Hotshots

WHICH ISN'T TO SAY THEY aren't big shots—it's just that not *everyone* knows them yet. They're hitting the sweet spot, their mojo's working. They're here to tell us today where design will be tomorrow.

Dixon's brand-new ecoware

TOM DIXON, LONDON: Dixon, 44, says he's not a designer—though you see his furniture in museums and his ecoplastic dishes here—but an "industrialist." While running his studio, he's also Habitat's head of design, on a mission to revive the once vital chain. And he says he likes to read spreadsheets.

Arad's Bookworm shelf by Kartell

RON ARAD, LONDON: Just because books are old-school linear, bookshelves don't have to be. The mischievous Arad, 52, was born in Tel Aviv; now a professor at the Royal College of Art, he's known for his skepticism about mass-produced furniture—and his kooky hats. His playfully named Well-Tempered Chair and Big Easy Sofa don't have right angles. Neither do you.

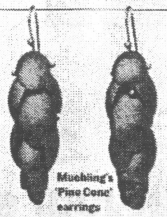
Birsel

Tape dispenser from Knoll by Hannah and Birsel

AYSE BIRSEL, NEW YORK: Turkish-born Birsel, 39, who studied at Pratt with Bruce Hannah, is all about breaking taboos. Take Zoë, her heated toilet-bidet for squeamish Americans. Her firm, Olive 1.1, has also tackled the tyranny of Dilbertville: instead of cubicles, fabric canopies separate nonrectilinear desks. And since when is a tape dispenser supposed to be lyrical?

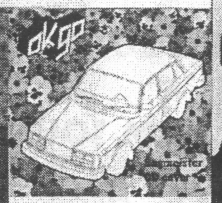
Kidd's "Mythology"

CHIP KIDD, NEW YORK: Since starting with Knopf in 1986, Kidd, 39, has been the hot book designer—remember the simple, shark "Jurassic Park" cover? A favorite assignment: his own 2001 novel "Cheese Monkeys." His "Mythology," out this month, honors a lifelong obsession, D.C. Comics artist Alex Ross.



Muehling's "Pine Cone" earrings

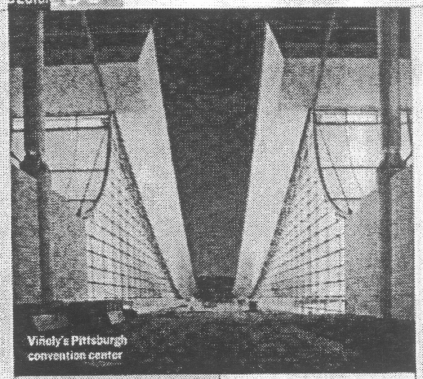
TED MUEHLING, NEW YORK: Once an aspiring industrial designer, Muehling, 50, has been a jeweler with a growing cult following for more than two decades. His muses are natural objects—shells, feathers, birds' nests—to whose forms he delicately alludes in silver and precious stones. His work has a unique balance and quietude; his shop in lower Manhattan is an Old World atelier without the Louis Quatorze vibe.



STEFAN SAGMEISTER, NEW YORK: He's done CD covers for Mick Jagger and activist ads for Ben & Jerry's Ben Cohen. The boomer mainstream courts Sagmeister, 41, for his emotionally vulnerable sensibility.

Mau

BRUCE MAU, TORONTO: Mau, 44, is a master collaborator: exhibition design for a Gehry museum in Panama, signage for Yoshio Taniguchi's new MoMA. He's now working with grad students on the encyclopedic project Massive Change, a book-film-exhibit-Web site on the future of technology and design.



Viñoly's Pittsburgh convention center

The New Ornamentation

JUST WHEN YOU THOUGHT NO-FUN MINIMALIST SEVERITY was going to be cool forever—it *seemed* like forever—designers are now tastefully tarting up textiles and furnishings again, as if our surroundings were to be cherished rather than confronted.

SWAROVSKI CHANDELIER: For the past two years, the venerable company has invited designers to reconceive the hoary chandelier. The most evocative take: Tord Boontje's delicate, blooming tree branch, aglitter with tiny LEDs.

Boontje's "Blossom"

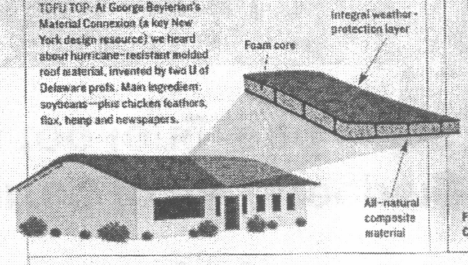
FAVELA CHAIR: Brazil's Campana brothers have a different idea of decorative. Their Favela (shantytown) chair reflects the construction of shelters out of scrap wood found in the streets. It reveals "the poetry and beauty in these slums."

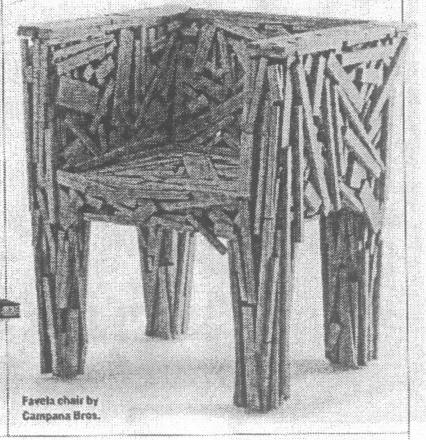
How Green Is My Architecture?

AMERICA'S BUILDINGS CREate as much pollution as cars and industry combined. U.S. architects and inventors are trying to catch up to standards long prevalent in Europe.

DAVID L. LAWRENCE CONVENTION CENTER, PITTSBURGH: Billed as the first "green" convention center, this $370 million complex, on the banks of the Allegheny River, makes the most of daylight and uses a roof system that allows for natural air flow. Not bad for a former steel town. The architect: Rafael Viñoly, whose THINK team was runner-up to design the World Trade Center site.

TOFU TOP: At George Beylerian's Material Connexion (a key New York design resource) we heard about hurricane-resistant molded roof material, invented by two U of Delaware profs. Main ingredient: soybeans—plus chicken feathers, flax, hemp and newspapers.





Favela chair by Campana Bros.

Everyday Brilliance

WALK INTO ANY DRUGSTORE, AND YOU'LL SEE HUMBLE EXamples of astounding design. Band-Aids, Q-Tips, disposable razors, even light bulbs. You take them for granted, but each represents deep R&D and thousands of anonymous design hours.

BRUSH WITH DESTINY: So we stopped across the street and picked up a toothbrush at random. Turns out this Reach Advanced dates back to 1993. It was the first with dual materials (soft and hard); now tech-y toothbrushes crowd the shelves. And, when you stop back and look, it's a thing of beauty.

Reach toothbrush

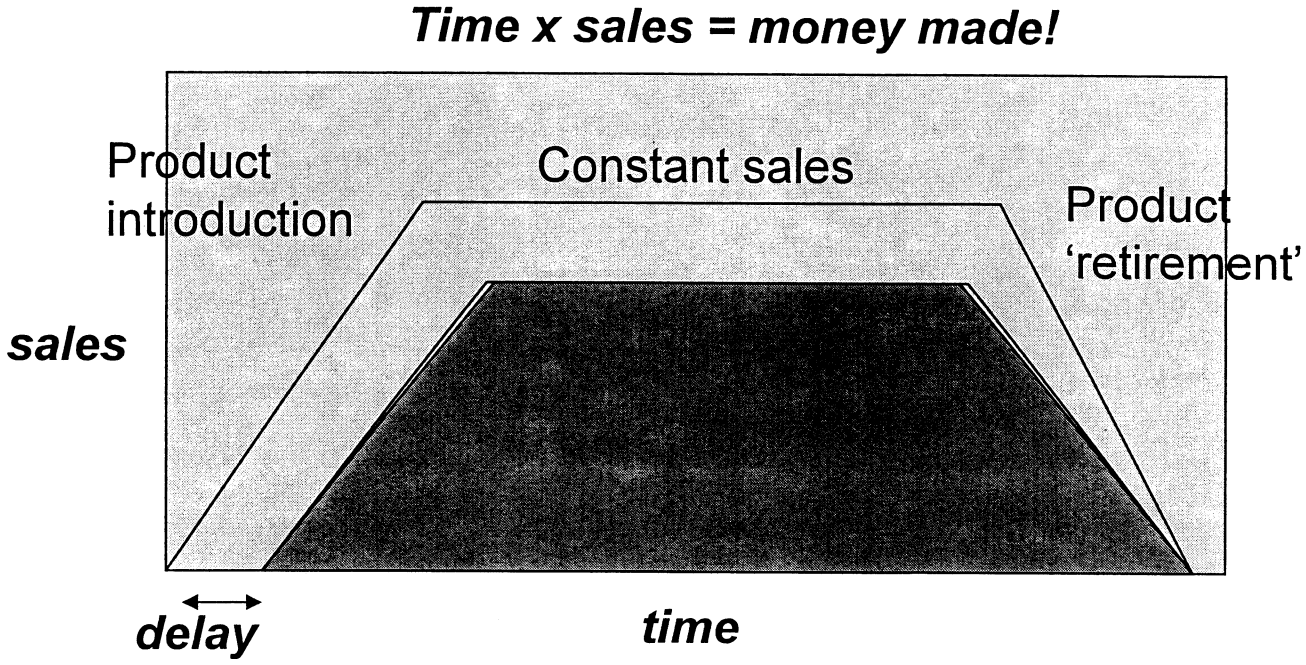
Constant refinement is necessary

No such thing as a perfect solution, but ….

How good is good enough?

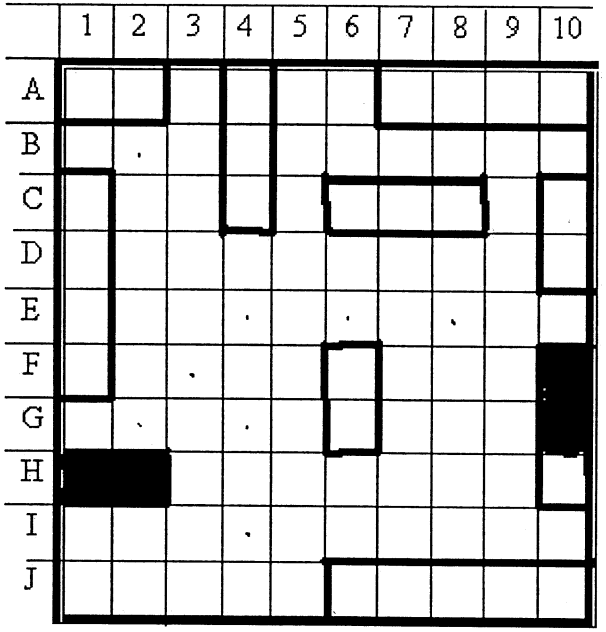
If not well designed – could result in injury, death, law suits, etc.

If "over designed" – this is referred to as "creeping elegance" – then costs increase, "time to market" is too long, and sales are lost!



Searching for a solution

- A great deal of design is about searching for one best solution out of many possible solutions
- A good example of narrowing down a problem to find a solution – "search strategies"
- "Battleship" – can be used to teach about random numbers, identifying patterns



A commercial version which sticks to its namesake is played on a 10 by 10 rectangular grid with these vessels: 1. Carrier (5 squares x 1 square) 2. Battleship (4 x 1) 3. Cruiser (3 x 1) 4. Submarine (3 x 1) 5. Destroyer (2 x 1)

Another interesting problem (which could be solved using simple technology):

"Who is Ripping Off the King?" or similar

You have 12 coins – 11 are the same, but one is heavier. Using just a simple balance beam, how can you find the heavier coin in three trials?

(assume the odd coin is not so completely different that the answer is obvious)

What is your solution?

Where is the math in this?

- Making sure that coins are the same distance from the fulcrum on each side (measurement).
- Calculate the percentage of coins left after each trial to see how quickly you "zero in" on the answer. (This is actually how engineers measure the effectiveness of a search method.)
- ?

Math strands/bands associated with this:

- measurement strand (5th grade: rulers, fractional measures, justify estimates (also 6th grade));7th grade: mass/density)
- statistics and probability strand
  - 5th grade: list possible outcomes from experiment, record results in fractions/ratios; determine probability of a single event
  - 6th grade: concept of sampling; best method to collect data; probability of dependent events; possible outcomes for a compound event
  - 7th grade: interpret data to predict outcomes; design and conduct experiments to test predictions; compare actual/predicted results

Weight and density issues for old and new quarters

The current clad version is cupro-nickel (8.33% Ni and the balance Cu), weighs 5.670 g, diameter 24.26 mm, width 1.75 mm with a reeded edge. It costs 4.29 cents to produce each coin. Before 1965, quarters contained 90% silver, 10% copper, although very early quarters through 1828 were slightly larger and thinner.

So let's look at the difference using the atomic weights of the metals (equally good to use the weight per pond of the metal, etc., for this purpose):

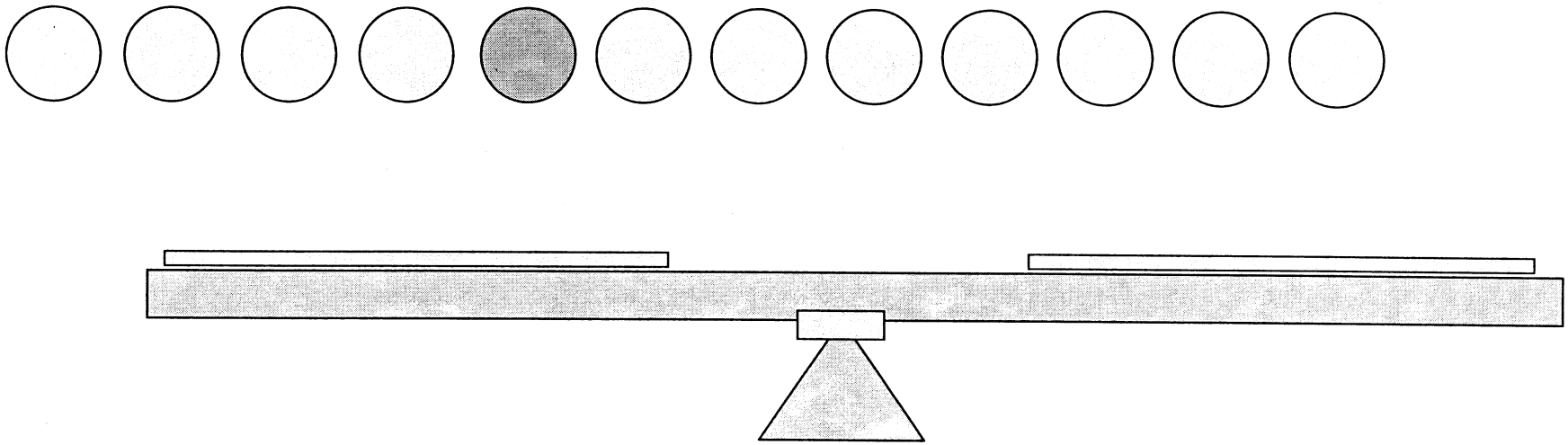
91.67 % Cu + 8.33% Ni = (0.9167 x 63.546) + (0.0833 x 58.69) = 58.25 + 4.89 = 63.14

90% Ag + 10% Cu = (0.90 x 107.86) + (0.10 x 63.546) = 97.07 + 6.35 = 103.42

So the old quarter has ((103.42 – 63.14)/63.14) x 100% more mass

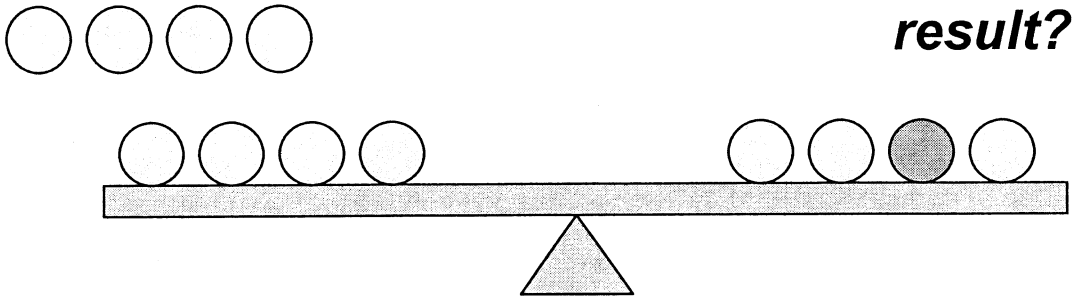
Or about 63.8% more mass (or 63.8% heavier, assuming the same dimensions)

Let's try it out!

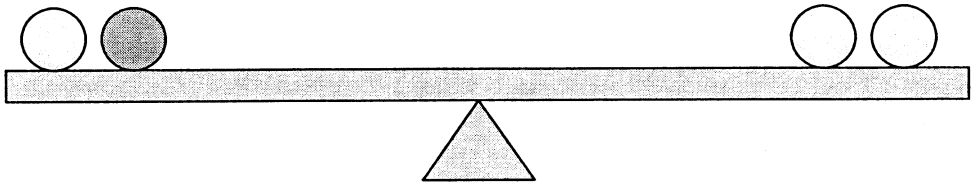


(actually several different ways of doing this – we will explore one way in the following slides)

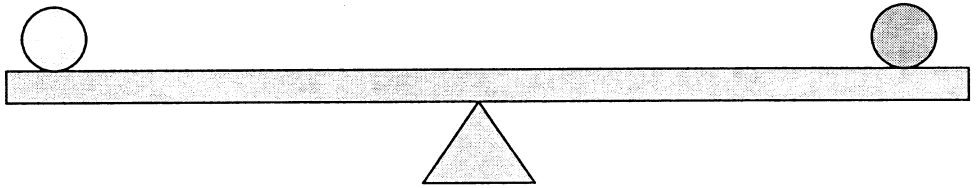
What possible outcomes can result?



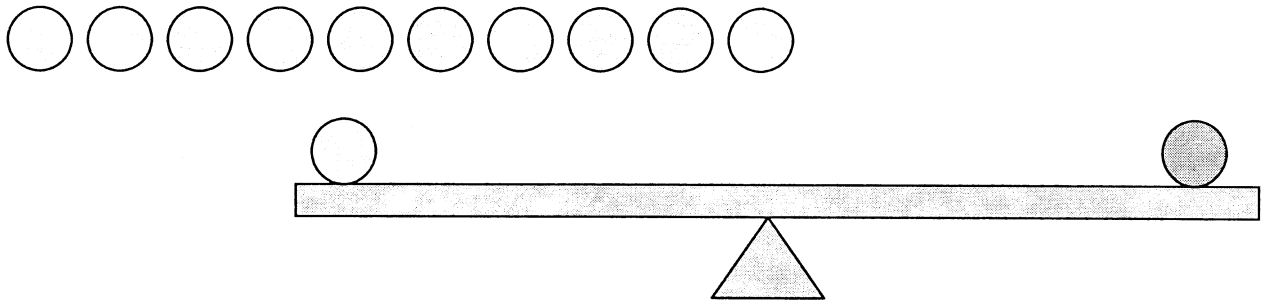
4/12 left after first trial = 33%



2/12 left after second trial = 16.5%



1/12 left after third trial = 8.25%



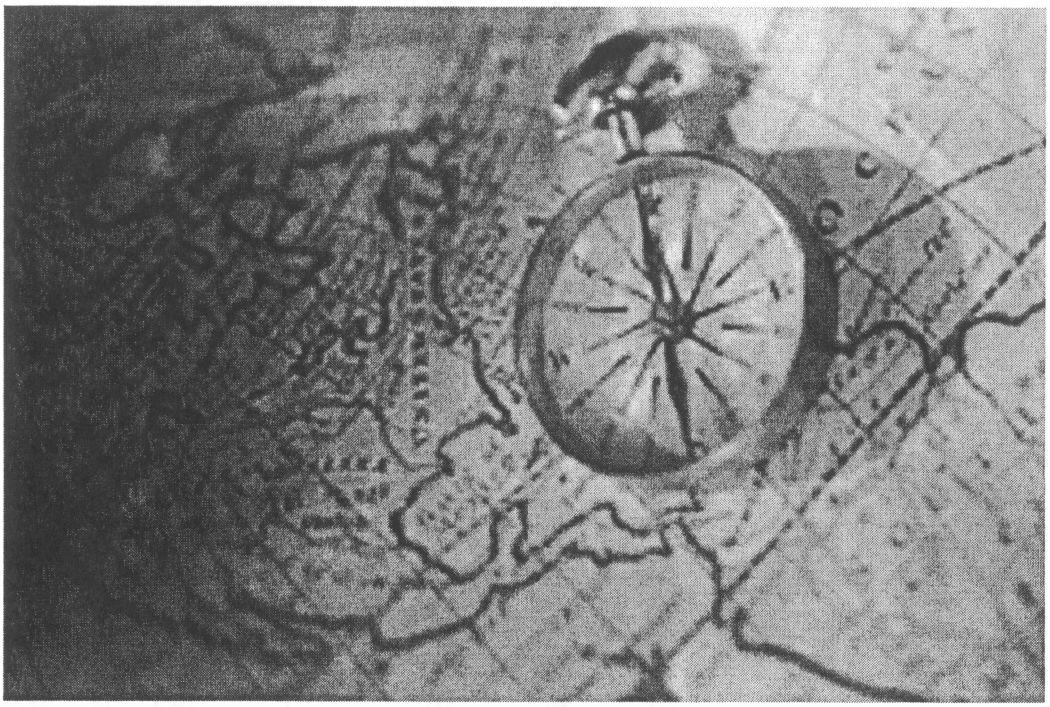
Alternatively, you could ask, "what is the probability of finding the heavier coin if you just compare two coins on the first trial?"

Answer: 2/12 or 16.5%

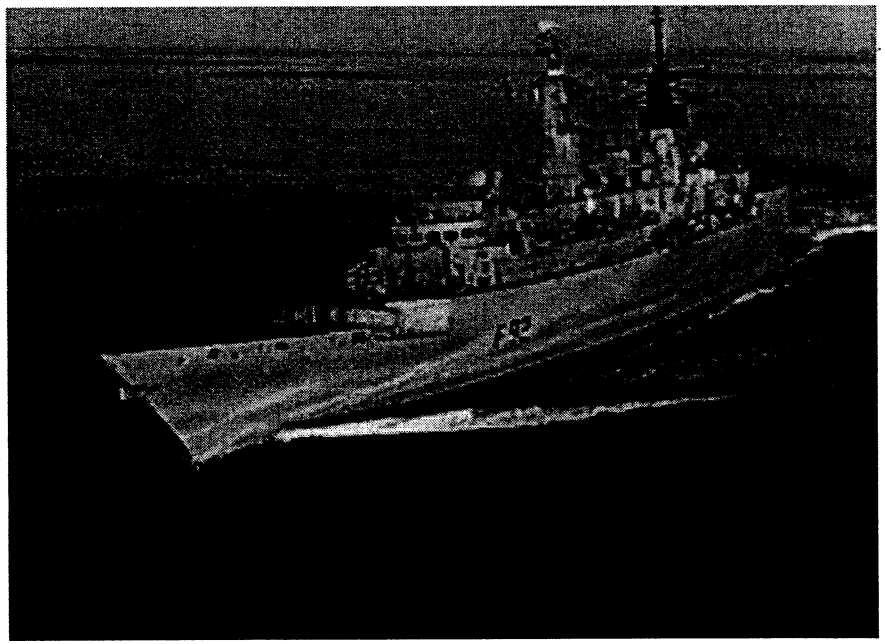
What if you don't find the right coin on the first trial?
What is the probability of finding the heavier coin after two consecutive weighings, each weighing consisting of comparing two coins from the group?

Answer: For the first weighing: 2/12, or 16.5%
plus, for the second weighing, 2/10, or 20%
Total probability = 36.5%

***Now*, what happens if the weighings (tests) are not consecutive – instead they are simultaneous (using two scales)?**



UK RN Type 22 Batch 2 Frigate at Speed



Naval frigates are required to operate at high speeds while remaining efficient at all times. Designers are therefore very concerned with the hullform resistance of competing designs.

http://www.soton.ac.uk/~ajk/ship/welcome.html