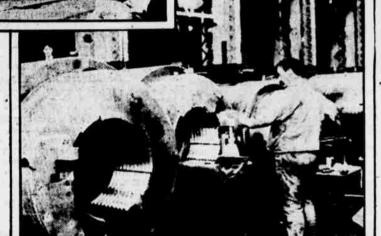
and the second of the second THE SUN, SUNDAY, FEBRUARY 18, 1917. NAVY'S GREAT NEED IS GUN AND AMMUNITION RESERVE TURNING UP THE OUTER SURFACE OF A GREAT GUN FOR A DREADNOUGHT. EVERY NAVAL GUN MUST BE TESTED BEFORE TAKING ITS PLACE ON SHIPBOARD. of much more it quest intervals in order to check up any possible deterioration in the propeliant and to examine primers, &c., from time to time. Powder cases or cans may become leaky, and a leaky can is a menace, for the powder so exposed may undergo changes that would make it dangerous to fire the propellant in a gun or the powder may be affected in another way tending to reduce its propulsive efficiency. Therefore, whenever a ship returns to her station for general repairs or overhaul, it is com-monly the practice to break out her magazines and to send all powder ashore for reexamination. This work has been gravely hampered heretofore by unsatisfactory and cramped storage facilities, and conditions would be greatly aggra-vated should we find ourselves at war and laboring under the pressure and stresses of actual conflict. Where, then, are we going to handle our reserve of munitions, assuming that it A DJUSTING THE TELESCOPIC SIGHTS OF may be possible for us to provide such a reserve? ARMOR-Within some limits it is possible to speed up the building of naval ord-PIERCING SHELLS nance, and as a matter of fact the shops can be run well nigh continu-FOR NAVAL 14 INCH RIFLES ously by employing three shifts of is not as long as the 45 calibre gun and the latter is of course shorter than the 50 calibre gun. Increase in length means a longer time in which the shell throw the battle craft out of service

By ROBERT G. SKERRETT.

POUGH

N open break with Spain in 1898 was postponed by us for something like six months so that we could obtain enough powder to meet our immediate requirements in the more pressing directions. The morning after war was declared the newspapers proclaimed New York's immunity from attack, basing this pronouncement upon the authority of a prominent staff officer in Washington. As a matter of fact, it was six weeks



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common target and fired simultaneously from a single point of control

fatter are of flight and a further reach or ringe. Therefore in salvo firing a common target and fired simultanepany and the Bethlehem Steel Com- But the lack is not alone in guns of action?

guns without which we might find our-

We have not enough guns to meet

elves at a serious disadvantage?

our destroyers.

is subjected to the accelerating im-pulse of the propulsive gases. This in turn means higher muzzle velocity, a

shifts. Guns weighing anywhere from

any difference in the weapons would involve confusion and probably lead to a waste of ammunition. Now let us see what we have in the way of reserve guns to take the place of those that may be injured in action of those that the difference that the differen way of reserve guns to take the place of those that may be injured in action or so worn in war zervice that they are inaccurate. Exact figures cannot be given, but the general situation can be stated with sufficient correctness. be stated with sufficie

fending this port had a single round of ammunition! What is our situation to-day?

Our potential enemy to-day is a vastly different military power. She has shown no disposition to wait for her foes to prepare: she has struck hard and at once when ready. This completely alters the circumstances hat confront us. Unreadiness means satly more to-day than it did in 1898. and the possible consequences are correspondingly greater. What have we that should make us confident? Let us begin with the navy, which, of neessity must form our outermost line of defence.

Not long ago Capt. Joseph Strauss. then chief of the Bureau of Ordnance miral Sims. He says: of the Navy Department, answered in this fashion a query put to him by a

"It is very difficult to argue from the past in the matter of warfare. Weapons have changed so tremen-dously that I think we should not take any lessons from the past as to what a happening now or what could hap-

"For instance. I sneak now of a range of 24,000 yards. That is over thirteen land miles; it is nearly fourteen land miles. A gun of that sort in the civil war would have been considered an absurdity, an impossibility. As and he will not be able to hit anything. hort a time ago as the Spanish war that was away out of the range of any knocked out and it has been rendered sun then mounted."

absolutely useless. That can Not only have the weapons changed knocked out by the projectile striking the gun directly or the projectile hitin their reach and might, but the matting a part of the ship and exploding ter of supplies for the guns has underand a piece of the shell striking the profound change. The very Some pieces of an exploded shell

life of the modern rifle is shorter than gun. was formerly the case, and the time needed to build it and the care required done by one of these flying pieces can its manufacture have increased many fold.

The popular idea of a ship's being rendered hors de combat, is that sh These facts must be faced when we shall be struck below the water line or count upon maintaining the battle fleet At for the protection of our shores, and that she shall be battered to pieces in they bear directly and vitally upon the other directions. Rear Admiral Sims other directions. Rear Admiral Sims shows that the ponderous 12 and 14 tflective arming of lesser fighting shows that the ponderous 12 and 14 ships and the scores and scores of auxiliaries which would be needed in made useless by a comparatively insignificant injury to their muzzles, and time of national peril.' Gun power is the ultimate and decisive measure of a it is equally manifest that the weapons may be impaired by a hotly contested navy's fighting strength. The question is, Have we guns enough now for section in which each gun is fired some-

wartime service?

The layman will ask, "Why should Naval experts are not in complete the rifles wear out so quickly?" This coord when it comes to the question is because of erosion, which wears of the life of the navy's big guns. triking an average, however, it seems away the rifling that gives to the prothat these monster weapons may be jectile the rotary movement essential counted upon to fire a hundred rounds to occuracy of flight. The consuming with satisfactory accuracy before it is flame of the propelling charge of hecessary to reline them and to re- smokeless powder has a far higher temperature than the melting point of tiffe them: the steel which constitutes the bore of

It is conceivable that our dreadhoughts in order to force a decisive action might be compelled to fire sub-stantfally a hundred rounds from all of their big guns. This could be done effect. As explained by one of the action is sub-stantfally a hundred rounds from all of their big guns. This could be done Inside of an hour's time, and at the navy's ordnance experts: and of that time the magazines would "Frosion, that is, the wearing out of velves decidedly impaired in their accuracy of shooting.

length as those at present installed. The reason for the latter specificaexhausted and the weapons them- the gun, is caused by a thin film of the bore heating up, and in that soft con- the street, to whom all 12 inch guns explained, could not be substituted for letters to Midvale asking to be indition the surface of the metal is worn or all 14 inch guns are substantially weapons of fewer calibres in length structed how to fill the contract they off with each shot. If the shots fol- alike. The naval man, however, knows

will weigh 150 pounds and the damage

be readily imagined.

thing like a hundred times.

sion for every shot fired."

several hundred rounds.

there are other ways for a gun to be harmed or rendered unit for low each other very rapidly it is pre- better. The gun of 40 calibres length less there could be in the case of any

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I State the



MAIN GUN SHOP, NAVAL GUN FACTORY at WASHINGTON.

sumable that the amount of wear will | Kean, assistant for materiel in the | This also holds true to a large extent increase, but there will be, no matter office of naval operations, was asked: in the case of the Watervilet Arsenal. "What will be necessary in muni-tions and material of all sorts • • • ments in this country, the Bethlehem how leisurely you fire the shots, ero-This malady is not confined by any

to make the present number of battle- Steel Company and the Midvale Steel Company, that are able to furnish this shite of the utmost efficiency ?" ' neans to the big weapons. Take, for Two items included in Capt. Mc- indispensable material. This fact, Kean's answer are of immediate mo- therefore, vitally affects the ultimate instance, a 3 inch gun firing a shell weighing thirteen pounds. Weapons ment. He said that we needed "a gun productive capacity of the Gov- naval service?" of this sort have been worn out in a

few minutes by rapid fire, although complete reserve of turret guns, a one-half reserve of smaller guns and at Watervliet. their theoretical life is estimated at four reloads of ammunition for all These details should be kept in mind ships." That is what we required because our battle strength cannot be twelve months back and that is submeasured by the number of guns afloat stantially what we need now.

but is very largely dependent upon the And where can we get these necesnumber of weapons we have in reserve sary weapons? The capacity of the upon which we can draw promptly for naval gun factory at Washington has replacements when the rifles for one definite limits even when running reason or another are no longer equal night and day. It is possible to build to the work expected of them aboard there in the course of a year twenty the ships carrying them. And of what 12 inch or twenty 14 inch rifles. As does our reserve consist? This is a matter that the naval authorities have sedulously striven to keep from the public, although every tory is not in a position to provide the general replacements that foreign Power is probably fully aware might be called for immediately folthe gun. The metal is exposed to this of the facts. This reserve to be effec-

lowing a single great naval battle. The plant at Washington has been and Midvale did not get the order for engaged for some time in manufactur- the forgings.

ing guns of greater length for certain of our ships now under construction. senal has found difficulty in manufaction may not be clear to the man in These guns, for the reason already turing those forgings and has written on the shipe now in commission un- took away from Midvale."

ernment's factories at Washington and A little bit of inside history leaked out during a Congressional hearing president of the Midvale Steel Company, testified. It will give an idea; of

is upon private enterprise for its sinews of war. To quote Mr. Barba: "Some months ago there was an invitation issued for forty sets of forgings-not the guns, but forgings out of which the guns were to be made for one dreadnought carries from ten to the army-from Watervliet. Midvale hid and was underbid by the Watertown Arsenal at Boston." (The Wa-

tertown Arsenal is a Government plant.) "They put in an estimate which was lower than the Midvale bid.

"Since that time the Watertown Ar-

Washington engaged to capacity pri-vate plants have heretofore been neg-lected when there was not enough work left over after providing for the is must be transported for the better sult up to March a year ago the great part by rail, Government establishments. As a re-

sult up to March a year ago the great plant of the Midvale Steel Company had not manufactured any 4, 5, 6, 7 and 8 inch guns for the three years biller to be the steel industry and the machine topic section has a direct effect upon our we need for months to come, and in preceding.

The men previously engaged in those ammunition which we have available, with actual co. flict. shops-especially skilled were divert. Of course, this should not be the case. Even if private gun plants lend their ed to other lines of trade or lost to It is the result of a lack of foresight aid without stint, as they undoubtedly the organization of that concern. in providing increased storage facili- would, the element of time interposes Where, then, are we going to get the ties as the number of our fighting irresistibly, and thereon hangs the rapidfire weapons that we shall need ships has grown. and also those special anti-aircraft

scattered broadcast at fairly widely gress has provided for an enlargement scparated points; and to be available it must be transported for the better ditional tools, but an obstacle is presented by the existing state of the

ability to move from point to point the the meantime we may be face to face

question of our national security We

"Our oll capacity is 1,200 tons, car-

Theoretically, the powder used by want guns and we want many of them, the navy is supposed to have a life of and without them we shall be at the ten or fifteen years; that is, that no mercy of an aggressive foe. The fleet serious change will take place in its is capable so far as it goes, but it canballistic properties within that time, not continue to be so unless it can As a matter of fact, it is found desir-draw upon a generous reserve of guns

the so-called peace time needs of our navy, let alone supplying the guns that able to overhaul a vessel's ammunition and ammunition would be immediately called for in case of war for other craft. The neval bill now in Congress carries an allowance THE NEWEST MOTOR SHIP of the second half of a sum amounting to \$3,300,000 for latteries for mer-ONTRAST in shipping may be miles we averaged 10.90 knots, which

chant auxiliaries, the other half havseen at the Brady wharf, Staple- is a very good average, all things coning been appropriated last August, Aston, Staten Island. On one side sidered. suming half of these guns to be not larger than 5 inches in calibre, the

appropriation amounts to a confersion of this narrow, open pier is moored a ried in the water ballast tanks, and hat we are to-day short of nearly two four masted Russian bark, the Marl- this would take us a good deal more hundred guns of this size alone, and in borough Hill, a vessel of the old type, than around the world. We have weapons of lesser calibre the deficiency built a quarter of a century ago at travelled from Copenhagen to Singa-Dumbarton, Scotland, and depending pore, about 10,000 miles, on 300 tons is greater.

The recent controversy between Mr. solely on sail power for locomotion. of oil. A comparison of prices will Daniels and the makers of projectiles. On the opposite side is the most mod- show you what is saved in the use has brought to light our shortage in ern of motor ships, the Chile, a Danish of ell instead of coal as fuel the matter of armor plercing shells vessel which has been in service "We filled the oil tanks last at San especially, and Capt. McKean's state- scarcely a year and said to be the Francisco, where the price was \$5 ment of our need of four reloads of re- largest motor vessel in the world's a ton. The price of coal was the same, but as we can run on ten tons of oil

serve ammunition for all ships is trade. equivalent to an admission that we To those interested in this type of a day as against sixty tons of coal lack these munitions for the battle ship the Chile is well worth a visit, you can see what the saving was, fleet alone. How, then, are we going She typifies all that is modern and eco- This amount of oil included the furto get the needful ammunition for nomical in the construction and opera- nishing of light and heat. When we armed merchantmen and the like if we tion of big ships for cargo carrying, are in port moving cargo the operahave not enough now for the regular On so comparatively small a cost can tion of twenty electric winches costs the ship be operated that Chief Officer about \$4-a great saving.

Not long ago the chief of the Burcau Moeller, who is of the Danish naval of Ordnance informed Congress that reserve, has called her "the economical force is much smaller than that of a "we have on hand and ordered about flagship." 61 per cent. of 5 inch projectiles for Most of the economy is the result of engineers, five assistants and four offlast March, when W. P. Barba, vice- all ships up to and including the Penn- the use of oil burning engines to pro- ers, twelve men all told, while there

sylvania and Arizona." The shortage pel the ship. She has engines of the would be at least twice as many in a in 4 inch ammunition was as recently Diesel type of 3.100 horse-power, which coal burner. There are thirty-seven how dependent the Government really as the foregoing a matter of 41 per send the ship along under good condi- on board, all told, including a wireless cent, and the importance of this can be tions at twelve knots speed. This may operator, and this is not many more realized when it is recalled that the be done on an oil consumption of ten than on the good old Mariborough Hill 4 inch gun is the principal weapon of tons a day as against sixty tons of over there."

The shortage in ammunition for the same results.

3 inch rapid fire guns at the same time was stated to be 53 per cent, of flagship, as she is the latest motor placed contracts for the construction the regulation allowance. This quota, vessel to come into the service of the of twenty similar vessels. The conhowever, did not provide for four com- Danish East Asiatic Company of tract price of the Chile, placed shortly, plete refills, as recommended by Capt. Copenhagen. She was built by Bur- before the war began, was \$750,000, but

by the present conflict. the rapid congestion of freight here at |

this port and elsewhere all along the miles since the ship came out," said passengers. She has been chartered he. "During this time we have been detained and cargoes touched at many of the largest ports hagen, said to be the largest cargo eft standing upon the docks, while of the world and have carried many of this sort ever taken out in on

loaded cars are filling the aldings and cargoes. For the distance of 35,000 ship. When asked if Midvale gave the in-

"It follows that our engine room coal burning ship. We have three

coal which would be needed to get the So advantageous has been the operation of its motor ships that the Dan-The Chile might well be called a ish East Asiatic Company recently

McKean, in view of the lessons taught meister & Wain at Copenhagen, is 450 values have risen so that she is now feet long, and is capable of carrying said to be worth over \$2,000,000, A thing that has been emphasized 10,000 tons dead weight. Chief Officer Vessels of this type are handsomely since Germany resumed her ruthless Moeller gave some interesting facts as fitted. The Chile has a mahogany submarine campaign on February 1 is to the capabilities of his ship. panelled saloon off which open the the rapid congestion of freight here at "We have travelled about 40.000 staterooms for a limited number of panelled saloon off which open the