end of a maguetic needle which is toward the south， end of a maguetic needle which is toward the south，
when at rest，is of the same kind as that of the north
pole of the earth．But when we speak of the north pole of a magnetic needle，we do not refer at all to the kind of magnetism which it contains．We call that pole the
north pole which points to the north and which con－ sequently directs a traveler on his way．If any one chooses，he may use the south pole of the needle just is easily as the north to steer
prevent．The Chinese it．
（7482）W．A．G．writes：In your num－ ber of May 28 you gave a description of the＂Vizcaya＂
of the Spanish fieet，and on page 315 I note the following：
＂The ＂They stand high out of the water，they have abundance with a coal supply of 1,220 tons，or enough to carry them for 10,000 miles at a 10 knot speed．＂Am I imposing too much on you to ask whether this statement is correct，as
auring the course of a conversation here a statement was Quring the course of a conversation here a statement was
made that the＂Vizcaya＂could not cross the Atlantic from Spain to Havana and have two days＇coaling left in her bunkers．Based on your statement，it was asserted
that she had coal capacity enough to cross from Spain to the boat could not have two ine positioning of coal left in her bunkers，I would be pleased to know whether you can give me the correct information．I understand tha statement that there would be no coal left to talk of on her arrival here from Europe．So newspaper interview alpo substantiated this statement． This，however，I cannot get confirmed．A．There is no
point regarding war shipe about which there is so much The＂Vizcaya＂is officially rated as carrying 1.200 tons of coal．At an economical cruising speed，this should carry
her from Spain to Cuba and back without recoaling，sup－ posing that her bottom is clean，engines and boilers in good condition，that the coal is of good quality and the firemen understand economical coaling，and that tbe auxiliary engines do not eat too heavily into the supply in almost every one of these particulars the spanish of warships may be reduced one－third．They rarely ac
（7483）H．W．S．writes：I would be much obliged if you would answer these questions： 1
Is it possible to put the Fletcher breech mechanism and mount on the 13 －inch rifies nowin use，without very muc August 1：The Fletcher mechanism is already in use o the 13 －inch naval guns． 2 ．How long would it take $t$ make 13 －inch Brown wire wound guns for the navy
Would the recoil of four of these be too great for ou battleships designed to carry the 13 －inch gun now in use？ A．The 10 －inch Brown wire gun is more powerful than the
present 13 －inch navy gun．With proper plant one could be made within twelve months．The recoil would not hurt the ship．3．What is the cost of a book or annual scriptions of the chief types in the leading navies of the world，and where can this list be obtained？Does the ＂Naval Annual，＂which was mentioned by The Engineer in its reply to the Scientricic American＇s artice on our Annual．＂Cost $\$ 5$.
（7484）W．P．asks：Please let me know the name of the acid and how it is prepared that is
used in delecting positive or negative poles in any source of electricity from battery up to $5 \cdot$ volts，also what number platinum wire should be used as leads．I want something that can be sealed and carried in the pocket． A．A solutiou of potassium iodide in glycerine will serve
as a polaricy indicator．The size of wire leading into the solution is not of any importance．A simple polarity indicator may be made by dissolving some potassium
iodide in water；add a little starch，and boil．Into this dip blotting paper or any other paper which will absorb the liquid．When dry，cut the paper into small strips
$1 / 4$ inch by 1 inch．For use moisten a piece，and apply the ends of the wires to it a short distance apart．The pole which is positive will discolor the paper．Ferro－ cyanide of potasin may be used in the same way．So also
may phenol phthalein．With these no starch need be

## NEW books，etc． DAS WASSERWESEN DER NIEDERLAND－

 ischen Provinz Zeeland．ByFriedrich Müller Berlin：Wing Friedrich Müller Berlin：Wilhelm Ernst u．Sohn． 1898 ．Royal octavo．
Pp．xxvi，612． 121 engravings and 10 Pp．xxvi， 612.121 en
maps．Paper $\$ 9.50$ ．
The province of Zeeland，in Holland，perhaps more than ny other stretch of coast along the North Sea，owes
preservation largely to the dikes and bulwarks bult by the sturdy citizens of Holland．The incessant vigilance and labor which were naturally the outcome of this con－ stant struggle have led to a close study of Holland＇s
waters．In order to prove how important this study is， waters．In order to prove how important this study is，
Herr Müller has written a most comprehensive work based upon researches made in the archives of the historical，and economical investigations．Of the three the land and the geological development of the water ways．In this connection it is of particular interest to
follow by means of the accompanying atlas the constant changes in the land and the struggies of the stanch Dutch－
men agaust the encroaching waters．In the second di－ men agaunst the encroaching waters．In the second di－ vision of the work we find an excellent account of dike
building and a description of particular portions of tbe sea coast with their bulwarks and protective structures． ne thrr and most extenelve and deals primarily with the laws which have been passed to defend Holland from work the author has given a most complete bibliography of the works that he bas consulted．The book will no a oubt be welcomed not only by engineers，but by many work the author has iucorporated matter which cannot be found in ans other book．


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