

PREFACE

In Pennsylvania Station, New York City—the old Penn Station, said to have been modeled on the Baths of Caracalla—was a machine that split and squeezed oranges. They rolled down a chute and were pressed against a blade. Then the two halves went in separate directions to be cupped and crunched. The juice fell into a pitcher. You paid dearly for the product.

I was a young commuter, scarcely thirty, on my way to Rockefeller Center from my home in New Jersey, and I stopped at the machine almost every morning. From late autumn and on through winter and spring I noticed a gradual deepening of the color of the expressed juice. December was pale cadmium, April marigold, and June a Persian orange. One day, I happened onto an ad in a magazine, paid for by the Florida Citrus Commission, picturing four oranges that to me looked identical but had varying names: Hamlin, Parson Brown, the Washington Navel Orange, the Late Orange of Valencia. How did they differ from one another? I didn't linger over the question. I had to get to work.

Work in those days—the early nineteen-sixties—was at *Time* magazine, where I spent half my days covering show business and the other half trying to figure out what I could

possibly do that might attract the favorable attention of William Shawn, editor of *The New Yorker*. I had enough rejection slips from *The New Yorker* to paper a large wall but I wasn't getting the message. A promising crack in the door finally developed when I wrote a freelance profile of a Princeton University undergraduate who was exceptionally skilled in basketball. His name was Bill Bradley, and, even then, no one who knew him had any difficulty imagining that he would one day become a Rhodes Scholar (playing basketball for Oxford) and eventually a United States Senator often mentioned prominently for elevation above the Senate. But he was still a college student—hounded by the press after his great successes in basketball—and he needed a place in which to seclude himself so that he could complete in timely fashion his undergraduate thesis.

I, meanwhile, had resigned from *Time* magazine to become a freelance, writing wholly for *The New Yorker*, and I was in search of topics, making lists. I thought of the machine in Penn Station, and the four oranges in the ad. While mentioning a number of story possibilities to Mr. Shawn, I uttered the single word "oranges?"

He answered right back. He always answered quickly. It seemed impossible to propose any subject to him that he had not thought about before you had. He kept his writers at the far ends of something like bicycle spokes—all separate, all somehow spinning together and apart, with him in the center—and when he turned down an idea he was usually protecting the interests of some writer whose name would never be mentioned. "No. I'm very sorry. No," he

would say typically, his voice so light it fell like mist. "That subject is reserved in a general way for another writer." To my question about oranges, though, he said, "Yes. Oh, my, yes." Grandparents soaked up our daughters, Bradley hid out in our house, and my wife and I left for Florida.

I intended only some hundreds of words, a few pages in the magazine. On the Ridge—the slightly elevated spine of Florida—I began by flying around in a helicopter with a citrus nurseryman and learning the lore of bud unions. Citrus does not come true from seed. If you plant an orange seed, a grapefruit might spring up. If you plant a seed of that grapefruit, you might get a bitter lemon. With a graft, however, what you saw was what you got. Scion and rootstock were joined at the bud union.

I had moved on to growers and pickers—still on course for that short piece—when someone remarked to me that if I was going to write about oranges I should visit the University of Florida's Citrus Experiment Station, in Lake Alfred.

It was late March and the Valencias, in their overlapping cycle, were in fruit and in bloom, a phenomenon of this tree, which blossoms fourteen months before the fruit is picked, with the beautiful result that a Valencia tree in spring is under a snowy veil punctuated by spots of bright orange against an evergreen field of dark leaves. Valencias are half of Florida's annual crop. The university's experiment station was a couple of buff, squarish buildings that stood alone, deep within a Valencian forest. You went up a long lane through the groves to find it. When you stepped

out and walked through the door, your short article turned into a book.

Some dozens of people in there had doctorates in oranges. Many of them were wearing white jackets of the sort issued at a general hospital. They were working on citrus metabolism, on post-harvest diseases. In a chamber that functioned much like a heart-lung machine, oranges wired to sensors were breathing in oxygen and exhaling carbon dioxide, as oranges do until they die. They are long off the tree when they stop breathing. Dr. William Grierson, looking lonely, had a knight's broken lance over his door, which he said he had splintered in defense of fresh fruit, most of which was disappearing in a frozen sea of concentrate. In the library of the experiment station were a hundred thousand titles on citrus—scientific papers, mainly, but also six thousand books. They crossed a distinguished spectrum from Philip C. Reece and J. F. L. Childs's *Character Differences in Seedlings of the Persian Lime* to Samuel Tolkowsky's monumental *Hesperides: A History of the Culture and Use of Citrus Fruits* and—from several centuries earlier—Giovanni Battista Ferrari's *Hesperides, or Four Books on the Culture and Use of the Golden Apples*. Some of these I took outside and read under trees. I learned that citrus was born in the Orient, migrated westward with civilization, and traversed North Africa with the rise of Islam. There were no oranges in the Holy Land when Christ was alive. Those oranges on the table in various Last Suppers were oranges of Renaissance Italy. Columbus himself brought the first citrus to the New World.

For more than three decades, people have asked me how it came about that I wrote—as they frequently phrase it—“a whole book on oranges.”

That was how.

And Bill Bradley finished his thesis.

ONE

ORANGES



THE custom of drinking orange juice with breakfast is not very widespread, taking the world as a whole, and it is thought by many peoples to be a distinctly American habit. But many Danes drink it regularly with breakfast, and so do Hondurans, Filipinos, Jamaicans, and the wealthier citizens of Trinidad and Tobago. The day is started with orange juice in the Colombian Andes, and to some extent, in Kuwait. Bolivians don't touch it at breakfast time, but they drink it steadily for the rest of the day. The "play lunch," or morning tea, that Australian children carry with them to school is usually an orange, peeled spirally halfway down, with the peel replaced around the fruit. The child unwinds the peel and holds the orange as if it were an ice-cream cone. People in Nepal almost never peel oranges, preferring to eat them in cut quarters, the way American athletes do. The sour oranges of Afghanistan customarily appear

as seasoning agents on Afghan dinner tables. Squeezed over Afghan food, they cut the grease. The Shamouti Orange, of Israel, is seedless and sweet, has a thick skin, and grows in Hadera, Gaza, Tiberias, Jericho, the Jordan Valley, and Jaffa; it is exported from Jaffa, and for that reason is known universally beyond Israel as the Jaffa Orange. The Jaffa Orange is the variety that British people consider superior to all others, possibly because Richard the Lionhearted spent the winter of 1191-92 in the citrus groves of Jaffa. Citrus trees are spread across the North African coast from Alexandria to Tangier, the city whose name was given to tangerines. Oranges tend to become less tart the closer they are grown to the equator, and in Brazil there is one kind of orange that has virtually no acid in it at all. In the principal towns of Trinidad and Tobago, oranges are sold on street corners. The vender cuts them in half and sprinkles salt on them. In Jamaica, people halve oranges, get down on their hands and knees, and clean floors with one half in each hand. Jamaican mechanics use oranges to clear away grease and oil. The blood orange of Spain, its flesh streaked with red, is prized throughout Europe. Blood oranges grow well in Florida, but they frighten American women. Spain has about thirty-five million orange trees, grows six billion oranges a year, and exports more oranges than any other country, including the United States. In the Campania region of Italy, land is scarce; on a typical small patch, set on a steep slope, orange trees are interspersed with

olive and walnut trees, grapes are trained to cover trellises overhead, and as many as five different vegetables are grown on the ground below. The over-all effect is that a greengrocer's shop is springing out of the hillside. Italy produces more than four billion oranges a year, but most of its citrus industry is scattered in gardens of one or two acres. A Frenchman sits at the dinner table, and, as the finishing flourish of the meal, slowly and gently disrobes an orange. In France, peeling the fruit is not yet considered an inconvenience. French preferences run to the blood oranges and the Thomson Navels of Spain, and to the thick-skinned, bland *Maltaises*, which the French import not from Malta but from Tunisia. France itself only grows about four hundred thousand oranges each year, almost wholly in the Department of the *Alpes Maritimes*. Sometimes, Europeans eat oranges with knives and forks. On occasion, they serve a dessert orange that has previously been peeled with such extraordinary care that strips of the peel arc outward like the petals of a flower from the separated and reassembled segments in the center. The Swiss sometimes serve oranges under a smothering of sugar and whipped cream; on a hot day in a Swiss garden, orange juice with ice is a luxurious drink. Norwegian children like to remove the top of an orange, make a little hole, push a lump of sugar into it, and then suck out the juice. English children make orange-peel teeth and wedge them over their gums on Halloween. Irish children take oranges to the movies, where they eat them while they watch the show, tossing the

peels at each other and at the people on the screen. In Reykjavik, Iceland, in greenhouses that are heated by volcanic springs, orange trees yearly bear fruit. In the New York Botanical Garden, six mature orange trees are growing in the soil of the Bronx. Their trunks are six inches in diameter, and they bear well every year. The oranges are for viewing and are not supposed to be picked. When people walk past them, however, they sometimes find them irresistible.

The first known reference to oranges occurs in the second book of the *Five Classics*, which appeared in China around 500 B.C. and is generally regarded as having been edited by Confucius. The main course of the migration of the fruit—from its origins near the South China Sea, down into the Malay Archipelago, then on four thousand miles of ocean current to the east coast of Africa, across the desert by caravan and into the Mediterranean basin, then over the Atlantic to the American continents—closely and sometimes exactly kept pace with the major journeys of civilization. There were no oranges in the Western Hemisphere before Columbus himself introduced them. It was Pizarro who took them to Peru. The seeds the Spaniards carried came from trees that had entered Spain as a result of the rise of Islam. The development of orange botany owes something to Vasco da Gama and even more to Alexander the Great; oranges had symbolic importance in the paintings of

Renaissance masters; in other times, at least two overwhelming invasions of the Italian peninsula were inspired by the visions of paradise that oranges engendered in northern minds. Oranges were once the fruit of the gods, to whom they were the golden apples of the Hesperides, which were stolen by Hercules. Then, in successive declensions, oranges became the fruit of emperors and kings, of the upper prelate, of the aristocracy, and, by the eighteenth century, of the rich bourgeoisie. Another hundred years went by before they came within reach of the middle classes, and not until early in this century did they at last become a fruit of the community.

Just after the Second World War, three scientists working in central Florida surprised themselves with a simple idea that resulted in the development of commercial orange-juice concentrate. A couple of dozen enormous factories sprang out of the hammocks, and Florida, which can be counted on in most seasons to produce about a quarter of all the oranges grown in the world, was soon putting most of them through the process that results in small, trim cans, about two inches in diameter and four inches high, containing orange juice that has been boiled to high viscosity in a vacuum, separated into several component parts, reassembled, flavored, and then frozen solid. People in the United States used to consume more fresh oranges than all other fresh fruits combined, but in less than twenty years the per-capita consumption has gone down seventy-five per cent, as appearances of actual oranges in most of the United

States have become steadily less frequent. Fresh, whole, round, orange oranges are hardly extinct, of course, but they have seen better days since they left the garden of the Hesperides.

Fresh oranges have become, in a way, old-fashioned. The frozen product made from them is pure and sweet, with a laboratory-controlled balance between its acids and its sugars; its color and its flavor components are as uniform as science can make them, and a consumer opening the six-ounce can is confident that the drink he is about to reconstitute will taste almost exactly like the juice that he took out of the last can he bought. Fresh orange juice, on the other hand, is probably less consistent in flavor than any other natural or fermented drink, with the possible exception of wine.

The taste and aroma of oranges differ by type, season, county, state, and country, and even as a result of the position of the individual orange in the framework of the tree on which it grew. Ground fruit—the orange that one can reach and pick from the ground—is not as sweet as fruit that grows high on the tree. Outside fruit is sweeter than inside fruit. Oranges grown on the south side of a tree are sweeter than oranges grown on the east or west sides, and oranges grown on the north side are the least sweet of the lot. The quantity of juice in an orange, and even the amount of Vitamin C it contains, will follow the same pattern of variation. Beyond this, there are differentiations of quality inside a single orange. Individual segments vary from one another in their con-

tent of acid and sugar. But that is cutting it pretty fine. Orange men, the ones who actually work in the groves, don't discriminate to that extent. When they eat an orange, they snap out the long, thin blades of their fruit knives and peel it down, halfway, from the blossom end, which is always sweeter and juicier than the stem end. They eat the blossom half and throw the rest of the orange away.

An orange grown in Florida usually has a thin and tightly fitting skin, and it is also heavy with juice. Californians say that if you want to eat a Florida orange you have to get into a bathtub first. California oranges are light in weight and have thick skins that break easily and come off in hunks. The flesh inside is marvelously sweet, and the segments almost separate themselves. In Florida, it is said that you can run over a California orange with a ten-ton truck and not even wet the pavement. The differences from which these hyperboles arise will prevail in the two states even if the type of orange is the same. In arid climates, like California's, oranges develop a thick albedo, which is the white part of the skin. Florida is one of the two or three most rained-upon states in the United States. California uses the Colorado River and similarly impressive sources to irrigate its oranges, but of course irrigation can only do so much. The annual difference in rainfall between the Florida and California orange-growing areas is one million one hundred and forty thousand gallons per acre. For years, California was the leading orange state, but Florida surpassed Cali-

ifornia in 1942, and grows three times as many oranges now. California oranges, for their part, can safely be called three times as beautiful.

The color of an orange has no absolute correlation with the maturity of the flesh and juice inside. An orange can be as sweet and ripe as it will ever be and still glisten like an emerald in the tree. Cold—coolness, rather—is what makes an orange orange. In some parts of the world, the weather never gets cold enough to change the color; in Thailand, for example, an orange is a green fruit, and traveling Thais often blink with wonder at the sight of oranges the color of flame. The ideal nighttime temperature in an orange grove is forty degrees. Some of the most beautiful oranges in the world are grown in Bermuda, where the temperature, night after night, falls consistently to that level. Andrew Marvell's poem wherein the "remote Bermudas ride in the ocean's bosom unespied" was written in the sixteen-fifties, and contains a description, from hearsay, of Bermuda's remarkable oranges, set against their dark foliage like "golden lamps in a green night." Cool air comes down every night into the San Joaquin Valley in California, which is formed by the Coast Range to the west and the Sierra Nevadas to the east. The tops of the Sierras are usually covered with snow, and before dawn the temperature in the valley edges down to the frost point. In such cosmetic surroundings, it is no wonder that growers have heavily implanted the San Joaquin Valley with the Washington Navel Orange, which is the most beautiful orange grown

in any quantity in the United States, and is certainly as attractive to the eye as any orange grown in the world. Its color will go to a deep, flaring cadmium orange, and its surface has a suggestion of coarseness, which complements its perfect ellipsoid shape.

Among orange groups, the navel orange is an old one. In his *Hesperides, or Four Books on the Culture and Use of the Golden Apples*, Giovanni Battista Ferrari, a Sienese Jesuit priest of the seventeenth century, described it, saying: "This orange imitates to some extent the fertility of the tree which bears it, in that it struggles, though unsuccessfully, to reproduce the fruit upon itself." It is thus a kind of monster. Just beneath the navel-like opening in the blossom end of each navel orange, there is a small and, more or less, fetal orange, usually having five or six pithy segments. The navel strain that we know now originated in Bahia, Brazil, probably as a bud sport, or mutation, of the Brazilian Selecta Orange. In 1870, an American Presbyterian missionary in Bahia was impressed by the seedlessness and rich flavor of this unusual orange with an umbilicus at its blossom end, and sent twelve nursery-size trees to the United States Department of Agriculture in Washington. The department propagated the trees and sent the progeny to anyone who cared to give them a try. In 1873, Mrs. Luther C. Tibbets, of Riverside, California, wrote for a pair of trees, got them, and planted them in her yard. Mrs. Tibbets' trees caught the attention of her neighbors and, eventually, of the world. From them have de-

scended virtually every navel orange grown anywhere on earth today, including the Carter, the Golden Nugget, the Surprise, the Golden Buckeye, the Robertson, and the Thomson. The patriarchal one should by rights be called the Bahia, but merely because of its brief residence in the District of Columbia it has been known for ninety-six years as the Washington Navel Orange.

In the United States, in a typical year, around twenty-five billion oranges are grown. These include, among others, Maltese Ovals, Pope Summers, Nonpareils, Rubys, Sanford Bloods, Early Oblongs, Magnum Bonums, St. Michaels, Mediterranean Sweets, Lamb Summers, Lue Gim Gongs, Drake Stars, Whites, Whittakers, Weldons, Starks, Osceolas, Majorcas, Homosassas, Enterprises, Arcadias, Circassians, Centennials, Fosters, Dillars, Bessies, and Boones, but not—in all of these cases—in any appreciable quantity. Actually, one variety alone constitutes fully half of the total crop. Originally known in California as the Rivers Late Orange and in Florida as the Hart's Tardiff, it was imported into the United States early in the eighteen-seventies in unlabeled packages from the Thomas Rivers Nursery, of Sawbridge-worth, Hertfordshire. The easygoing Mr. Rivers had not only left off the name of the orange trees; he also failed to note where he had found them. They grew to be big, vigorous trees that bore remarkable quantities of almost seedless fruit containing lots of juice, which had a racy tartness in delicious proportion to its ample sugars. As supposedly different varieties, the trees were already be-

ginning to prosper when an orange grower from Spain, traveling in California, felt suddenly at home in a grove of the so-called Rivers Lates. "That," said the Spanish grower, clearing up all mysteries with one unequivocal remark, "is the Late Orange of Valencia."

Out of the bewildering catalogue of orange varieties and strains, the Valencia has emerged in this century as something close to a universal orange. It is more widely and extensively planted than any other. From Florida and California and Central and South America to South Africa and Australia, Valencias grow in abundance in nearly all the orange centers of the world except Valencia. Having given the world the most remunerative orange yet known, Spain now specializes in its celebrated strains of bloods and navels. Only two per cent of the Spanish crop are Valencias, and perhaps only half of that comes from the groves of Valencia itself; much of the remainder grows in old, untended groves near Seville, where cattle wander through and munch oranges on the trees, on either bank of the Guadalquivir.

The Valencia is a spring and summer orange, and the Washington Navel ripens in the fall and winter. The two varieties overlap twice with perfect timing in California—where, together, they are almost all of the total crop—and the orange industry there never stops. In Florida, the Valencia harvest begins in late March and ends in June, and for about four months there is no picking. Florida grows few navel oranges, somewhat to the state's embarrassment. Florida growers tried hard

enough, some seventy or eighty years ago, but the Washington Navel, in the language of pomology, proved to be too shy a bearer there. Instead, to meet the fall and winter markets, Florida growers have a number of locally developed early varieties to choose from, and in the main they seem to prefer three: the Pineapple Orange, the Parson Brown, and the Hamlin.

The Pineapple developed in the eighteen-seventies and was so named because its full, heavy aroma gave packinghouse employees the feeling that they were working in Hawaii rather than in Florida. The Pineapple is fairly seedy, usually containing about a dozen seeds, but it is rich in flavor, loaded with juice, and pretty to look at, with its smooth-textured, bright-orange skin and its slightly elongated shape. The skin is weak, though, and highly subject to decay. Most oranges, with appropriate care, will live about a month after they are picked. Pineapple Oranges don't have anything like that kind of stamina. (The Temple Orange and the Murcott Honey Orange, which are not actually oranges, ripen at the same time that Pineapples do. They are natural hybrids, almost certainly tangors—half orange, half tangerine—and they are so sweet that people on diets sometimes eat them before dinner in order to throttle their appetites. Oranges float, but these have so much sugar in them that if you drop one into a bucket of water it will go straight to the bottom. Murcotts were named for Charles Murcott Smith, one of the first men to propagate them. Advertisements have, from time to time, claimed that

Temple Oranges were native to the Orient and sacred to a little-known sect of the Buddhist faith, and the seeds from which Florida's trees eventually sprang were stolen from a temple against the resistance of guardian priests. Temple Oranges are in fact named for William Chase Temple, who, long ago, was general manager of the Florida Citrus Exchange.)

Parson Nathan L. Brown was a Florida clergyman who grew oranges to supplement his income; the seedy, pebble-skinned orange that now carries his name was discovered in his grove about a hundred years ago. It tends to have pale-yellow flesh and pale-yellow juice, for, in general, the color of orange juice is light among early-season oranges, deeper in mid-season varieties, and deeper still in late ones.

The seedless, smooth-skinned Hamlin, also named for a Florida grove owner, ripens in October, ordinarily about two weeks ahead of the Parson Brown.

Both Hamlins and Parson Browns, when they are harvested, are usually as green as grass. They have to be ripe, because an orange will not continue to ripen after it has been picked. Many other fruits—apples and pears, for example—go on ripening for weeks after they leave the tree. Their flesh contains a great deal of starch, and as they go on breathing (all fruit breathes until it dies, and should be eaten before it is dead), they gradually convert the starch to sugar. When oranges breathe, there is no starch within them to be converted. Whatever sugars, acids, and flavor essences they have were neces-

sarily acquired on the tree. Hence, an advertisement for "tree-ripened" oranges is essentially a canard. There is no other way to ripen oranges. It is against the law to market oranges that are not tree-ripened—that is to say, oranges that are not ripe. Women see a patch or even a hint of green on an orange in a store and they seem to feel that they are making a knowledgeable decision when they avoid it. Some take home a can of concentrated orange juice instead. A good part, if not all, of the juice inside the can may have come from perfectly ripe, bright-green oranges.

Some oranges that become orange while they are still unripe may turn green again as they ripen. When cool nights finally come to Florida, around the first of the year, the Valencia crop is fully developed in size and shape, but it is still three months away from ripeness. Sliced through the middle at that time, a Valencia looks something like a partitioned cupful of rice, and its taste is overpoweringly acid. But in the winter coolness, the exterior surface turns to bright orange, and the Valencia appears to be perfect for picking. Warm nights return, however, during the time of the Valencia harvest. On the trees in late spring, the Valencias turn green again, growing sweeter each day and greener each night.

TWO ORANGE MEN



AT the beginning of the Valencia harvest in 1965, I drove to Florida, looking forward to its fresh orange juice in much the same frame of mind that I had once been in, in Burgundy, when nearing Beaune and the road that leads through Aloxe-Corton, Nuits-Saint-Georges, Vosne-Romanée, Gevrey-Chambertin, and so on up to Dijon. Several years earlier, I had made visits to orange groves in Spain and California, but this was Florida, with nearly fifty million orange trees, yielding more oranges than Spain, Italy, and Mexico—the second, third, and fourth orange countries—put together. As it happened, I had not been in the state since a time when, as a traveling undergraduate without funds, I had lived for the better part of ten days on roadside orange juice, several bags of tangerines, and three bushels of the Late Oranges of Valencia. I was eager to return to a place where—or