SAM LOYD
AND HIS PUZZLES

PREFACE

"How do you make puzzles?" "Why did you take up puzzling as a means of livelihood?"

I submit that an adequate reply to these two posers that are almost daily flung at me is no offhand matter. How often I have wished I could respond to my politely curious friends by the same time-saving method I employ in answering requests for solutions to a group of particularly baffling puzzles. I keep their solutions in printed form for general distribution.

So, I have decided to set down in detail the confessions of a man who has devoted the major part of his life to concocting and disseminating puzzles.

The statistical points of my biography are covered in the following excerpt from an article in my home town paper:

"Sam Loyd, the puzzle maker, well known to every reader of The Eagle, was an infant prodigy in mathematics. His father, who was a famous mathematician and chess player, put his son through a rigorous training to develop the ability he had inherited.

"When the boy was 9 years old Mr. Loyd offered a prize to anyone who could defeat him at a certain mathematical game, but in all Brooklyn there was no one to claim the reward.

"He went to the Brooklyn public schools and finished his formal education at Pratt Institute, which he entered in the year it opened.

"When he was 18 he started to earn his living, without a thought, apparently, of capitalizing his ability in mathematics. He became a cub reporter on the New York Mail and Express; soon after he took charge of their Brooklyn office, where he was expected to letter the bulletin board, solicit advertising and turn in a daily column of Brooklyn news.

"Later he joined the staff of the Brooklyn Standard Union under Murat Halstead, the famous Cincinnati 'war editor.' Finally, in 1890, he became the editor of the Mount Vernon, N. Y., Chronicle, a country weekly.

CREATES PUZZLE DEPARTMENT

"In his efforts to make this a live newspaper, he revived his old interest in puzzles, and tried out a puzzle department. This immediately became so popular that he decided to make puzzles his business in life thereafter. He went from city to city in the United States, persuading editors to add his feature to their papers; and succeeded so well that he went to Europe, where numerous periodicals opened their columns to the ingenious Yankee puzzle inventor.

"He has originated more puzzles than any other man—the number exceeds 10,000—and though some of the world's great figures in science and letters have contributed brilliantly to our puzzle library, Sam Loyd is the only man on record who has successfully derived a living for over 35 years from puzzle making."

SAM LOYD.

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HOW OLD IS ANN?

It was in the early 80's, when I had barely attained my 'teens, that the world-disturbing "14-15 Puzzle" flashed across the horizon, and the Loyds were among its earliest victims. To say that I was infatuated with the tantalizing box of blocks is a mild description of my enthralment. I was so thoroughly innoculated with the puzzle bacillus that the fever has never abated. And so, with an inherited disposition for puzzle play, my mental awakening synchronized with puzzle history's most notable event. I found my fellow beings earnestly occupied with puzzle solving, and my budding consciousness received a highly exaggerated idea of the importance of puzzles in the scheme of life.

The 14-15 Puzzle craze did not come gradually, the way our cross-word puzzles came a few years ago. It was not advertised or syndicated. It had no official backers to exploit its value as a species of mental calisthenics. Instead, it burst upon our unsuspecting globe as might a meteor out of the sky. And the reverberations of its arrival spread with almost the speed of light to the uttermost corners of the world.

Like every truly great mechanism, this one was marked by a beautiful simplicity. A child of five could understand it. A dodderer of eighty could not resist it. That it consisted of only a handful of numbered blocks in a box at once freed it from linguistic shackles. As Fig. 1 shows, there were fifteen blocks. The box in which they lay would hold sixteen. This left an extra space. Numbers fourteen and fifteen were reversed. The game was to use

Fig. 1
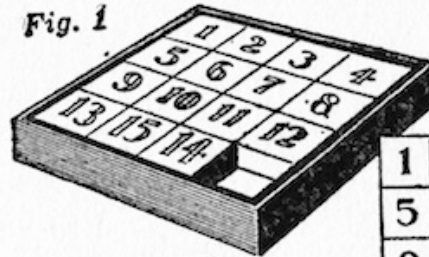
The World-Famous "14-15" Puzzle

Fig. 2

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	

this extra space to move one block after another around until all blocks lay in consecutive order, the fourteen and fifteen blocks regaining their proper places, as in Fig. 2.

Any reader willing to risk insanity, or worse, may try his hand at this devilish device by simply cutting out fifteen cardboard squares and numbering them. Lay the squares as indicated on a piece of paper having on it a single large blank square to indicate the box.

The 14-15 Puzzle leveled caste and melted human hearts. Like a medieval plague, it played no favorites among its victims. Old and young, rich and poor, wise and otherwise, met on common ground in the universal task of mastering those stubborn cubes.

The puzzle is unsolvable for the reason that in reversing the order of 15 and 14, at least two other numbers in the formation must be disturbed in compensation.

The attempt which comes closest to solution is that which brings the blocks

into the required order, but leaves the blank space in the upper row as shown in Fig. 3.

Fig. 3   Fig. 4

1	2	3	
4	5	6	7
8	9	10	11
12	13	14	15

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	

Figure 4 illustrates another ingenious attempt, which leaves the blocks quarter turned.

People persist to this very day in their claims of having solved the 14-15 Puzzle, and frequently I am invited to debate the question. These opportunities I politely decline, for some years ago I met up with a contretemps that made me resolve to carry on all future "14-15" discussion by correspondence.

I was calling upon my shoemaker, when, instead of "sticking to his last," he drew me into discussion of a puzzle story in a local paper, where I had repeated my old warning against trying to solve the "14-15" Puzzle." He assured me that I was all wrong, and that his father's reputation for astuteness in a small up-state town rested exclusively upon a periodical reminder in the village paper that the old gentleman was the distinguished citizen who had mastered the "14-15" Puzzle.

The fellow was annoying in his insistence that I had attacked his father's reputation, and perhaps I was impatient in my attempt to head off a tiresome discussion. I assured him emphatically that his undoubtedly otherwise sane and honorable parent was harboring an illusion on the "14-15" notion. It was then that a big fellow sitting nearby injected himself into the colloquy. "So you're

the fellow that wrote that fool piece in the paper. Well, if you say his father didn't do that puzzle you're a big liar, for I did it myself." Perhaps my laugh was irritating, for he flushed purple with rage, and added: "And what's more, if you say I didn't, I'll punch your nose."

He was a big husky and I presume he could have executed his threat, so I escaped from the situation as gracefully as possible—I had learned my lesson.

As the "14-15" craze subsided, and the beloved box was gently removed from my possession to preserve the youthful mental balance, I clamored for other puzzles to fill the aching void. My family was only too pleased to gratify the aroused taste for puzzles and one by one, in the order of their difficulty, I received a score or more of old puzzle classics which at that time constituted all of the worthwhile puzzles with which people were familiar.

A few publications carried puzzle corners, principally consisting of rebuses, charades, square-words, diamonds, acrostics and other forms of word puzzling; but very infrequently was there any addition to the old galaxy of puzzle gems.

In those days the inauguration of a puzzle corner followed stereotyped lines. The group of notable puzzles, duplicated in books devoted to such subjects, was gradually exhausted and then the puzzle editor lapsed completely into the word puzzle and picture rebus forms, which could be carried on indefinitely with a modicum of ingenuity and mental effort.

Like the two original jokes to which cynics trace back all the world's wit and humor, those old puzzle classics have provided the germinal impulse of countless puzzle varieties; but that puzzle construction has become consider-

able of an art during the past third of a century ,and flowered with successive crops of puzzle buds marked by charm and originality, cannot be questioned.

The "31 Puzzle Game"
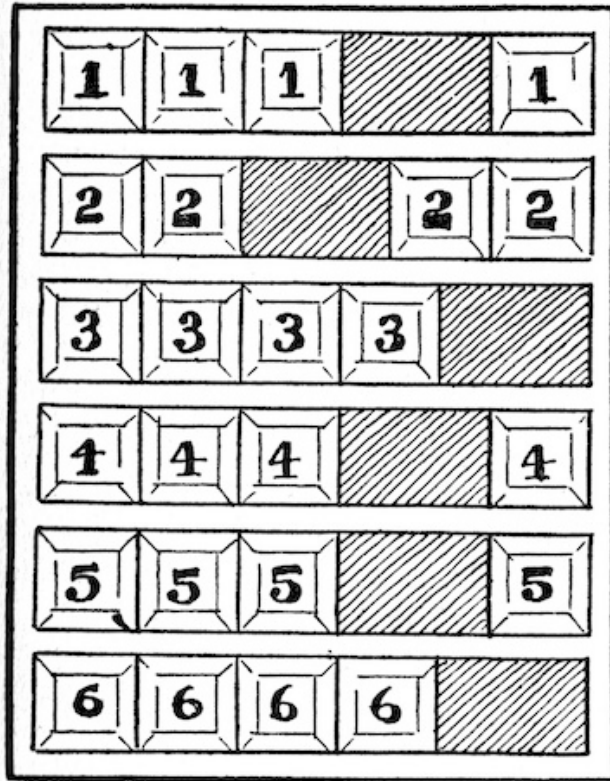
A vivid recollection of my youth centers about an interesting puzzle game which was quite popular some fifty years ago. It was called the "31 Puzzle Game," and like the "14-15 Puzzle," nestled in a box of blocks. From one to six there were four blocks to each number and these were stacked on shelves as shown.

The game was played between two persons, who in turn were privileged to move any one of the numbered blocks along the shelf to the opposite side, and the numbers as they were moved to the right were added together in a common total—the object being to be the player who carried the total to exactly 31. The sketch presents a game which has

reached a stage where the total is 14.

There is considerably more scope for calculation and study in the apparently simple game than appears at first blush. Everybody took to playing "31," and a fellow got good mental rating by exhibiting proficiency in the "add-up" game. I recall my dad's great pride when I could play the game mentally, visualizing the box, and win a majority of my games, too.

Father conducted a printing establishment and made a specialty of advertising novelties, and trademarks of his own designing. On his "drumming-up business" trips to the big city I usually accompanied him, and my part of the act consisted in being pitted against his customers in "31" combat. There was a fifty dollar reward awaiting the first winner of a game against "Loyd's kid," and nobody ever won it!

Puzzle Crazes

In the trail of a successful puzzle invariably comes a flood of frantic attempts to catch the craze on the rebound, as it were, to capture the widely roused interest with devices somewhat similar in character, or held out as equally attractive as the "big hit." But I can't recall any such follow-up having been successful. The vogue of a puzzle cannot be predicted or forced with any more assurance than can any other fad or fancy of mankind. A puzzle captures public favor and sweeps to the proportions of a craze almost overnight, and usually without a clearly defined reason for its surprising hit.

Had the "14-15 Puzzle" been solvable undoubtedly it would have fallen flat, as did its innumerable imitators, all of which guaranteed possible solution. Yet on the other hand "Pigs in Clover" could be readily conquered by all who

worked at it. It was the "14-15's" im-
mediate successor as the universal puz-
zle pet.

Pigs in Clover

It consisted of a circular box contain-
ing a series of partitions, through the
openings of which rolled marbles on
their way to a central pen. Something
in the world's mental makeup responded
to the box of marbles with mad infatu-
ation. "Pigs in Clover" quickly became
a craze that lasted many months, while
"Sheeps in the Fold," "Rabbits in the
Cabbage," and the thousand and one
other followers of "Pigs in Clover" were
all dismal failures.

The cross-word rage developed in
leisurely fashion compared with its
cyclonic predecessors and like other
growths of slow maturity lingered some-
what longer.

The cross word, untrammeled by the
strict construction rules of the Word
Square, Diamond, Pyramid and other
classical forms of interlocking word

puzzles whence it sprang, has that very
freedom of expression to thank for its
universal appeal. Another reason for
the infectious quality of the cross word
is that in its great variety of specimens,
with varying degrees of difficulty, every-
body could find some to fit his taste
and mentality. That's the main reason
for the popularity of the cross word—
everybody could solve them. Almost
everybody can construct them, too.

How Old Is Ann?

From time to time I have originated
mathematical problems based on a com-
plication of facts concerning ages. These
usually can be solved best by algebra.
The most popular of these was the fol-
lowing, which I present in its original
wording:

Johnny had a working agreement
with his sisters covering the suppression
of family history, so when the census
man inquired as to the ages of Mary
and Ann, Johnny clouded statistics in
the following truthful statement: "The
combined ages of Mary and Ann are 44
years, and Mary is twice as old as Ann
was when Mary was half as old as Ann
will be when Ann is three times as old
as Mary was when Mary was three
times as old as Ann."

How old is Ann?

Can you figure it out? It's really not
so complicated as it sounds—if you **go**
at it quietly and unhurriedly.

A PINOCHLE PERPLEXITY

Three men who started to play pinochle each possessed two U. S. coins. The six coins totaled $3. When the game ended each man still possessed two coins, but Claus had won 8 cents, and his brother Karl profited 22 cents. How much did Heinrich, the other player, have left at the end of the game?

REFORMING A STAR

There are various methods of dissecting a six-pointed star with a view to reforming the pieces into a square, but
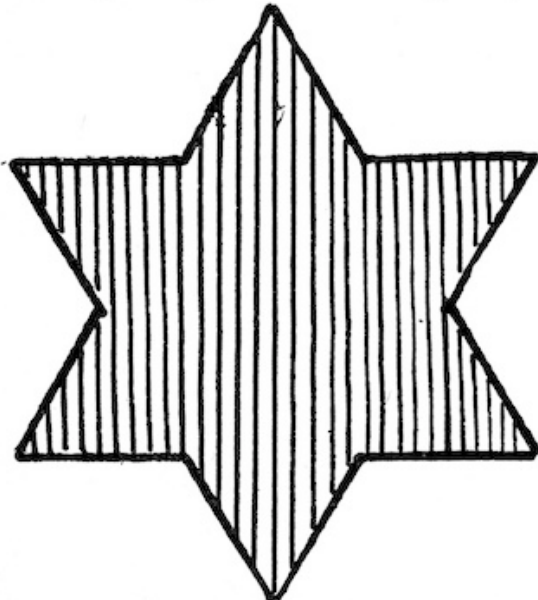
of course the "best" answer would be that requiring the least possible number of pieces. So let us see who can transform the star into a square in the "best" way.

A CHARADE

My whole's a sad catastrophe
When none to help are nigh it;
Curtail, transpose, and you disclose
Who mostly suffer by it.
　　What is the word?

CHECKERS IN ROWS
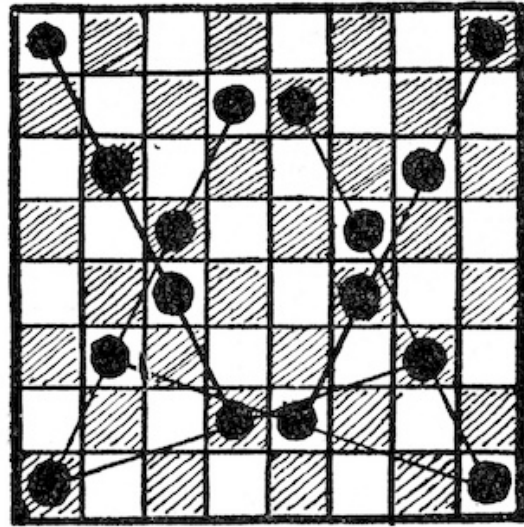
In this arrangement of 16 checkers, it will be seen that not more than two appear on any perpendicular, horizontal or regular diagonal row.

In various oblique directions, however, as shown, it is possible to find three and four checkers in straight line, and our puzzle consists in discovering another arrangement of the sixteen checkers in which there shall be no straight line of three, from any possible angle.

CHEATING THE BABIES

A "get-rich-quick" milkman used two large mixing cans. One can contained 10 gallons of milk and the other can 10 gallons of water. He took 3 gallons of water from the

water can and poured it into the milk can. Then he poured 3 gallons of the mixture from the milk can back into the water can, again having equal quantities of liquid in the cans. Then he asked me this puzzling question: "Have I more milk in the water can than I have water in the milk can?"