

Advent of Buddha. I remember her strongly embracing me as we slept that whole night in her small room. This was my first encounter with a puzzle.

I can still recall the flash and sounds of the atomic bomb that hit Hiroshima. When I returned to Tokyo, I found the city burnt to the ground. It may be an exaggeration, but if World War II hadn't occurred and I hadn't been evacuated to Iwakuni, my present puzzle life probably wouldn't exist.

Today, NOB has a comfortable country house outside Tokyo, and a studio in the center of Tokyo, right next to Iidabashi station. It is in this studio where he works, keeps most of his puzzle collection and library, and where he entertained me during this interview.

B. H.: How has your interest in puzzles evolved?

NOB: When I returned to Tokyo after the war, I got into a school and made many friends. I was interested in painting, tricks, jokes, and mysteries — I read hundreds of mysteries while I was in junior and senior high school.

After graduation, I went on to university, where I studied chemical engineering. Some friends introduced me to magic, and I studied magic for about four years. During this time I met a psychologist, Professor Tago, who also liked puzzles and magic — he wrote some books on puzzles, and had some best sellers — but he had almost no ideas for making puzzles, so I helped him. Later, when I was about 30, I started making puzzles myself.

After graduating from university, I got a job in the laboratory of a petroleum

NOB's Number

There are twenty-one numbers whose squares can be expressed with only two distinct digits (excluding zero). The first twenty are as follows:

$4 \times 4 = 16$	$22 \times 22 = 484$
$5 \times 5 = 25$	$26 \times 26 = 676$
$6 \times 6 = 36$	$38 \times 38 = 1444$
$7 \times 7 = 49$	$88 \times 88 = 7744$
$8 \times 8 = 64$	$109 \times 109 = 11881$
$9 \times 9 = 81$	$173 \times 173 = 29929$
$11 \times 11 = 121$	$212 \times 212 = 44944$
$12 \times 12 = 144$	$235 \times 235 = 55225$
$15 \times 15 = 225$	$264 \times 264 = 69696$
$21 \times 21 = 441$	$3114 \times 3114 = 969696$

About ten years ago NOB discovered on a pocket calculator that $81619 \times 81619 = 6661661161$. This is the largest such number ever found. Nobody has ever been able to prove whether or not larger ones exist. So far the squares of all numbers greater than 81619 up to one hundred million have been checked on computers, but they all contain three or more distinct digits. Is there a larger number than NOB's with this property?

company. I worked there until there was a big explosion. I was badly burned and spent two years in the hospital while they repaired my hands with skin grafted from other parts of my body.

The best puzzle ideas should never be too hard. My favorite puzzles are easy ones...

When I had finally recovered, I started teaching and writing. I wrote mostly about science, popular science. Professor Tago taught me about puzzles and magic, but it was Professor Sakikawa, a chemistry teacher, who taught me how to write. He's not a magician or a puzzle person, but he was a very good teacher. He's now in his eighties and still writing books. Some publishers still want me to write on science, but I have no time — I now write only about puzzles!

I have written or translated

about 50 puzzle books. I've also had a puzzle column for 9 years in Quark, a popular science magazine. About 5 years worth of columns were collected in a book. I used this column and the book to introduce many Western puzzlers to the Japanese audience.

B. H.: As we sit here, we're surrounded by shelves of all kinds of puzzles. How did you build up such a wonderful collection?

NOB: About twenty years ago, I went abroad, visited London, found some old cast-iron puzzles and bought them. That was the beginning of my collection from overseas. Then, about 15 years ago, I stayed there about six weeks. On the first day, I bought about 10 or 20 puzzles. But the rest of the time, I was lucky to find one each day! Many Japanese collectors want to buy antique European and American puzzles, but it's very difficult to find them now. The

best way is to know someone, a puzzle friend.

For some years now, I've been travelling to international puzzle parties and hunting for puzzles, mainly Europe and the USA. My biggest harvests have been in the U.K., America, France, Holland and Germany. I've visited almost every European country, except for Poland, Albania, and Ireland, but Eastern Europe was disappointing. Almost no puzzles. In Italy I found many very nice puzzles; and also in Switzerland.

My collection has kept expanding over the years, and now Edward Horden estimates that I have over 8,000 items. I also have a very big collection of puzzle books.

I asked NOB if he had Sam Loyd's Cyclopedia of Puzzles, a rare book I had enjoyed as a child. He proceeded to show me a copy with Sam Loyd's personal library stamp and annotations!

NOB: I don't collect Japanese puzzles. I collect in order to get ideas for designing new puzzles. This is my research library! And I cannot use Japanese puzzle ideas here. Older European puzzles have no copyright, and they aren't known here. I am the largest 'window' through which Western puzzle ideas enter Japan.

There aren't really many antique Japanese puzzles. Japanese craftsmanship is very good, and from the turn of the century there have been wooden puzzle boxes and other solid shapes. Mr. Yamanaka was one of the first to design these (his grandson still makes puzzles today). But most of them are based on only a few logical ideas. The outside shapes are all

different, but the inner logic, the action, was originally stolen from old European puzzles. Old Japanese puzzle makers were not very creative.

Some of the choicest of NOB's puzzle collection have only recently returned from a sojourn around the world as part of the travelling exhibition, Puzzles Old and New,

A good puzzle needs something unusual, something ridiculous, something absurd, something strange normal thinking cannot solve it.

which was exhibited in Los Angeles, Boston, New York, Toronto, Indianapolis, Vancouver, Tokyo, and Osaka over the past six years.

B.H.: NOB, you're also one of the most prolific inventors of puzzles in Japan, with two factories turning out your wood and glass puzzle designs. Tell us about the process of inventing new puzzles.

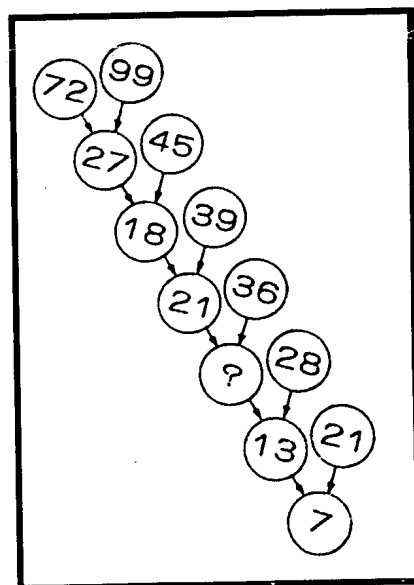
NOB: I have many puzzle ideas, but I have to throw away nine out of ten of them. I have many creative ideas and plans I haven't had time to realize. Many of my puzzles are 'stolen' from old Western puzzle ideas; but I always try to improve on them, to add a twist.

I take a puzzle that had several solutions and change it just a little so it will have only one. For example, Japanese casting technique is very accurate, so in reproducing some classic European cast iron puzzles, we've been able to make them so precisely they have only one possible solution.

My American puzzle friends say they are better than the originals! I insist that only if my puzzle ideas improve on the original will I sell them.

The best puzzle ideas should never be too hard. My favorite puzzles are easy ones — for example, my 'Dualock' puzzle. It takes an old idea and adds a nice twist to it. Or this logic puzzle on the right, which is delightful. You have to tell people there's no misprint! I have designed some very difficult puzzles, for puzzle connoisseurs.

Sometimes I have a puzzle idea and get someone else to complete it. For example, the 'Bin Cross' puzzle. I saw how our puzzle factory could cut glass with a sandblaster, and that inspired me. When I met Bill Cutler in Chicago, I drew a bottle with just four windows, and asked him if he could design a burr puzzle to fit inside. After three months, he came back with a 6-piece burr-puzzle design. He wrote, "The six pieces can be assembled easily outside the glass . . . but inside, there's only one solution!" He used a computer to construct this puzzle — it's very difficult.



There's only one direction in which you can have sideways movement; in the other direction, only push-and-push is possible. The idea is very funny. I like it. But it is very difficult; too hard for ordinary people.

Some of my fans in Japan see my recent puzzles and tell me they are too easy. But in order for our puzzles to sell, and for our factories to succeed, puzzles must appeal to ordinary people, not just puzzle fanatics. For example, this 'Squashed Box' is another of Bill Cutler's puzzles. I suggested he design a puzzle to fit in the little box [part of a series of puzzles fitting into square wooden sake cups], and sent him only the dimensions. He sent me back the puzzle, but no solution! It took me a month to solve it! We had only 100 copies produced. Sixty were sold to Japanese puzzle enthusiasts at the Japan Puzzle Collectors Party early this month; since then, three puzzlers have solved it. And that's among people who are good at solving puzzles. It's a very beautiful puzzle, but not so good for ordinary people: too difficult! I like two or three pieces, but tricky. This is tricky — but too many pieces!

Bill Cutler has many hard puzzles, but I found his easy puzzles to be the best. I suggested one of his easiest puzzles 'Blockhead' for the HIKIMI Wooden-Puzzle Competition, and he won the Grand Prix! For ordinary people, this puzzle, with only four pieces, is hard enough. But many puzzle connoisseurs and puzzle maniacs around me in Japan say, "NOB, it's too easy!"

B.H.: What are your criteria for a really outstanding puzzle?

NOB: For me, a puzzle which

takes a lot of patience, requiring exhaustive analysis, isn't so good. A good puzzle needs something unusual, something ridiculous, something absurd, something strange . . . normal thinking cannot solve it. You have to look sideways; something tricky! If someone solves a puzzle through

I admire and envy Mr. Rubik. Many other puzzles appeared under his name after his cube which weren't so successful. But for one man, designing such an elegant and successful puzzle is enough for a lifetime!

exhaustive analysis, that's too much like a job! Puzzles are for after five — for entertainment, to use another side of the brain.

A good puzzle should have a beautiful solution, a unique one if possible. It should also have visual impact, and the solution should surprise you. Some puzzle solvers are like masochists. For them, the harder the better. For me, the easier the better. I have to design accessible puzzles, to sell to more people, for the puzzle factory and for me to succeed. But good, easy puzzles are harder to design than hard puzzles!

I'm just now designing a new puzzle—'Pineapple Delight'—with twelve circular pentominoes, which will fit together into a shape like a pineapple. Toyo Glass wants more 'food' puzzles, so I'm designing this one. I also supervised the design of 'Pack the Plums' and 'On the Rocks'. I have my computer running right now, testing

solutions to make sure that there is only one.

B.H.: Who are some of the puzzle makers you admire the most?

NOB: Unfortunately, the names of the inventors of many many classic puzzles are lost. From the 19th century, I think Sam Loyd must have been better than Dudeney. He was very creative! Martin Gardner is very very good at popularizing puzzles, but he hasn't many ideas for new puzzles himself. I've already mentioned Bill Cutler — he designs very hard burr puzzles, as well as other kinds. Oskar Van Deventer is a young Dutch man with very clever ideas. But the most successful modern puzzle inventor has to be Rubik.

I admire and envy Mr. Rubik. Many other puzzles appeared under his name after his cube which weren't so successful. But for one man, designing such an elegant and successful puzzle is enough for a lifetime!

B.H.: How long have you used a computer to help you design puzzles?

NOB: For 8 or 9 years. Many of my American puzzle friends have sent me puzzle programs that run on IBM, but I have a NEC computer! But I'm now planning to buy an IBM compatible — the latest model! A computer is very useful for designing puzzles.

NOB has developed a computer software package, called Puzzle-topia, with a suite of twenty puzzles and games, some old, some new. The graphics and sound effects are wonderful — whimsical, alluring and delightful. 10,000

From the following alphametics, one might be tempted to infer that NOB has a deep and mystical relationship with puzzles.

$$\text{NOB} \times \text{NOB} + \text{NOB} + \text{NOB} = \text{PUZZLE}$$

$$\text{NOB} \times \text{NOB} \times \text{NOB} + \text{NOB} + \text{NOB} + \text{NOB} = \text{PUZZLES}$$

Both have unique solutions. They can be recast in the slightly more mysterious form:

$$\text{NOB} + 1 = \sqrt{\text{PUZZLE} + 1}$$

$$\text{NOB}^X + X \times \text{NOB} = \text{PUZZLES}$$

In fact, the solution to the cryptalgebraic equation

$$\text{NOB}^X + Y \times \text{NOB} = \text{PUZZLES}$$

is still unique, even if you let X and Y take on any values between 0 and 9, including those assumed by the other letters!

copies have been sold in Japan — with many more pirated — according to NOB. Unfortunately, it's currently available only for the NEC computer.

B.H.: Do you like puzzles that use non-conventional tricks, like magnets or electricity?

NOB: No, I don't like that. I call it 'electricks'. For example, channel changing is beyond a puzzler's thinking — it's magic. If I used remote control to open a secret box, that would be terrible! It's also true for magic in general. It's possible now to make something float using magnets, but that's not magic! I use only invisible threads to do tricks with floating money. That's all I need — and practice. I can carry all the apparatus with me at any time. All the moves are very natural; they leave you puzzled and amazed — that's true magic! Sometimes, if someone knows the trick, they may regret it!

B.H.: You are an accomplished

close-up magician. Do you still teach magic?

NOB: I'm a member of the Tokyo Amateur Magicians' Club. I teach magic there; all close-up magic: coins, cards, etc. We have more than 100 members.

B.H.: Do you see any connection between puzzles and education?

NOB: I deliberately avoid connecting puzzles and education. Some people say if you solve puzzles your brain will improve. But I think this is bad. Puzzles are for entertainment. Maybe it will make you clever — that's not the point!

I usually say, "Puzzle solving can be hazardous to your mental health!" You won't have time for your study, your work, your family. You won't eat. You won't sleep. But I'm innocent — only you are responsible if you begin to solve a puzzle I invented. I say, "Solve at your own risk!" I only give the puzzle — if you

want a solution, that's your problem!

Puzzles should be fun. They are like jokes. I am famous with some people for my puzzle jokes. For example, my 'Left-Handed Nails' puzzle is a kind of joke. I was introduced on a TV program as a practical joker when I showed my '1-piece burr puzzle'. And I introduced the 1x1x1 Rubik's Cube [NOB shows me the cube — the faces turn!] My jokes are too strong for most Japanese. My Western puzzle friends say, "NOB, you're not Japanese!" Once, when I had a mustache, someone asked me if it was fake. "Oh," I said, "this is the fake; the genuine one is in my pocket!"

B.H.: Besides entertainment, what other value do puzzles have?

NOB: A big dictionary can be easily memorized on a compact disk. In certain fields, the human brain has already been completely defeated by computers. In such a surfeit-of-information age, brains are too small to be used as warehouses. Humans should leave memorizing to magnetic disks. The only way for our brains to survive is to do what machines can't do: create. So, don't use your brains for memory; use them as a CPU (central processing unit) for creating. Keep your brains as clean as possible. Don't memorize. The amount of brain used as memory has to be kept as small as possible.

A century ago, in *A Study in Scarlet*, Sherlock Holmes pointed out, "Our brain is like a small attic; do not put useless things in it. Otherwise, we can't put important knowledge in it." Watching popular trivia quiz TV

programs can be hazardous for our brains. Whether we like it or not, trifling things gradually invade our brains as memories. Now is the time to get rid of quiz programs. Memorizing should be a crime, as smoking is now. Times have changed! It is one thing to play a quiz game, and absolutely another to play with a puzzle. We can use our big, clean brains as a powerful CPU. But if we don't use this area for a long time, spiders will weave their web. Then, in case of an emergency, our precious brain may not perform its proper role. To avoid this, the best slogan is: "Always think!"

Our bodies grow weaker unless we move, so we go jogging. This is also true for our brains. Then, how can we keep habitually thinking? The best solution that I found was "play with puzzles!" Jogging is to the body as puzzles are to the brains. Puzzles are a checking device for our CPUs. And what is even better, puzzle solving does not eat up the CPU area. The only thing remaining after solving a puzzle is a refreshed feeling. It is a refresher for our encephala. This after-puzzle feeling is similar to the after-jogging sweat. Like a one-mile jog in the morning, we need a one-puzzle challenge in the evening. In our present computerized society, I loudly say:

"Always think! Puzzles now!"



P U Z Z L E

$$\begin{array}{r}
 \times \square\square\square\square\square\square\square \\
 \hline
 \square\square\square\square\square\square\square \\
 \square W \square\square\square\square\square \\
 \square\square O \square\square\square\square \\
 \square W O R L D \square \\
 \square\square\square\square L \square\square \\
 \square\square\square\square\square D \square \\
 \square\square\square\square\square\square\square \\
 \hline
 \square P \square U \square Z \square Z \square L \square E \square
 \end{array}$$

The above skeleton-arithmetic problem was composed by NOB to commemorate the founding of Puzzle World. Its solution is unique. NOB does not recommend that you waste your time trying to solve it; rather, it should just be admired as an abstract work of mental art.