

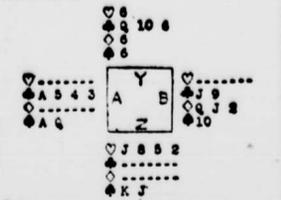
PROBLEMS FOR SUN READERS TO SOLVE

Lesson to Bridge Players Not to Be in Too Great a Hurry to Ruff.

MATHEMATICS OF CRAPS

Magic Square and Magic Star in a Novel Puzzle—A Teaser at Checkers.

Bridge problem No. 108, by J. W. Miller, made no pretensions to being difficult, but was intended rather to convey a useful lesson in the management of the trump suit in those situations in which the beginner is usually found to lose tricks by being in too great a hurry to ruff the adversary's winning cards.



Clubs are trumps and Z is in the lead. Y and Z want two tricks against any defense.

The solution is for Z to sacrifice both his spades and to let Y manage the play in the trump suit.

If A leads the ace of trumps Y plays small a diamond must both queen and ten later, because if A leads a spade Y will refuse to trump it, and when A next leads a trump the queen kills B's jack and the ten is high.

If A leads the spade right back Y discards a diamond, so as to compel A to lead a trump for the next trick. B has nothing to gain by ruffing the spade, as he would then have to lead up to Y, who lies over A.

This throws B into the lead, unless A wastes his ace and makes the ten good for a trick. If B leads a diamond A must play the ace to shut Y out, or if he does not play the ace Y trumps with the ten and gets the second trick at once.

If A leads a small trump for the second trick, so as to prevent the diamond discard from Y's hand, Y puts on the queen and leads the diamond. If B is left in the lead A's guarded ten of trumps is good. If A trumps the diamond and leads a small trump to B's jack he cannot catch Y's ten with the ace, because he cannot get in before Y can over-trump.

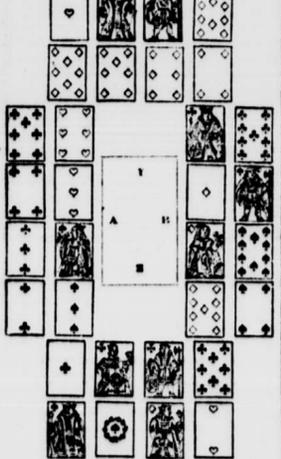
Correct solutions from: Algernon Bray, Murray Corrington, Merrimack James Hunter, W. P. W. Henry Andressen, W. Ogden, H. K. Thaw, R. C. Hill, Jay Reed, F. E. Beatty, J. B. Burton D. Blair, D. Perry, B. G. Braine, William H. Hayes, J. W. Wortz, E. M. Frost, Kenneth S. Hogg, Florence S. Levy, D. A. W. Frank Roy, W. A. Bulkeley, W. T. Bankett, Helton, Keystone, D. Shinn, C. F. Johnson, W. W. Dudley, R. C. Hill, James Steen, A. J. Schmutz, A. C. Sherrwood, H. A. McClellan, Charles M. Root, George E. Glover, F. Beebe, Walker McMartin, C. F. Darling, B. L. Monkhouse, H. A. W. Pauline Newbold, Max Williams, B. M. C., Herbert Riker, H. C. Root and H. M. Seaton.

There were a number of compliments for the author of this little problem. H. E. W. calls it "a puzzling little thing." C. F. Darling says: "Though comparatively easy to solve, it is much more meaty than it looks." Charles M. Root says: "This little six carder is a dandy." H. K. Thaw says: "There are some lovely blind alleys in this one." W. A. Bulkeley says: "May Mr. Miller's shadow never grow less." Jay Reed and Frank Roy both call attention to the beauty of the defence against the heart opening, which Reed says is "one of the prettiest things in a long time."

Once more THE SUN has the pleasure of introducing a new composer, who is one of the crack players at the Knickerbocker Whist Club of New York.

BRIDGE PROBLEM NO. 108.

By Sidney S. Lenz.

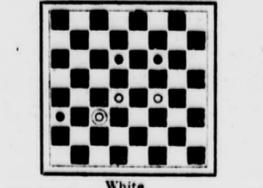


There are no trumps and Z is in the lead. He says he can get six of the remaining tricks against any defense. How does he propose to manage it?

The only fact that might be found with problem No. 108 was that it had two key moves, either of which might be made first, so that the other followed. This was the distribution: Black men on 7, 31, 28, king on 11. White men on 7, 31, 28, king on 1 and 10. White to play and win. Here are the moves that solve:

White may play 31-27 first, and then play 1-3; if 10-15 will not solve, because white cannot gain any advantage from the exchange. Correct solutions from: Herbert D. Martin, Dr. George Hetrich, Walker McMartin, Charles M. Root, Agnes Dornan Pruban, James Steen, C. L.

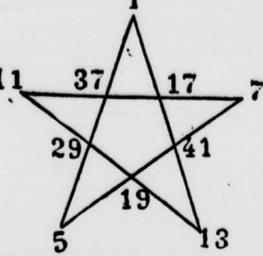
Lynn, William Hendel, C. L. Gelwick, A. J. B. W. La Barthe, Herman Frost, Jr., Country Nutmegger, Lemon Thomson, D. A. W., Henry Lowe, Robert T. Blair, Emily Werlman, Cyrus Brewer, John A. Phillips, Milton C. Isbell, W. J. Hatfield, F. C. Husted, James A. Green, E. R. Leith, O. H. Boston and E. M. Parker. Here is a little problem that is attractive on account of its simplicity and its resemblance to a position that might arise in any game across the board. It was sent to THE SUN by a correspondent who says he had a good deal of trouble with it, but does not know the author.



White to play and win.

MAGIC STARS IN PRIMES. This problem, which was to find the lowest possible number of pieces required to make a five pointed star in which each line of four prime numbers should add the same in all directions, brought out a great many answers that fell just a little short of the true solution.

The only restriction in the arrangement was that only prime numbers should be used, and so far as heard from, the best that any of THE SUN readers can do is to get it down to a total of 180, by the arrangement shown in the following diagram.

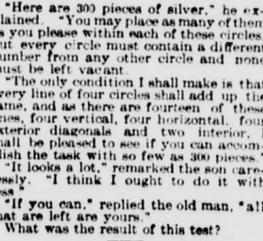


This adds seventy-two each way, and the trick seems to be to get the lowest prime numbers available for the outer points of the star and then to fill in with the smallest numbers that will fit. No one seems to have discovered any rule for it.

The only correct solutions were from: Ernest Berghoff, Charles D. Shuldham, F. R. Frappier, W. Bulkeley, Howard C. Warren and H. C. Hill.

STAR AND SQUARE COMBINED.

It is related that the wise man of the East, finding his son so proficient in the arrangement of both magic squares and magic stars, thought he would try his skill upon the two combined, and accordingly, he set before him one day a curious piece of wood, inlaid with circles of a different color, something like this:



"Here are 300 pieces of silver," he explained. "You may place as many of them as you please within each of these circles, but every circle must contain a different number from any other circle and none must be left vacant."

"The only condition I shall make is that every line of four circles shall add up the same, and as there are fourteen horizontal, four vertical, four diagonal, four exterior diagonals and two interior, I shall be pleased to see if you can accomplish the task with so few as 300 pieces."

"It looks a lot," remarked the son carelessly. "I think I ought to do it with less."

"If you can," replied the old man, "all that are left are yours."

What was the result of this test?

THE CRAP SHOOTERS. This problem, which was to find the precise odds against throwing both six and nine before throwing seven, using two dice, seems to have brought out an array of talent, and also evoked a large difference of opinion as to the correct method of stating the proposition algebraically. J. W. Miller and Algernon Bray agree on this:

"The probability that nine will come first is 4-15. If nine comes first, then the probability that six will show before seven is 1-4. Therefore, the probability that both nine and six will come before seven in this order is:

4/15 * 1/4 = 1/15. In like manner if we take six coming first and nine next, it is 1/15 * 1/4 = 1/60.

The sum of these probabilities, 4-33 and 2-15, is 14-55, which is the total probability of nine and six being both thrown before seven."

"This makes the odds 41 to 14 against, which is about 6 to 2, as we deduct the numerator, 14, from the denominator, 55, and the result is 41 to 14."

On the other hand, L. Grossbaum and J. W. Cromwell, Jr., the latter a professor of mathematics in Washington, got this: "The chance of C's winning is unity, minus his chance of losing. His chance of losing is that both A and B will beat him, or that both nine and six, regardless of order, will precede seven."

The chance that nine precedes seven is obviously 4/15 = 2/7.5. The chance that six precedes seven is 1/4 = 1/4. The chance that both nine and six precede seven is the product: 2/7.5 * 1/4 = 1/15. Therefore C's chance is 1 - 1/15 = 14/15 and the odds against him are 1 to 14."

ROYAL BIDS BORROW FROM ALL THE SUITS

Three Uses for the Spade Call and Three Answers by the Third Hand.

EFFECT ON NO TRUMPER

An Error to Suppose That the New Count Is Too Favorable to Royal Spades.

The moment you introduce a new suit or advance the value of an old one in bidding at royals in bridge you must borrow from all the other suit declarations to fill the place this new one creates. Just as soon as you promote spades to a fighting suit you will find that many of the hands upon which the dealer would be content to bid a spade at auction are long enough in the spade suit to justify a royal, and many of the hands that were two-trick no-trump invitations will come under the same head if the spade suit is long as well as strong.

Any person taking up royals for the first time should have clearly before him the three uses for the spade call and the three answers to it by the third hand.

- 1. One spade, to show that he passes the declaration. 2. Two spades, to show that he can assist a no-trumper with some winning cards in a short spade suit. 3. A royal spade, to show that he wants spades for trumps.

The declaration of any one of these should preclude the other, or the partner will be misled. When the dealer starts with one spade he denies strength enough in spades to assist a no-trumper and he denies two sure tricks in any of the other suits or he would name them.

When the dealer starts with two spades he denies length in the spade suit; denies two sure tricks in any better suit, but shows at least two sure tricks in the spade suit itself and one trick outside to justify the extra trick call.

When the dealer starts with a royal, he does not care what his partner has, because he would rather play the hand with spades for trumps at nine a trick than take any chance with a no-trumper.

The original call of a royal means much the same as a two-heart call did in auction: "Partner, please let me alone, unless you know what you are doing."

It is interesting to examine the results of applying this system of declaring to the 500 hands which were analyzed with a view to discovering the percentage of the original declarations at auction. In that game it was found that there were 222 one-spade calls, and sixteen two-spade bids by the dealer.

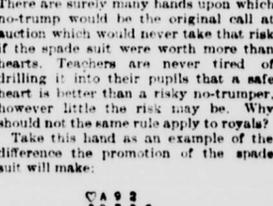
As soon as we introduce the element of a royal spade we reduce the two-spade calls to 9, because 7 of them are better royals, and we reduce the one-spade calls to 194, as 38 of the hands which fell into this class become royals.

Add these together and we get 45 royals in 500 deals, which is just equal to the number of hands on which we would have declared a diamond in the same 500.

As there were 99 heart hands to 45 diamond hands in those 500 deals at auction, the question naturally suggests itself whether this superiority of hearts was not due to giving that suit the preference over diamonds whenever an opportunity offered for a choice. If the answer is in the affirmative, then why should we not examine not only the hearts but the diamonds and the clubs, to see if there are not some of them that would yield the place to a royal spade call if there were a choice, on account of its greater value, just as we pick a heart in preference to a diamond.

But why stop at the suit declarations? There are surely many hands upon which no-trump would be the original call at auction which would never take that risk if the spade suit were worth more than hearts. Teachers are never tired of drilling it into their pupils that a safe heart is better than a risky no-trumper, however little the risk may be. Why should not the same rule apply to royals?

Take this hand as an example of the difference the promotion of the spade suit will make:



At auction, Z was quite justified in declaring no trumps on his cards as dealer, as he is king-jack above average and protected in three suits. A and Y passed, but B called two diamonds. Being unable to stop the diamond suit or shift, he is left to hearts. Z passed, having no fear of B's going game, but Y, who could stop the diamonds, went to his partner's assistance with two no-trumps, which effectively stopped B. The contract was set for fifty points, because B got a diamond lead from his partner and made five diamonds by getting in again with the ace of spades.

While it must be admitted that this is perfectly legitimate bidding for both Z and Y at auction, Z's opening call would be rather injudicious at royals, because if we suppose for a moment that his spades are hearts and give the hand to any bridge player, the wisdom of declaring hearts in preference to no trumps would be at once apparent.

If Z declares one royal on these cards and overcalls B's two diamonds with two royals, or even with three if pushed to it, he will make five by cards, four honors, and the game, a difference of 131 points, without counting the equity of 125 for a game won.

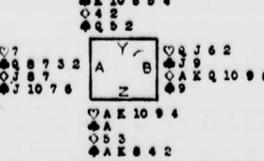
In the 500 deals which were examined for the opening bids at auction, there were 122 original no-trumpers; nearly twice as many as hearts and three times as many as diamonds. If we examine these hands under the new count we shall find only seventeen of them should be no-trumps.

That brings our total up to 45, plus 17, or 62 royals so far in 500 deals. In the heart suit itself we find only six that would be better royals under the new count, which brings our total to sixty-eight. In the diamond calls we find five more that are better original royals, which carries us along to seventy-three. In the small number of club calls we find but one better royal, so that the table of proportionate declarations for the

new count would stand about this way: DECLARATIONS IN 500 DEALS. Original no trumps by the dealer..... 104 Original hearts by the dealer..... 63 Original diamonds by the dealer..... 60 Original clubs by the dealer..... 28 Original two spades by the dealer..... 181 Original one spade by the dealer..... 181 Total..... 600

As already pointed out in the previous analysis, this proportion might not hold for another 500 deals, and it would take a very large number of deals to arrive at the exact figures, but it will be seen that the sliding scale seems to be well maintained, gradually diminishing in number as the hands grow less valuable until we get to the passing hands. These are reduced from 44 per cent. to 37 per cent. under the new count.

As an example of the class of hand that would be considered a safer heart than no trump at bridge or auction, take these cards:



As originally played Z preferred the heart call, which B went over with two in diamonds. Upon Z's going on to two hearts it was A that went three diamonds on the strength of his ability to ruff hearts on the second round, which was rather forward bidding, but it induced Z to risk three in hearts, which B doubled.

Now if Z shifts to no trumps A knows to lead a diamond, so he had to let it stand at three hearts doubled and lose 100 points on the contract through being afraid to finesse against two cards in trumps.

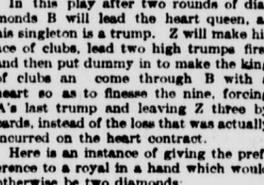
A led the diamond, and after two rounds B shifted to the singleton spade. Z let this run to the queen and led the trump, B playing low. As Z figured that the trump might lie two and three and that B would cover with both queen and jack he put on the king and led the ace. Then he led the ace of clubs to get out of dummy's way and followed with the king of spades, which B trumped.

B drew dummy's trump and then led another diamond, forcing Z, but A had to give dummy club trick after making the jack of spades.

Under the new count Z's hand is a better royal, as the high cards in hearts are more easy to establish as trick winners than the three minor cards in spades. While B will certainly bid two diamonds, he cannot afford to risk three diamonds against two royals. Neither can A, as he cannot ruff Z's declared suit. Even if three diamonds were bid, Z can afford to risk three royals just as quickly as he would to play three hearts.

In this go after two rounds of diamonds B will lead the heart queen, as his singleton in a trump. Z will make his ace of clubs lead two high trumps first and then put dummy in to make the king of clubs an come through B with a heart so as to finesse the nine, forcing A's last trump and leaving Z three by cards, instead of the loss that was actually incurred on the heart contract.

Here is an instance of giving the preference to a royal in a hand which would otherwise be two diamonds:



As originally played, when Z bid the diamond A and Y passed and B overcalled with two clubs. This pushed Z to two diamonds, which all passed. Had A been tempted to try a no-trumper he would have come to grief on the unmentioned suit, spades.

A led the club and dummy put on the ace, Z discarding a heart. The finesse of the jack of clubs, lost to the queen and led A a lead another forcing club. A then won one of Z's two queens in trumps with the ace and led clubs once more. At this point Z made the mistake of pulling both A's trumps and then trying to drop the king of spades.

Failing in this, he let in three clubs and lost 50 points on his contract. His proper play was to clear the spades first, even if he left the long trump against him, which would have made three by cards but not the game. This is a useful lesson in trump management for the beginner.

In this hand under the old count the spade suit is worth nothing except as an assistance to the trump suit, and the only choice that Z has is between a diamond and a trump. As the cards lie this choice has failed as a no-trumper because A would open with the jack of hearts and Z would have no way of getting dummy out to lead to try the spade finesse, even if he cared to risk a thing with ten of the suit between the two hands.

With spades at nine a trick this hand is a better royal than a diamond, as it can go game with one trick less, and it is better than no trumps because it is certain. B may overcall a royal with two clubs, but he can certainly go on to two royals, as he can ruff clubs.

Whether or not B would risk three clubs at six a trick is a question, especially if he is a no-trumper, but the fact is that he does not. Even if he does Z will go three royals, as his loss cannot be large.

If played as a royal Z wins four by cards and the game easily. A will open the heart suit and Z will get a heart discard on the first trick. He cannot lose anything by a finesse in spades, as diamonds or hearts must come up to him, but granting that he does not see it and lets the king make, all he can lose after that is two diamond tricks no matter how the cards lie.

This seems to lead to the conclusion that a royal may be the best form of a spade call, but it may be safer than no-trumps, better than an equally strong heart and easier to go game with than a suitally strong diamond.

But there is one objection to the royal that statistics do not bear out, and that is the contention that it would practically put an end to no-trumps.

If they play royal spades at nine a trick," say the objectors, "it will be all suit makers, or they are safer."

Far from being the case, the effect would simply be to take down the hands on which the dealer passed, or asked his partner to do something with the spade suit, and that there has been very little but one with the no-trumpers, turning an average of only 13 per cent. into suit makers.

As all the other royal declarations are borrowed from the no-trump, it cannot be said that those have cut down the no-trumpers, because they never were no-trumpers. If it is only about seventeen per cent. that are royals instead of no-trumps, it is a statement that the new count makes everything a royal spade and nothing a no-trumper must be largely erroneous.

MISSISSIPPI BASIN ALIVE WITH BOATS

Craft Casting Off From Winter Moorings Indicate the Opening of a Busy Season.

SHOW BOATING THE RAGE

Some Travel Over 6,000 Miles in a Year and Delight Scores of Quiet Towns Along the Mighty River.

PITTSBURG, Pa., April 6.—The show boat Hippodrome has moved up into the upper Ohio river and its summer season has begun. The Hippodrome will give shows at the Iron Villages and coal river camps on the Monongahela. The show boat Cotton Blossom, in tow of the steamer Sophie M., has started up the Great Kanawha river, and is giving melodrama at the landings along that stream. Some twelve or fifteen other show boats are afloat. As often as the people get over the high water excitement they will listen for the toot of the showboat calliope down at the river landing.

The Mississippi basin show boat is a creation of great importance to the residents of riverside towns and landings. At scores of river towns, which do not have railroad connections, and at many railroad towns which are without theatres the show boat takes the place of theatre troupes of the road.

In fact, the show boat makes some of the river towns unprofitable stands for travelling rail following troupes.

Show boating is one of the historical institutions of the Mississippi, dating back to the great migration westward down the Ohio in the 1790s, at which time there appeared on the river song and dance artists. The show boat appeared on the Ohio and Mississippi before the Erie canal opened, and they grew numerous after the Erie canal opened, when it was the custom of performers to move westward along the Erie, take in some of the lake ports, and then cross to Pittsburgh, where boats could be had for trips down the Ohio to New Orleans.

Long before the Revolution there were Mississippi River performers who moved up and down the Mississippi from New Orleans to the settlements at Natchez and other bottom towns. These performers gave exhibitions and passed the hat. The floating theatre, with stage and auditorium and troupe, however, did not appear till about 1817, when the Ludlow-Smith combination appeared on the Cumberland.

These two actors, who were famous not only in the Mississippi show boat business but in the theatrical annals of the country, were never proud of their show boating. When they had a falling out they accused each other of having been shanty boat actors, and in their biographies did not tell how they personally were show boaters. The show boat business in those days had not become a legitimate branch of history, and the actors who tripped the Mississippi show boats seldom boasted of it afterward.

Nevertheless the show boat business before the civil war was in great vogue. There were minstrels, circuses, melodrama, song and dance, a vaudeville, magic, merry-go-rounds, fiddling and concerts, in fact all the varieties of shows from pantomime to straight elocution. There were such artists as Sol Smith, N. M. Ludlow, the Chapman family, the Frenches, and probably 95 per cent. of the actors who played in Mississippi River towns also played on stages in flatboats to river landing audiences.

Some of the old time show boats were suspiciously out of place, carried with them a crew of river pirates, who when the boat was tied up at a town landing were well able to hold their own in a pitched battle. The women could fight as well as the men, and the plays they gave were often just what Mark Twain describes in "Huckleberry Finn." These river pirates, masquerading as actors and actresses, picked pockets, worked film-fam games and gambled. Down to this day little gambling boats sometimes have a side line of performances.

The modern show boat is an entirely different proposition. Capt. Emerson's outfit represents an outlay of \$50,000, and Capt. Mark's spent about \$50,000 on a boat of 100 feet long and 42 feet wide. These boats, which are theatres on barges, are towed up and down the river from town to town. They have advance agents and towns are billed in advance. They carry printing outfits and keep the towns ahead flooded with literature.

Theatre was not infrequent on the river, for there are many show boats, large and small, and sometimes one show boat will slip in ahead of another show boat and draw off the cream of the town's amusement funds.

The Emerson and Markle troupes include about fifty people. They have orchestras of fifteen or twenty instruments, and it takes a large steamboat to supply the power for moving up and down stream the electric lights and printing presses.

A boat travels about 6,000 miles in a year, and a year ago the Cotton Blossom went up the Missouri River hundreds of miles, giving some of the river towns along that stream their first opportunity to see a show in many years. The success of the venture was such that, in spite of snags, sandbars and currents, the Missouri River is now a show boat river.

Melodrama with vaudeville intermissions is the common type of show, but from time to time higher flights are made, and Shakespeare even has been done. The big river show boats all carry moving pictures in these days, and the variety of productions on the river increases and improves as rapidly as the river landing taste.

Followers of the theatrical circuits, especially the vaudeville circuits, have many of them had show boat experience and they say that in these days the show boat is the best of the travelling experiences. The performers have their own rooms on the steamboats or show boats, and there is no packing or unpacking, no rushing litters, and you get from train to theatre, to hotel and back to train again. Between shows there is nothing to do but read, lounge around, keep the boats in order and get over new propositions. Of course there are troubles sometimes and there is a monotony in the life, nevertheless there are actors and actresses who have followed the river for years and others who look back to river seasons with regret.

AD Matthews Sons THE DOUBLE S. & H. Green Trading Stamps on cash purchases FREE before 12. Premium Parlor, Fourth Floor.

Get the Free Housefurnishings Early

The demand is enormous. Cut Glass, Silverware, Bedspreads, Blankets, etc., in exchange for S. & H. Stamps in the Premium Parlor, Fourth Floor, Double Stamps on cash purchases before 12 o'clock.



Table listing various household items and their prices, such as Shelf Springs, Brass Beds, White Enamel Beds, Iron Couches, Pillows, Box Couches, Steel Springs, Cribs, and Sanitary made Mattresses.

\$40.00 Royal Wilton Rugs, 9x12 Feet, \$26.98

Table listing various rug and carpet options, including Arminster Rugs, Velvet Carpet, Inlaid Linoleum, Savonnerie Carpet, Brussels Carpet, and China Matting.

All Carpets Made, Laid and Lined Free.

Draperies for the Summer Cottage

for windows, doorways and beds. Pickings from the stock of our Upholstery Store, which includes everything that daintiness and utility can desire.

Table listing various drapery and upholstery items, such as Ruffle Swiss Bed Set, Ruffle Swiss Curtains, Colored Curtains, and Japanese Bamboo Porch Blinds.

Spring Silks, Wool, Cotton & Cotton Fabrics

Every pattern worth seeing and quality worth trying a needle through or taking the pains to fit at the lowest prices ever quoted for gown materials. The counters will be jammed by 9:30. Come earlier.

Table listing various fabric items and their prices, including Black Dress Goods, Colored Dress Fabrics, Cotton Wash Goods, and Foulard Satins.

FISH BREEDING PROFITABLE.

Any One With Suitable Waters Can Easily Make It Productive.

The most important thing to know in stocking is the right kind of water suitable to your fish and to plant the young fish where they will be able to feed and not be gobbled up by large predatory fishes. Professional breeders are so plentiful, and young fish, especially fry, are so cheap, that any one having suitable water can easily make it productive under right conditions.

For river or brook fishing that is free to all it is much the best to put both fry and fingerling in the main stream where the fishing is done, and not in brooks. There are many reasons for this. In the larger streams there are better chances for abundant food, more room to be active and grow larger, and much less chance of being caught.

On the other hand, when you do plant in large streams be careful to put the young fish in shallows where you know large fish do not abide or are likely to visit. Waters near the mouth of brooks are always the best places to plant young trout. Never put young trout in a brook that is deep.

I know such a brook where many thousand fish had been planted and upon one occasion I started to fish it, as the main stream was flooded. In a place where the water was a yard and a half deep, but only a yard wide, where it ran through a meadow near the main stream, I caught six fish, the aggregate weight being fourteen pounds. These fish were brown trout—had run up in this quiet water and were gorged to the bursting point with young trout.