe Miller hadn't written better ones

than they are, he would never have become famous."

### A Sure Thing.

He—"Wasn't that you on the piazza last night?"

She—"No."

"Then I wonder who in the world it was I kissed?"

"You can probably tell by going there tonight at the same time."

**The President a Slave to Catarrh.**—D. T. Sample, president of Sample's Instalment Company, Washington, Pa., writes: "For years I was afflicted with Chronic Catarrh. Remedies and treatment by specialists only gave me temporary relief until I was induced to use Dr. Agnew's Catarrhal Powder. It gave almost instant relief. 50 cents.—49

They were talking about the hereafter, and when it was suggested that the next world might be similar to this, the young woman whose husband is a travelling man ejaculated: "Well, I hope the next world won't be like this. It wouldn't be much of a heaven to have your husband on the road all the time."

**"Regular Practitioner—No Result."**—Mrs. Annie C. Chestnut, of Whiteby, was for months a rheumatic victim, but South American Rheumatic Cure changed the song from "despair" to "joy." She says: "I suffered untold misery from rheumatism—doctors' medicine did me no good—two bottles of South American Rheumatic Cure cured me—relief two hours after the first dose."—50

"I believe in being kind to the birds and all that," said Miss Hankypank, "but I do think Clara Deager carries it too far." "What has she been doing now?" asked the other girl. "She refused Harry Single-shell because somebody told her that when he went out rowing he always feathered his oars."

**"My Heart was Thumping my Life out."** is the way Mrs. R. H. Wright, of Brockville, Ont., describes her sufferings from smothering, fluttering and palpitation. After trying many remedies without benefit, six bottles of Dr. Agnew's Cure for the Heart restored her to perfect health. The first dose gave almost instant relief, and in a day suffering ceased altogether.—51

Grandpa, I wish you'd buy me a pony. Grandpa (a philanthropist)—My son, think of the poor boys who can't even get bread to eat.

Boy—I was thinking of them—the poor little boys whose papas have ponies to sell that nobody will buy.

**The Stomach's "Weal or Woe"**—The stomach is the centre from which, from the standpoint of health, flows "weal or woe." A healthy stomach means perfect digestion—perfect digestion means strong and steady nerve centres—strong nerve centres mean good circulation, rich blood and good health. South American Nervine makes and keeps the stomach right.—52

"He is not a man of very polished diction," said the member of congress. "But he has some very pronounced ideas." "I am compelled to disagree with you, answered the colleague. His ideas are almost invariably mispronounced."

**Pill-Dosed** with nauseous, big purgers, prejudice people against pills generally. Dr. Agnew's Liver Pills are revolutionizing the pill demand—they're so pleasant and easy to take—the doses are small and so is the price, 10 cents for 40 doses. Biliousness, Sick Headache, Constipation dispelled. Works like a charm.—53

He (despondently)—Our marriage will have to be postponed. I have lost my situation and haven't any income at all.

She (hopefully)—That doesn't matter now, my dear. We won't need any. I've learned how to trim my own hats.

**Bright's Disease—Insidious! Deceptive! Relentless!** has foiled hundreds of trials by medical science to stem the tide of its ravages—and not until South American Kidney Cure proved beyond a doubt its power to turn back the tide, was there a gleam of anything but despair for the victim of this dread form of kidney disease.—54

**Bachelor**—Women use such meaningless expressions sometimes. For instance, aren't they idiotic when they rave about 'a duck of a bonnet'?

Benedick—Oh! there's some fitness in that. A duck has a pretty big bill attached to it, you know.

**Baby Humors.**—Dr. Agnew's Ointment soothes, quiets, and effects quick and effective cures in all skin eruptions common to baby during teething time. It is harmless to the hair in cases of Scald Head, and cures Eczema, Salt Rheum and all Skin Diseases of older people. 35 cents.—55

De only trouble 'bout de los' sheep is—it takes too many people ter hunt 'em.

De say dat hell is paved wid good intentions; but hit's my belief dat hell's too hot for even good intentions ter loote dar.

**Little but Searching.**—Dr. Von Stan's Pineapple Tablets are not big nauseous doses that contain injurious drugs or narcotics—they are the pure vegetable pepsin—the medicinal extract from this luscious fruit, and the tablets are prepared in as palatable form as the fruit itself. They cure indigestion. 60 in a box, 35 cents.—56

Husband—I can't get the casters under the bookcase to work at all, and I've oiled them twice.

Wife (with conscious superiority)—But you didn't use castor oil.

She—If you had no idea when we could get married, why did you propose to me?

"To tell you the truth, darling, I had no idea you would accept me."