



**"VEST POCKET SIZE"**—RCA has now produced this portable model of the Zworykin electron microscope, instrument which has made visible the secrets of the submicroscopic world. Its convenient size and low price will make it available to small laboratories and of much wider usefulness in the war effort.

world if you know the field. To this, it would seem, the scientists who work with the world's newest super-

eye, the electron microscope, are surely coming.

*Science News Letter, December 12, 1942*

#### ENGINEERING

## Small Battleship Plan

Designs for vessel with half a big battleship's fire power on only a third of its displacement are circulated for criticism.

► BATTLESHIPS, reasserting themselves in the latest phase of the Solomon Islands fighting, as well as in the covering force at the landing in North Africa, seem to be coming out of the eclipse into which aircraft carriers were forcing them a few months ago. In an effort to gain some of the advantages of their heavy gun-power and strong armor protection without tying up so much naval investment in so few giant units as those composing present-day fleets, two young naval architects, W. E. Strope of the Navy's Bureau of Ships and S. J. Dwyer of the Federal Shipbuilding and Dry Dock Company, have offered for discussion, through the Society of Naval Architects and Marine Engineers, a set of plans for a capital

ship of relatively small displacement that still carries armor of standard thickness and guns of full battleship-battery caliber.

The standard displacement chosen, 15,000 tons, is only one-third that of the new Iowa class, but is still about as great as that of any pre-dreadnaught battleship. Armor of main belt, conning tower and battery position is 14 to 18 inches thick. Two armored decks and careful subdivision of the hull provide protection against bombing and torpedo attacks. There are two turrets, each mounting either three 14-inch or two 16-inch guns.

This provision of half a big battleship's fire power on only a third of its displacement had to be paid for with

something; in this case speed and secondary armament are sacrificed. Speed is held down to the World War I battleship's 21 knots. Secondary batteries consist of only six 5-inch dual-purpose guns and four multiple pompoms. It is expected that additional anti-aircraft fire will be provided by accompanying destroyers or cruisers.

On the whole, the design is conservative, even conventional. However, there is one radical departure, in the arrangements for venting smoke. Instead of the bomb-inviting smokestack amidships, there are smoke conduits running along the sides, behind the armor belt, and opening through tandem stub stacks on the after deck. Even for this, however, there is precedent in the side-wise sweep of the uptakes on present-day aircraft carriers.

The designers do not undertake to discuss possible tactical uses of ships of this type in detail. However, they do suggest their possible usefulness in protecting large convoys against the attacks of heavy cruisers and even of battleships. They suggest also that they would be well adapted for the naval defense of South American countries that now have to choose between fast but ill-armored, lightly armed cruisers and unnecessarily big and costly battleships.

In this latter possible role they have some resemblance to the coast-defense ships built by the Scandinavian powers, which carry moderately heavy armor protection and heavy cruiser-caliber guns on about half a cruiser's displacement. They represent a decided advance over the German "compromise ship," the pocket battleship, which was a hybrid between cruiser and battleship in everything: gun caliber, armor, speed, internal protection. As weighed in the crucial balance of actual combat, the pocket battleship proved wanting. By choosing full strength at some points and accepting handicaps elsewhere, the small-displacement battleship might very well make a better showing.

*Science News Letter, December 12, 1942*

The use of *hybrid seed* added 300 million bushels to the nation's 1942 corn crop, the U. S. Department of Agriculture estimates.

The *Latin American republics*, extending 8,000 miles south and east of the United States, cover an area almost three times as large as the continental United States.