ered in two positions; first, as standing on its end; secondly, lying on its side.

To find the Contents of Ullage by the Sliding Rule.

By one of the preceding problems find the whole contents of the cask. Then set the length on N. to 100 on S. S. for a segment standing, or set the bung diameter on N. to 100 on S. L. for a segment lying; then against the wet inches on N. is a number on S. S. or S. L. to be reserved. Next set 100 on B. to the reserved number on A.; then against the whole contents on B. will be found the ullage on A.

QUESTIONS FOR EXERCISE.

1. What are the contents of 20 pieces of timber 8 inches $\times$ 12 inches, and 36 feet long in cubic feet, and also in superficial feet?

2. What number of cubic feet in a log whose quarter girt is $17\frac{1}{2}$ inches and length 18 feet?

3. What are the contents of 24 logs 16 feet long whose quarter girt is 27 inches?

4. Required the tonnage of a ship by the English and American rules, the length of the keel being 125 feet and the breadth of the beam 42 feet?

5. What is the weight of a piece of hackmatack timber 8 inches $\times$ 10 inches and 28 feet in length?

6. Required the number of tons in 16 pieces of timber 24 feet long and 12 inches $\times$ 16 inches?

7. In 2,500 feet running length of 2 inches $\times$ 10 inches, how many feet of board measure?

8. In 300 feet running length of 10 inch $\times$ 12 inch timber, how many tons?

9. What are the contents of a cask of the first variety in wine and ale gallons, whose length is 50 inches, bung diameter 38 inches, and head diameter 30 inches?

10. If a log be 35 inches in diameter, what is the largest piece of square timber that can be sawed from it?