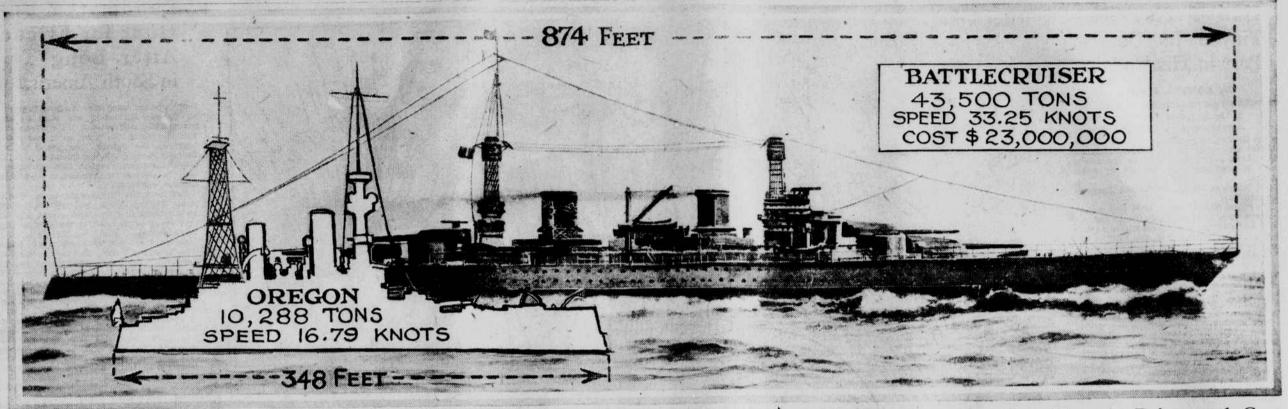
Battle Cruisers, \$23,000,000 Each, Are Greatest of Fighters

The new battle cruiser, six of which type are building. Photograph from the Navy Department's drawing made after plans finally were perfected. The ships are the last word in marine fighting machines and none like them is being built or planned by any other nation. Superimposed on the battle cruiser is an outline of the U.S.S. Oregon, pride of the navy in Spanish War days and considered one of the greatest fighting vessels in the world at that time. One of the new battle cruisers could whip six Oregons and not be touched by their shells.



Switt, Heavily Armed War Craft Outrank Anything Afloat or Laid Down in Speed and Hitting Ability

New York Herald Bureau. | Washington, D. C., Dec. 25.

OME years ago when Great Britain warships "Pitchfork" Ben Tillman, Senator from South Carolina, suggested on the floor two new dreadnoughts then building the to second place. "Simply Fierce" and the "Skeered of Nuthin'.

Though names have already been selected for the six monster battle cruisers now unconstruction for the American Navy and the appellatons facetiously suggested by "Pitchfork Ben" are not among them, any of the giant warcraft might with perfect propriety be characterized as "Skeered o' Nuthin'," for naval experts assert there is no warship affoat which will be able to

make them turn tall and run.

The new battle cruisers, to be built at a cost of approximately \$23,000,000 each, are to be called the Constellation, Constitution, Lexington, Ranger, Saratoga and United States. Briefly, they are the largest and most powerful ships of war ever de-

who remember the battleship Oregon and the thrill of pride every American felt when Capt. Clark sailed her around Cape Horn will be interested to learn that each of the battle cruisers is four times as large as the Oregon, has nearly twice its speed, and singlehanded could probably defeat, six or

Attains Express Train Speed

By 180,000 Horse Power Engines. Despite her enormous size the Constella-tion and her sister ships will have the speed of an express train. Driven by electric en-gines generating 180,000 horse-power she will plough through the waves at forty miles an hour, and in case of emergency will be able to better that figure considerably. Rear Admiral R. S. Griffin, chief of the navy bureau of engineering, has characterized this is "the greatest horse-power per shaft that has even been projected in any marine lastallation, irrespective of the type of motive

To develop this tremendous power eight electric motors, each fifteen feet in diam-eter, weighing 223.000 pounds, are connected in pairs to each of the four propeller shafts. This is twice the number of motors used even on the largest electrically propelled superdreadnoughts.
One hundred and eighty thousand horse

power of electrical energy is enough to sup-ply light and power to a city of 700,000 popu-lation. Anchored in Boston Harbor, for example, the Constellation could generate enough current to take care of the demands of the whole city. The amount of current used to drive the cruisers would operate ofty large merchant ships.

Though Great Britain originated the battle cruiser nearly eight years ago, and at present has many in service, only one, the Hood. approaches our new battle cruisers in size power. Japanese engineers are reported be designing several battle cruisers of the Constellation type, but they are said to be of slower speed, several thousand tons smaller displacement and of considerably lighter armament.

At the beginning of the great war Ger-many had a number of battle cruisers of moderate size, but lost them when her fleets were allocated to the Allies. No other nations have built battle cruisers.

Thus it is seen that America, Great Britain and Japan are the only nations of the world which possess this new type of war ship and that America has taken first place among the navies in this respect, notwithstanding the fact that she was the last to adopt the battle cruiser.

Comparative figures on the Hood and Con-

stellation follow: Normal Dis-Vessel Feet Tons Knots.

Constellation. 874 43,500 33,25 816-inch Hood...... 860 41,200 31.00 815-inch When a smoker seeks his favorite brand

The table shows that the Constellation is fourteen feet longer than the Hood and has an hour faster than that of the British ship. Her main batteries contain the same number f guns as those of the Hood, but hers are 16-inch pieces, while those of the Britisher ore 15-inch. In the secondary batteries the food has twelve 5.5-inch guns, while the

Constellation has sixteen 6-inch guns. Another important point is that while there is only one Hood in the British navy. started bestowing such names as In-domitable and Indefatigable upon her exactly the same dimensions. Ship for ship and gun for gun, Great Britain at the present moment is mistress of the seas, but when American ships now ordered or under con of the Senate that the United States call struction are completed she will drop back

America Takes First Place by

These Monsters and Other Ships in addition to the six battle cruisers of the Constellation type which are now building and must be completed by 1923, there are six battleships of 32,600 tons and six others of 43,200 tons to be completed and delivered to

the American navy by 1923.

Aside from the battle cruiser Hood, the biggest ships Great Britain can boast of are those of the Lion and Tiger class, which have a displacement of 28,500 tons. The Queen Elizabeth, flagship of the British grand fleet during the world war, displaces only 27,500 tons; that is to say, she is less than two-thirds the size of the Constellation.

As previously intimated, the battle cruiser is a comparatively new type of war vessel. It is the result of years of effort on the part of naval designers to produce a ship with the heavy armament of a battleship, coupied with the speed of a scout cruiser. Though American naval strategists were alive to the possibilities of this type of craft, Congress was somewhat slow to accept their recommendations, and it was not until 1916 that battle cruisers were authorized for our navy. Work was immediately begun on the six battle cruisers authorized, but was discon-

dinued when we entered the war.

Meantime, British engineers had produced a number of the new ships, and in the battle of Jutland had opportunity to see the soundness of their ideas tested. The Queen Mary, Lion, Tiger and other splendid examples of the type participated in that engagement, and, according to naval experts, proved beyond question their useful-ness, both in locating the enemy and in

cruisers who penetrated the German screen at Jutland and engaged the main body of the German fleet until the British main fleet under Jellicoe could come to his as-

How American Warships Have Increased, In Size and Cost Since the Spanish War

Ships.	Date	Cost.	Length.	Tonnage.
Alabama	1896	\$2,650,000	374 feet	12,150
Nebraska	1899	3,733,600	441 feet	16,094
Connecticut	1902	4,600,000	456 feet	17,666
Delaware	f906	3,987,000	518 feet	22,000
Florida	1908	6,400,000	521 feet	23,033
Arkansas	1909	4,675,000	562 feet	27,242
New York	1910	6,400,000	573 feet	28,367
Pennsylvania	1912	7,260,000	608 feet	32,567
New Mexico	1914	7,800,000	624 feet	33,000
California	1915	12,675,000	624 feet	33,590
North Carolina	1916	22,000,000	684 feet	43,200
Constellation	1916	23,000,000	874 feet	43,500
Note-These are	typical	ships taken from	m various	naval pro-

When operating alone, the battle cruisers function as ordinary scout cruisers. When with the main fleet they act as what is

known in naval parlance as a "fast wing."

Battle cruisers are from eight to twelve knots faster than any other capital ship, with gun power equal to that of any capi-tal ship. In other words, they are as fast as a cruiser or destroyer, and yet carry guns as powerful as those of a battleship.

of their huge armament they are Because of their huge armament they are more than a match for any cruiser, and be-cause of their tremendous speed and mobility they are able to choose their position in fighting a battleship, thus offsetting to a considerable extent the advantage inherent

Speed, Mobility. Armament

Make Them Superior to Any Cruiser
Corporated by a group of battleships, the
Constellation, if her commander so desired. constellation, if her commander so desired, could easily outrun them. If they were ships of the type of the Arizona, Arkansas or California, she could probably do them considerable damage without being greatly harmed herself, for she could stay at long range and oppose her sixteen inch guns to the twelve and fourteen inch pieces of the battleships. Her greater speed and mobility would enable her to take and keep a posi-tion on the bow of a battleship, where only ealing with him afterward. the bow guns of the enemy co It was Admiral Beatty with his battle to bear upon her, though she

Jutland that she can give a good account of herself in a pitched battle with capital perts as superior to any other type for bat-

ships, such operations are not her primary function. A battleship ordinarily has from ten to eighteen inches of steel armor to pro-tect her from enemy shells, whereas the battle cruiser would rarely have more than five or six inches. It is this sacrifice of armor which makes possible the greater speed. Obviously, no battle cruiser could stand broadside and at close range and exchange shot for shot with a battleship.

The ideal work for the battle cruiser lies in another direction. When a great fleet sallies forth on the warpath it puts out a "screen," both in advance of the main body and upon its flanks. This "screen" is closely analogous to the "advance guard," "rear guard" and "patrols" which an army sends nt, and its functions are exactly the same. It must "screen" the main body so that

enemy cannot learn its true position. prevent surprise attacks and if pe penetrate the "screen" of the enemy such work only fast vessels are used, but if in addition to the requisite speed a ship has great gun power it will obviously doubly useful. Here it is that the cruiser comes into its own.

The designer of the electric installation for the Lexington, Saratoga, Constitution and United States is W. L. R. Emmet, con-sulting engineer of the General Electric Company and pioneer in the development of the electric drive. Mr. Emmet was the de-signer of the first electrical installation for the bow guns of the enemy could be brought to bear upon her, though she would in the meantime be perfectly free to fire broad-sides in return.

Though the little free to fire broad-sides in return.

As the vessels were designed to passive the navy—that now in operation on the U.'S. S. New Mexico. The power plant of difficult. The canal locks are 1,000 feet in the Ranger and Constellation was designed to passive the navy—that now in operation on the difficult. The canal locks are 1,000 feet in

Giant Vessels Use Electric Drive and Carry 16-Inch Guns, Though Armor Is Sacrificed for Speed

velght and especially because of its greater lexibility. An electrically driven ship can utilize full power when running astern as well as ahead, while 40 per cent, of power astern is a good average for other forms of

The electrical equipment has also proved more durable, and repairs, when necessary are more readily made, according to the exerience of navy officials.

Electrical Propulsion Protects

Against Shell Fire and Torpedoes Another important advantage of electrical propulsion in a ship of war is the greater protection against shell fire or torpedoes afforded by that type of construction. In the case of the new battle cruisers, for example, the two turbo-generators and four motors are in separate water tight compartments. If one turbo-generator were disable. the ship could still operate at three-fourths speed, and if half the motors were put out of commission half speed could be main-

It would be impossible to build reciprocating engines sufficiently powerful and sufficiently compact to perform the work the turbo-generators in the new battle cruisers were designed for. According to naval experts, the limit for reciprocating engines was reached in battleships of the type of the Texas and New York. The new battle

recusers are oil burners and have a cruising radius of approximately 6,000 miles.

No definite plans have been made for the distribution of the six cruisers when they distribution of the six cruisers when they are complete. According to tactical experts their assignment would depend entirely upon circumstances. They might form a single permanent division with either the Atlantic or the Pacific fleet, or it might be found advisable to have them alternate between the two fleets. It is also possible, they assert, that conditions might arise which would make it desirable to keep half the battle cruisers in the Atlantic and half in the Pacific.

As the vessels were designed to pass

des in return.

Though the battle cruiser demonstrated at the Ranger and Constellation was designed by the Westinghouse Electric Company.

The gigantic strides in maritime engineerutiland that she can give a good account Electrical propulsion is regarded by ex-

tleships or battle crissers because of its construction of battleships have given rise greater economy in fuel, in space and to much speculation as to where it all will to much speculation as to where it all will end. In 1906 the launching of the original Dreadnought was proclaimed. This war monster was regarded as titanic, and even well informed engineers were convinced that naval constructors had about reached their limits. The Dreadnought, however,

their limits. The Dreadnought, however, has a displacement of only 17,900 tons, a mere tendet, so to speak, for the gigantic Constellation, with her 43,500 tons.

Is there any limitation as to the size of warships? Experts say they do not know. When a ship was built capable of floating a battery of 12-inch guns, amply protected by the constructors thought, they by armor plate, constructors thought they had accomplished a great deal. But compe-tition went on, and soon another nation had built a vessel large enough to float a battery of 14-inch guns. Now come ships carryin. 16-inch guns and engines capable of driving their vast hulk at forty miles per hour. If the nations in their eagerness to be in the first rank decide they should have 18-inch guns, the constructors say they could probably design and build a ship big enough to carry such armament.

War Ships' Increase in Size

Governed by Panama Canal one practical consideration, how ever, which in the opinion of naval men will do more than anything else to limit the size of ships. That consideration is the capacity of the Panama Canal. The Constellation is 874 feet long and 101 feet 8 1/4 inchin breadth. She might be 126 feet longer and still be able to get into the canal locks but if she were three feet wider she could

but if she were three feet wider she could not do it. Of course the canal locks could be widened, but only after a tremendous outlay of time, money and labor. Such considerations naturally suggest the question of dry docking facilities for the new cruisers. According to naval officials the dry docks at Balboa, Canal Zone, Honolulu and Puget Sound are sufficiently large to accommodate vessels of the Constellation class. The new yards to be constructed at San Francisco would also be able to take care of them. On the Atlantic adequate fa-cilities are to be found at Norfolk and Bos-

Though all six of the battle crui designed by the construction department of the navy, only two are being built at United States navy yards. Contracts for the other four were let to private shipbuilding corporations. A limit of \$23,000,000 was placed on the cost of the United States and the Constitution, while the contracts for the Constellation and the Ranger were let on a cost plus fee basis, and those for the Saratoga and the Lexington on a cost plus 10 per cent, basis,

The following table shows the name of the builder and the cost basis for each of the

Ship.

Constellation, Newport News 8. B. Co. Cost plus for Constitution, Navy Yard, Phila? \$23,000,000

To Coerce All Men Teachers United States, Navy Yard, Phila \$23,000,000

Though definite figures as to cost are available only in the case of the Constitution and the United States, it is thought that \$23,800,000 maximum set for those con

, Twenty Years the Limit of

Any War Ship Supremacy In view of the large amount of money in-vested, there is a natural desire on the part of the public to know how long these vessels will be serviceable. The style in warships, according to naval experts, is not unlike the style in women's dress in that it

years have clapsed. That, after all, is about the usual life of a capital warship. When

How the Anti-Cigarette Law Works Out in Kansas passive majority support. That was the predicament in which the legislators found themselves. who find themselves subject to raids and subject to the jurisdiction of the court if a supply is found in their places of business.

To the New Yorker it may seem a long way to the time he will have to go cigarettes. It only places a ban on their sale. One has no right to inquire where or through the same procedure to satisfy how they are secured. his smoking appetite as he does now to mains as a measure of the Kansan's liberty.

State agents seeking contraband have may not be so far off as it seems. Kansas has already joined the blue procession. It has gone further to satisfy the advocates of Puritanical laws than any other and purple socks, the ban on cigarettes cates of Puritanical laws than any other State.

Here is what the reformers have done in Kansas and the way the people feel

ONG before the people of other sections of the country were worried about a cocktail drought Carrie Nation had hewed a path through the barrooms of Kansas. That lady of the batchet. whose heft and bravado became the terror of all saloon keepers, spent most of the time in jail, but lived to see her bottle Main Ar- smashing campaigns strike root and serve

When a smoker seeks his favorite brand he must sheiter his words behind a guard-2,300 tons greater displacement, yet she is ed palm. As much secrecy surrounds the designed for a speed two and a quarter knots -purchase as is required in buying a bottle of hootch, and the Sunflower State under local option was long known for the secrecy it required in that respect. Tobacco stores be raided and stocks of cigareftes confiscated under circumstances comparable to a liquor raid,

quench a parched throat. But with a found by approaching unsuspecting smokers nationwide crusade under steam to rid with an air of fellowship they may learn people of Sunday subways, bad habits the location of cigarette sales centres and number socks, the ban on cigarettes secure evidence for a raid. Their most pop-

A minor cannot appear in Kansas smok-ing either a cigarette, a cigar or a corncob. The first intention of the law was to take under wing the cases of boys, but the Legis-lature soon saw a chance to correct the

iorals of adults and took it.
Kansas stood behind the statute prohibitsmoking among boys. But the Jay-skers do not stand behind the blue law which deprives them of the right to store and make a purchase of a package f cigarettes in a peaceful manner.
With the people of the State as a whole

arraigned against it, how did the law come to be passed? The same question might be asked of New Yorkers concerning the Eighteenth Amendment. New Yorkers had just about as much to do with the passage of the prohibition act as the Kansans as a whole did with the anti-eigarette law

Active Minority in Command

Through Rural Legislators

Kansas is not a State filled with large cities. It is essentially rural in its nature. The members of the State Legislature are essentially rural in their thought and action. Honest and conscientious in their endeavor, they attempt to represent the wishes of their political following. That is good politics. But the difficulty lies in the fact that an active minority support can overcome a

Long before suffrage became national in character the women of Kansas gained the of the mouths of Kansans their liberty to ballot. They were eager to use it and were smoke a cigarette. It has not succeeded, ballot. They were easer to use it and were smoke a cigarette. It has not succeeded, not without their own notions of how it should be used. In the rural districts women in church societies and clubs banded in a the minority had been successful in sadcrusade to wipe out the cigarette.

Taking a determined and active stand on

the question, the members of the State Legislature soon found themselves in danger if they refused longer to deny the demands.

**Attempt by Woman Superintendent To Coerce All Men Teach

To Coerce All Men Teach People as a whole took the matter as a joke. They considered it something to laugh at and did not work against it. The result was that the measure came up and was passe. The legislators acted in all honesty, for the were urged by political necessity and the pressure brought to bear on them. They could have followed no other course without

destroying their political chances.
Out of this peculiar situation rose the anti-cigarette law. The State as a whole did ot desire it, but the legislators succumbed the active fight of the minority,

to the active fight of the minority, When Kansans awoke to the invasion that had been made on their liberty the thing had passed the remedying point.

"What can we do?" asked a Wichita man recently. "We have the law, and those who are opposed to it haven't the time to give to fight to rid themselves of it. I am a business man. The people who got behind this statute didn't have much else to do, order to retain the staff of male instructors. Some of them who had never touched a cornect pipe took up the habit on general to the developments and the statute didn't have much else to do, order to retain the staff of male instructors. They were set out for reform and they got 'Some of to it. I haven't the time to spare from my business to organize an army of cigarette sympkers to undo what has been done, We'll just have to grin and bear it."

Another reform has

is the dealers who sell eigarettes that suffer

The operation of the law seeks to take out

tazzie Wooster, who was Superintendent of Schools for the State for two terms, attempted to impose the law on the men

teachers under her direction. "A man who smokes cigarettes or anything else is not fit to teach children," she said. "I will have none of them in the schools of the State while I am Superin-

But Miss Wooster's task was more difficult than she had reckoned. There was nothing in the law prohibiting the smoking of cigarettes and there was nothing in the

corncob pipe took up the habit on general

Just have to grin and bear it."

Another step in the direction of the blue reform has been taken locally by practically all Kansas cities. This is the prohibition of motion picture shows or any form of ight of a violation to buy all the cigarettes he desires. It is not really in a strict sense a violation, although that was the intent of the ban which was placed on these conditions. The new battle cruisers will have a complement of a violation, although that was the intent of the ban which was placed on these conditions.