

Back in the 1930's many families purchased bushel baskets of peaches, tomatoes, string beans, and so forth for canning. One autumn day during my mid-teen years, I watched a farmer deliver five bushel baskets of tomatoes to a produce market. As soon as the farmer drove away, the market manager brought out a number of empty bushel baskets and began to transfer the tomatoes from the farmer's baskets to his. When the transfer was complete, the manager had seven bushels of tomatoes to sell. I was greatly amazed at what transpired and wondered what clever trick the manager had used to accomplish this feat.

This episode vanished from memory for many years. Then, in a college science course, I began the study of the arrangement and packing of atoms in crystals; the science of crystallography. I learned, in addition to many other things, that spherical atoms could be packed in various ways to give different packing densities. At this juncture, my mind flashed back to the tomato packing incident and I saw in an instant the relationship between the packing of atoms and tomatoes. The principles were the same! Ironically, the ancient masters of dishonesty and deceit probably discovered this secret thousands of years before the advent of the science of crystallography.

Let me explain how the manager was able to do this. Atoms are rather spherical (similar to a ball), and so are tomatoes. But atoms are very, very small. It would take more atoms than the number of hamburgers that McDonald's

has ever sold to equal the size of a tomato. As the farmer picked tomatoes, he tossed them randomly into his basket and they automatically arranged themselves into what a crystallographer calls a "close packed structure". Further perfection of the close packed arrangement occurred by settling action as the farmer travelled rough roads on the way to town. Spheres cannot be arranged in any other way to obtain a greater density of packing.

If we had X-ray vision to see into a basket of tomatoes as delivered by the farmer, we would see the tomatoes arranged with their centers located at the corners of hexagons, a six sided plain figure. However, there are ways of packing sphere-like things wherein adjacent spheres touch each other but are not so densely packed and, therefore, occupy more space. Such an arrangement is one in which our X-ray vision would see the tomatoes centered at the corners of squares. The manager could achieve this kind of packing by placing tomatoes at the bottom of the basket on the corners of a square grid, like the layout of the streets in most of Utah's cities. He would then place a second layer of tomatoes so that each tomato was located directly over the tomato below it and continue this procedure until the basket was full.

The above story and mention of the scientific underpinning shows just how complicated this scheme really was. More than ever before, we live in an era of complicated schemes which claim to make you rich but are deceptively designed to take your money.

**Honesty in the affairs of men is essential to a nations survival.** America is great because its people are relatively honest. If total honesty were rated 10, and absolute dishonesty rated zero, I believe our country, on average, would rate above 8. However, we are slipping. If our honesty slips below 7, I think that we will be in deep trouble, headed for third world status.

In most third world nations, the bribe is standard practice, postal employees open and steal valuables from the mail, customs agents must be bribed to let you cross the border even though you are not carrying contraband, presidents and other high officials raid the national treasury and live in splendor while the poor starve. Corruption, favoritism, nepotism, special privilege, cruel punishment, detentions, unlawful procedures and oppression abound. While citizens of a certain nation were starving and Utah citizens were fasting and sending money to relieve their hunger, that nation's dictator was allocating many millions of dollars to lavishly celebrate the tenth anniversary of his coming to power. I do not think that you, the graduating class of 1987, want to live in that kind of a country.

To prevent this from ever happening, I suggest that each of us, in our hearts, accept this pledge: **In this, the 99th Commencement of Weber State College and the 200th year of the Constitution of the United States of America, I pledge to be honest with myself and my fellowmen and will teach my children to do the same.**