COLOR

A Natural History of the Palette

Victoria Finlay

RANDOM HOUSE

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RANDOM HOUSE TRADE PAPERBACKS

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For my parents, Jeannie and Patrick,
who first showed me the place where light dances

“LOADED WITH FASCINATING TIDBITS.” —*Boston Herald*

“A rainbow of stories . . . Even casual natural history fans can enjoy Finlay’s conversational style and her enthusiasm for her little-understood topic.” —*Chicago Tribune*

“*Color* is the essence of landscape, of mood, of our whole perception of the physical world. Victoria Finlay has traveled through Iran, Afghanistan, and other places to investigate the origin of all those tantalizingly sensual ochers and reds and blues. What a creative idea for a book!” —ROBERT D. KAPLAN, author of *The Ends of the Earth and Eastward to Tartary*

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“Exhilarating . . . Finlay’s wide-ranging, richly detailed, and bravely researched survey of the colors of the palette leaves few stones—be they lapis, malachite, or ochre—unturned. . . . You’ll never look at a box of Crayolas the same way.” —*Book Street USA*

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ACKNOWLEDGMENTS

I had thought, when I set out on my travels—when I first tumbled through that paintbox—that I would somehow find, in the original stories of colors, something pure. It was a naïve Garden of Eden moment, and of course I forgot about the rainbow serpent that had to be there in order to make it a real paradise. In the historical and chemical paintbox I have found more corruption, poisonings, wars and politics than even the Medicis could have appreciated. Killer wallpapers, capital punishment for people using the wrong dyes, and beautiful blue stones which murder the lungs of those who find them underground: these have all featured in my travels. But in the process of uncovering them I have also found more wonderful and helpful people than I could have ever hoped. I can only thank some of them here.

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TRAVELS THROUGH A EUROPEAN PAINTBOX

1

Ochre

“Art . . . must do something more than give pleasure: it should relate to our own life so as to increase our energy of spirit.”

SIR KENNETH CLARK, Looking at Pictures[1]

In the lakelands of Italy there is a valley with ten thousand ancient rock carvings. These petroglyphs of Valle Camonica are signs that Neolithic people lived there once, telling stories and illustrating them with pictures. Some show strangely antlered beasts, too thin to provide much meat for a feast, and others show stick-people hunting them with stick-weapons. Another rock has a large five-thousand-year-old butterfly carved into it—although my visit coincided with that of a horde of German schoolchildren queuing up to trace it, and sadly I couldn’t see the original through all the paper and wax crayons.

But in a quieter place, far away from the groups, I found a flat dark rock covered with fifty or more designs for two-story houses with pointy roofs. It didn’t feel particularly sacred to me as I stood looking at it. It was more like an ancient real estate office or an architect’s studio, or just a place where people sat and idly carved their domestic dreams. The crude carvings are not colored now, of course: any paints would have disappeared long ago in the Alpine rain. But as I sat there, contemplating the past, I saw what looked like a small stone on the ground. It was a different color from all the other mountain rubble—whatever it was, it didn’t belong.

I picked it up and realized something wonderful. It didn’t look promising: a dirty pale brown stub of claylike earth about the size and shape of a chicken’s heart. On the front it was flat and on the back there were three planes like a slightly rounded three-sided pyramid. But when I placed the thumb and the first two fingers of my right hand over those three small planes, it felt immensely

comfortable to hold. And what I realized then was that this piece of clay was in fact ochre, and had come from a very ancient paintbox indeed. I wet the top of it with saliva, and once the mud had come off it was a dark yellow color, the color of a haystack. When, copying the carvings, I drew a picture of a two-story house on the rock, the ochre painted smoothly with no grit: a perfect little piece of paint. It was extraordinary to think that the last person who drew with it—the person whose fingers had formed the grooves—lived and died some five thousand years ago. He or she had probably thrown this piece away after it had become too small for painting. A storm must have uncovered it, and left it for me to find.

Ochre—iron oxide—was the first color paint. It has been used on every inhabited continent since painting began, and it has been around ever since, on the palettes of almost every artist in history. In classical times the best of it came from the Black Sea city of Sinope, in the area that is now Turkey, and was so valuable that the paint was stamped with a special seal and was known as "sealed Sinope": later the words "sinopia" or "sinoper" became general terms for red ochre.[2] The first white settlers in North America called the indigenous people "Red Indians" because of the way they painted themselves with ochre (as a shield against evil, symbolizing the good elements of the world,[3] or as a protection against the cold in winter and insects in summer[4]), while in Swaziland's Bomvu Ridge (Bomvu means "red" in Zulu), archaeologists have discovered mines that were used at least forty thousand years ago to excavate red and yellow pigments for body painting. [5] The word "ochre" comes from the Greek meaning "pale yellow," but somewhere along the way the word shifted to suggest something more robust—something redder or browner or earthier. Now it can be used loosely to refer to almost any natural earthy pigment, although it most accurately describes earth that contains a measure of hematite, or iron ore.

There are big ochre mines in the Luberon in southern France and even more famous deposits in Siena in Tuscany: I like to think of my little stub of paint being brought from that area by Neolithic merchants, busily trading paint-stones for furs from the mountains. Cennino Cennini wrote of finding ochre in Tuscany when he was a boy walking with his father. "And upon reaching a little valley, a very wild steep place, scraping the steep with a spade, I beheld seams of many kinds of color," he wrote. He found yellow, red, blue and white earth, "and these

colors showed up in this earth just the way a wrinkle shows in the face of a man or a woman."

I knew there would be stories to be uncovered in many ochre places—from Siena to Newfoundland to Japan. But for my travels in search of this first colored paint I wanted to go to Australia—because there I would find the longest continuous painting tradition in the world. If I had been charmed by my five-thousand-year-old ochre, how much more charmed would I be in Australia where cave painters used this paint more than forty thousand years ago? But I also knew that in the very center of Australia I would find the story of how that ancient painting tradition was transformed to become one of the most exciting new art movements in recent years.

Before I left for Australia I called an anthropologist friend in Sydney, who has worked with Aboriginal communities for many years. At the end of our phone conversation I looked at the notes I had scribbled. Here they are:

> It'll take time. Lots.
>
> Ochre is still traded, even now.
>
> Red is Men's Business. Be careful.

I had absentmindedly underlined the last point several times. It seemed that the most common paint on earth was also sometimes the most secret. Finding out about ochre was going to be a little more complicated than I had thought.

SYDNEY

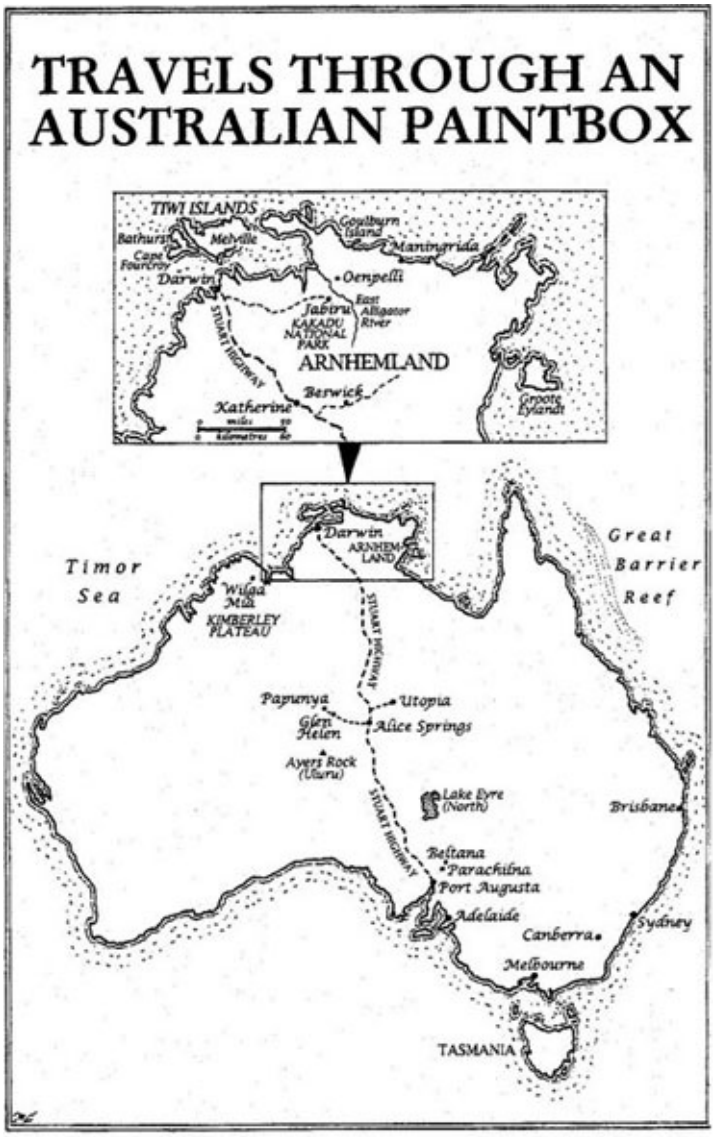
Hetty Perkins, one of the Aboriginal curators at the Gallery of New South Wales, described the secrecy of indigenous traditions most vividly, as we drank coffee in the gallery garden after the opening of a major retrospective of Aboriginal art that she had organized.[6] "This is a blanket," she said, putting her hand on a piece of white paper in my notebook, "and this is Australia," she continued, touching the wooden table. "You lift the paper, and it's all underneath

. . . Many paintings are like the blanket . . . we don’t understand the full extent of the meanings, but we know that they mean country.” I was intrigued to know whether she had peeked underneath—at the table, so to speak. “It’s not my privilege,” she said. “That’s why I’m careful. It’s not my place to ask anyone what anything means. That will come later on.”

So, effectively—I summarized for myself that evening—I was going to look for a pigment that in one of its incarnations I wasn’t allowed to see, and which was used to paint secrets I wasn’t allowed to know. And I respected that secrecy. But what then, under those rather rigorous conditions, would I find in the north and then the center of Australia to help me understand the appeal of ochre?

DARWIN

What I discovered was ochre itself. I found it immediately and I found miles of it. I had not quite appreciated how the Top End of Australia is a quarry of ochres—there is so much of it that people use it commercially for colored concrete. On my first morning in Darwin I went for an early morning walk along East Point beach, which is famous locally for its colors. The rocks were like raspberry ripple ice cream, as if some lazy Ancestral Being had been given the job of mixing up the yellow, white, orange and red ingredients into the brown color of proper cliffs but had been distracted by a passing possum and ended up leaving them to dry in unmixed swirls of color. The crimson hematite was splashed like spilt blood over the whiter rocks. When I ground the loose pebbles on the mortar of the rock, and added a drop of seawater, I found I could paint with them—on my skin and on the pale parts of the rock. But unlike my smooth Italian ochre these Australian pigments were gritty and flaked unevenly. You wouldn’t travel miles for this paint, I thought. Although, of course, I realized, I just had.



To the east I could see Arnhemland being slowly illuminated by the sun. This was the Aboriginal homeland that outsiders can visit only if they are invited. When you look at some maps, it is almost a blank: a place you don't need to know about unless you have your own map already. As I sat on the stone slabs and watched the sun painting the sky pink, I wondered about the colors of Arnhemland. Where they came from, and where they went to.

TRADING OCHRE

There was a time when the whole of Australia was a network of trading posts. [7] From Arnhemland in the north to the tip of southern Australia, from the west coast to the beaches of Queensland, groups would come together for corroborees and would barter prized items with each other. It was partly an important way of getting good tools and useful items; but it was also a way of articulating social networks in (mostly) peaceful ways. If you were accustomed to trading with your neighbors every wet season, then that was when peace treaties could be maintained, and rivalries resolved. People might swap a boomerang (boomerangs didn't come back in those days) for a spear or an axe for a grinding stone—with a corroboree ritual to celebrate the exchange. And ochre—really good ochre— was one of the most prized items of all.

Wilga Mia in the Campbell Ranges of Western Australia is one of the most sacred ochre mines in the continent. In 1985, Nicolas Peterson and Ronald Lampert[8] described going there with some of the traditional owners from the Warlpiri tribe. They had to ask permission for entry—not only from the owners but also from the sacred beings who, it was believed, lived beneath its ancient chambers. "Don't be unpleasant to us," the men once prayed before they went in with their torches and metal axes, while on another occasion they cajoled the spirit of the mine, saying how they wanted only a small amount. Before the 1940s the ochre had been traded for spears with tribes to the south and for shields and boomerangs with those from the north.[9] And—at least in the 1980s—it was still being mined and traded, although where once it had been collected in bark dishes, by the end of the twentieth century it was placed in plastic buckets.

Another famous deposit is in the Flinders Ranges of South Australia. For possibly thousands of years Aboriginal expeditions headed south into the area from Lake Eyre. In *Goods from Another Country*, Isabel McBryde writes about Diyari men taking two months to travel the thousand-mile round trip to collect their red gold from the Bookartoo mine at a place called Parachilna. They used to return home with 20 kilos of ochre each, already formed into baked round cakes. These would be carried on their backs in bags made of possum or kangaroo skin, and on their heads they would have huge seed-grinding stones from a nearby stone quarry. There would be seventy or eighty men travelling together: it must have been an impressive sight.

Then in 1860 the white farmers arrived, along with their sheep and their land registrations—and a series of skirmishes began. To the administrators in Adelaide these were known as the ochre wars, although the origins of the conflict had more to do with what happened on the way to and from the sacred mine than about what was found in it. The Aboriginals were not remotely interested in European notions of land ownership but they *were* interested in this new, bleating bush tucker. And when they made their yearly expeditions to Bookartoo they took what meat they needed for their journey. The white communities were quick in their reprisals (on the "hanging for a sheep *or* a lamb" theory), and these were followed by counterreprisals from the Aboriginals. A nineteenth-century settler called Robert Bruce, quoted by Philip Jones of the South Australian Museum in a paper written in 1983,[10] wrote that "a solitary shepherd would have been about as safe [in the Flinders] as an unpopular land agent in Tiperary [sic] during the good ould toimes."

In November 1863 the ochre wars became an ochre massacre. Jones noted that, more than a century later, the Aboriginal people in the local area still knew the precise place where scores of Aboriginals were killed by the angry settlers. It is near Beltana, about 540 kilometers north of Adelaide. Throughout the 1860s there was terrible violence from both sides and eventually someone in the South Australian administration suggested a solution. If they couldn't stop the men going to the mountain, perhaps they could bring the mountain to the men. How about moving the mine? he said, arguing that the black fellas wouldn't know the difference. And unbelievably, in 1874, this is effectively what the settlers did. But they moved the wrong mine.

The decision-makers in Adelaide couldn't persuade any transport company to take the red rocks all the way from Parachilna (it was an almost impossible route for bullock carts then), so instead they removed four tons of ochre from a traditional mine owned by the Kaura people by the coast, and organized for it to be carted up to Lake Eyre—it took weeks, but the roads were at least negotiable. Once they reached their destination, they persuaded the German missionaries to distribute it, in the hope that the resulting glut in supply would mean the ochre collectors would find other things to do.

It was a wasted effort. All the Kaura red ochre in the world couldn't dissuade the men of Lake Eyre from making their annual expedition—for three reasons.

First it was a kind of pilgrimage. You can probably buy Lourdes water in London, but part of its appeal is the transformation that occurs when you make the journey yourself. The Aborigines had built elaborate ceremonies around collecting the red ochre and bringing it back. Trotting over to the mission to collect a little bag of free rocks rather missed the point. Stories can only be told by being told, and journeys can only be made by being travelled.

Second, ochre was essential for bartering. Trading happens when one item is seen to be almost equal in value to another. What value did free paint have? It wouldn't have bought very many precious pearl shells from the Kimberley coast, nor would it have bought much of the *pituri* tobacco the Diyari people were so keen to buy from other tribes. The recipe for making *pituri* leaves into a super-narcotic was a secret, kept only by the elders of certain tribes, so swapping ochre for *pituri* was swapping a secret for a secret and therefore appropriate. If the Lake Eyre tribes were denied sacred ochre then it would mean they were not able to play their part in the complex trading network that Aboriginal tribes depended on.

Third, the ochre was used for painting ritual designs, and the Kaura red simply wasn't either good enough or sacred enough: it did not contain the hint of mercury that made the Bookartoo paint so special. In 1882, a journalist called T. A. Masey wrote that: "the natives would not use [the Kaura ochre]. It did not give them that much-coveted shiny appearance that filled them with delight and admiration when contemplating their noble selves, and that also made them the envy of rival tribes."[11] For Masey this was probably an expression of a primitive urge for glittery things, but there are other explanations. The sense that light is a manifestation of the glory of the sacred—that the numinous is held within the luminous—is common to almost every faith. Perhaps by painting themselves with a color that gleamed, the Aboriginals were not only symbolizing the sacred; they were embodying it.

"Oh yeah, *pituri*," said Roqué Lee. "Tastes like shit but works like ten cups of coffee at once." I met Roqué (who pronounces his name "Rocky") at the Aboriginal Art Gallery in Darwin: he used to be a ranger at Kakadu National Park, but for the past five years he'd mostly been demonstrating didgeridoos. His father is Chinese-Australian and his mother is Aboriginal. "I've got three

cultures," he said happily. "You can see it in my cooking. I do *cha-siu* snake, long-neck turtle stuffed with ginger and stir-fry magpie goose." He lives in Darwin during the week but likes going hunting on weekends. "It's magpie goose season soon," he said. "We build a blind on the edge of a swamp, and then make a bundle of spears. When the geese come over we just throw the spears in the air. No need to aim." He often mixes white kaolin clay with seagull eggs, and uses it to paint stripes on his face while he's hunting. "Just to let Mother Nature know we're there." They don't do that for magpie geese, though: "They're so fat, we don't need luck." But they always paint the ends of the spears with white paint. For luck? "No." He grinned. "So we can find them more easily later."

He showed me around the gallery. Like many Darwin art shops, it has divided its paintings into two sections—the huge abstract paintings from the Central Desert, mostly in acrylic paints, with plastic as a binder rather than oil,[12] and the paintings from the Northern Territory. The former I knew I would find farther south together with—I hoped—the stories of their bright colors. The latter are still mostly in natural ochres as they were when the explorer and ethnologist Sir Baldwin Spencer began to collect them from Arnhemland tribes in around 1912, although today the black, white, red and yellow earths are now more often bound with synthetic glues. The new binders are easier to obtain, and they last longer than orchid juice or seagull egg.

The northern Aboriginal paintings were originally painted on the cut bark of the stringybark tree (which is more like paper than string) although they are now mainly on canvas—partly for ecological reasons and partly because that is what the buyers want, and because many paintings today tend to be created with the buyers in mind, rather than because they needed to be painted for their own sake. They are covered with patterns made up of diagonal stripes and cross-hatching. The latter technique was apparently brought in by Macassan traders (from the island of Sulawesi which is now part of Indonesia) several hundred years before white settlers arrived on the continent. It is a reminder that Aboriginal culture has never been isolated, but instead has been influenced by (and perhaps has influenced) outside forces from Indonesia, Polynesia, China and elsewhere. It also, curiously, works as an optical illusion, the finely drawn parallel lines creating a shimmer in a similar way to paintings by British twentieth-century artist Bridget Reilly. Howard Morphy, in his book *Aboriginal Art*, suggested this "quiver"—which looks as if it had been painted with a shaking hand—was

deliberate, and a way of making the painting shimmer and appear to move.[13]

The northern paintings tend to be highly figurative—showing, for example, the lightning-man Namarrkon, with his halo of electricity and axes stuck in his limbs (as humans stick them into logs), ready to be flung at humans who disobey the law; or the Luma Luma, who couldn't keep his hands off women, and was killed by the angry men (but not until he had told them his best stories). Others show the animal totems—fish or wallabies or turtles or crocodiles—placed around depictions of the humans and ancestors whose stories they share. When I first saw one of the turtle pictures I thought the diagonal lines around it were simply decoration. But then I spent one long night watching giant turtle eggs being laid on a desert island not far from Darwin—for a research project run by the University of the Northern Territory. And when I watched the mother green-back returning slowly into the ocean after laying eggs on the beach she had been born on forty years earlier, I realized the painting was an uncannily accurate picture of the tracks she made with her flippers.

Traditional Aboriginal life only makes sense in the context of the time when the Ancestors first arose out of the original mud or sea or sky and brought the first sunrise with them. In English it is articulated as the "Dreaming" or "Dreamtime"—a dream in the sense that it is not set in the past, but in a kind of parallel present universe, rather like the one we operate in while we are asleep. In Aboriginal lore, the Dreaming is the reason for everything that has ever existed and ever will exist. And its stories are told in layers, depending on how ready, or authorized, the listener is to understand them. It is said that your personal Dreaming depends on where your mother was when she first felt you in the womb. The Ancestors who live in that place have given you "anima"—they have animated you—and when you grow up their stories and songs will be in your trust, and you in theirs.

There is very little that is gentle about the Dreaming; in fact a lot of it is very raunchy. Its stories often involve ancestral animals and people being killed or punished, or they include details of them moving through the land along paths that have become sacred tracks, finding food and allies and enemies. They are epic stories containing (as all the best epics do) universal truths. They are about the law of the land, but they are also the land itself, and only certain people are authorized to know them. So a story or song about, say, the Wawilak sisters—

who set out on a journey at the beginning of time, and were swallowed by the Rainbow Serpent when one of them bled into his waterhole—works on several levels. It acts as a reminder of spiritual truths, as a warning to behave according to certain social rules, and as a map. It might—if you have been authorized to decode it—tell you to turn toward the east at this hill to find water, or to stop at that camp to find grubs, and it acts almost as a key to the country, a way of finding your way through it safely even if you have never been there before. And similarly the material—ochre—with which these stories are passed on in rituals or on caves is not only from the land. It *is* the land.

Red ochre has dreaming stories—there are probably as many stories as there are tribes, but most of them seem to hinge on the spilling of blood. Parachilna was said in some stories to be the blood of an ancestral emu, and by others to be the blood of the Marindi dog, which was tricked and killed by a lizard hanging at its throat. Wilga Mia was, according to Warlpiri legend, made by a man who stole it from a deposit of congealed blood. And another story of red ochre from the Calgoorlie area [14] tells the tale of Kirkin, a man with sun-bleached hair, whose beauty dazzled everyone—especially himself.

At sunrise every morning this matinee idol of the Ancestral Age would stand on a high boulder, comb his golden hair and enjoy all the adulation and attention. But one person did not adore him. A healer called Wyju saw straight through Kirkin and laughed at him for his vanity. Naturally Kirkin hated him for this, and plotted revenge. He told Wyju he wanted to go out hunting with him to find a special bird that was wonderful to eat. The only problem was that a hunter could only catch it by jumping on top of it. The comedy of the chase was cut short by Wyju's jumping into a trap of spiked spears that Kirkin had set for him. The wicked Kirkin laughed and left Wyju to writhe around the valley, spikes piercing the tender soles of his feet, staining the earth with his blood. And ever since that time, the myth goes, Aboriginals have gone to that valley for red ochre. They have smeared the "blood" of the young ancestral healer on their sons before initiation, to teach them to be good men.

This is one of the reasons why ochre is not only sacred but also dangerous. Red ochre is an integral part of the initiation ceremony of young boys when they become men. In north-east Arnhemland, for example, novices are smeared with ochre in sacred clan patterns on their chests, with white clay masks on their

faces. The paint is part of the secret of initiation—and perhaps it is even the secret itself. Many people have speculated on the significance of this red earth—and anthropologists have tended to focus on the symbolism of red as representing men's blood (meaning death), or women's menstrual blood (signifying, perhaps, the potential for giving birth). But there is an alternative theory, a curious one: that the iron in red ochre somehow acted as a kind of magnet, to show Ancestors and Aboriginal people the way along sacred paths.[15] When I first heard this I dismissed it as New Age confusion, but then later I heard something new about red ochre—something that did not change my mind, but left it a little more open.

I learned that scientists in Italy have found a new technique for dating frescos almost to the year they were painted, simply by examining the red paint. "Red ochre contains iron, and the iron molecules act like compass needles," explained Professor Giacomo Chiari of the Department of Minerological and Petrological Sciences at the University of Turin. He said that in the few minutes between daubing red ochre onto wet clay, and the time it dries, the molecules realign themselves toward the direction of magnetic north. "And if you don't move the walls then that is how they stay," Professor Chiari said. Magnetic north changes every year—it can fluctuate over a range of 18 degrees, so you can learn when the fresco was painted from the direction in which the red ochre is pointing. This can lead to curious artistic discoveries: at the Vatican Library, for example, there were three frescos which were believed to have been painted in 1585, 1621 and 1660. The Turin scientists took tiny samples from the borders to see whether they could test their theory. "We couldn't understand the results. All the ochre was pointing the same way and it wasn't in any of the ways we were expecting," Professor Chiari said. And then they did more tests and realized the truth: the frescos were original, but all the borders had been repainted in 1870. Magnetic north is very erratic, though, Professor Chiari added. "So we can do it both ways: we sometimes use frescos—if we know when they were painted—to tell us where magnetic north was that year."

He was not aware of the technique being used to date bodies that had been painted in red ochre—as has been a funerary custom in Australia, Africa, America and Europe for thousands of years. Partly because nobody could be sure whether the body had been moved after the ochre had dried and partly because the burials had happened too far in the past. "You can't go too far back

because we don’t know so much about magnetic north thousands of years ago.”

Roqué said there was no way I would learn about red ochre in ceremonies: “it’s forbidden for anyone to talk about it,” and he told me how it was far harder to learn about Aboriginal traditions in the 2000s than it was in the 1930s—not simply because there are few men and women who remember them, but also because there is a deliberate move toward hiding information in order to protect it. His sister was working on a project to put anthropological works about Aboriginal ceremonies into special places in libraries, where readers had to apply for permission to read them. But there were still plenty of other uses of ochre that I *could* see, he said. If I wanted to know about ochre in culture I should go to the Tiwi Islands. And if I wanted to know about ochre in art I had to go to Kakadu, on the edge of Arnhemland. “It’s the biggest art gallery in the world.”

OCHRE INCEST TABOOS

The Tiwi Islands are just twenty minutes’ flight across the Apsley Strait from Darwin, but when you first arrive at Bathurst air strip it seems as if you are in another country. Not Australia at all. The language is Tiwi, and the children at least scarcely speak any English. The people are represented by sixteen councillors who meet at the Tiwi White House to oversee the running of the islands. Although they like to keep themselves separate from the rest of Australia, some years ago the Council voted to allow a maximum of a dozen tourists a day, so that outsiders could understand their culture.

On the surface the Tiwi people have an idyllic island existence. Plenty of sunshine, bright shirts, pretty painted buildings surrounded by palms, lots of artists working in big bright art centers and everything fringed by immaculate beaches. But on other levels the islanders not only have to contend with some of the alcohol problems that threaten so many Aboriginal communities, they also have some of the most rigorously prescribed ways of social organization I have ever encountered.

The problem stems from the demographics. There are only 1,400 people on the two islands of Melville and Bathurst, and for many years they believed they

were the only people in the world. So they developed strict ways of preventing intermarriage. And those ways have remained. There are no mixed schools on the island. Not for education theory reasons, but because sisters and brothers cannot even look at each other, let alone speak. Our guide, Richard Tungatulum —one of the councillors of Tiwi—related an anecdote of a man who arrived at the tiny field hospital one day in tremendous pain. The doctor was out, but instead of helping the patient the nurse went to make herself a cup of tea. “She had to,” said Richard. “She was his sister.”

Everyone is born as one of four moieties. You can be a sun, a stone, a mullet fish or a pandanus palm. If you are a sun then you can marry neither sun nor stone: your husband or wife must be either a mullet or a pandanus. [16] The Tiwi world is made up of four symbolic ochre colors—and each moiety is represented by one of them: sun is red, stone is black, pandanus is white and mullet is yellow. Red and black marry only white and yellow: the “strong” colors always marry the “gentle” ones.

Despite some of the best attempts by some of the worst missionaries, [17] Tiwi beliefs have survived alongside the biblical ones. The Tiwi Dreamtime story involves a blind woman bursting through the earth with her three babies in her arms and crawling over the dark and featureless land, [18] shaping its topography. Her daughter grows up to become the sun and marry the moon. And in the mornings the sun paints her body with red ochre to please her husband, and then when she reaches the western horizon at the end of the day she powders herself with yellow so she is beautiful for her night journey through the underworld.

In the past, there was no trade with the mainland so all the ochres came from the islands. The best white paints tend to be from One Tree Point and the yellows are from Cape Fourcray, and collecting them—in the days before four-wheel-drives—used to require a full-scale expedition. There are some natural reds, but they are rare, and most of the ordinary red paints are made by cooking the yellows. This is one extraordinary characteristic of this iron-oxide paint: heating the yellow ochre makes it turn red through a process called calcining. It is not a good enough red for the most sacred uses (it is not shiny enough), but it is valued for ordinary painting. And in Europe too, calcining is so common that some paints have two names because of it. Sienna is matched by the redder “burnt sienna,” while in the eighteenth century Dutch paint-makers used to buy

yellow ochre in France, heat it, and sell it as English Red.[19]

I was introduced to four women who explained some of the more exotic aspects of Tiwi culture. There are twenty-two different dances, and each person inherits one. There is, for example, a crocodile dance and a mosquito dance; there is even one for a battleship. I asked a woman called Doreen Tipiloura what her dance was. “My great-great-uncle saw a train once, on the mainland,” she said. “So I dance train.”

Each person also has their own face painting, according to what their Dreaming is, and they demonstrated the patterns for us by painting their own faces. Would it be possible to paint my face with ochre? I wondered. So Ruth Kerinauia gamely painted her Little Sheep Big Sheep totem on my cheeks and forehead—candy stripes above the eyes and beneath the chin, then smaller stripy lines along my cheekbones. It was only later—when I saw a photograph—that I realized she had altered the colors into a kind of tonal mirror image of her own painting. Where she painted white on her own face, she painted black on mine: where she had yellow looking luminous on her black skin, I had red looking luminous on mine. It was as if some of the lines and tonal contrasts were particularly important in the design, so she needed to paint them in a way that highlighted them. Caucasian people, incidentally, are not called “white” but “red” in Tiwi language. I was a *moretani*: a “hot red face,” although they didn’t call me that to my hot red face.

Ochre was also used on what are called “pokemani” poles. A death on Tiwi is mourned for a long time. For the first month after a close family member dies you literally cannot lift a hand and other people have to feed you like a baby. The name of the deceased cannot be mentioned for an agreed amount of time—sometimes years—which only ends when a ceremony is held in which the dead person’s belongings are buried, and the family erects a series of slim painted poles to mark the place. Usually visitors cannot see these poles, but we were led to a quiet place in the forest, where the possessions of one of Richard’s friends lay buried. He had died of a heart attack while playing football, when he was just thirty years old. He had been the first Tiwi tour guide and his family decided he would have liked his grave to be a place where strangers could learn more about the culture he was so proud of.

The poles are like an obituary, if you know how to read them. Richard's friend was a sun moiety so there was a predominance of red in the designs. And the patterns each showed something about the dead person's life. "The dots are people and the lines are pathways," Richard explained. "And what are these strange shapes?" someone asked, pointing to big yellow ovals on one of the poles. "Those? Oh, those are Aussie Rules footballs."

THE EDGES OF ARNHEMLAND

Roqué had told me that if I wanted to see ochre in ancient art, I had to go to Arnhemland. And two days later I found myself at its fringes. Kakadu is the section of western Arnhemland that has been opened up to visitors, as part of a national park. The rest— everything to the east of the East Alligator River—is open only to residents and permit holders. Yet I was lucky. On my first night there was a one-off theatre performance—a collaboration between the people who lived in the settlement of Oenpelli and the Stalker Stilt Company from Perth. *Crying Baby* was a highlight of the Festival of Darwin, and was performed under the stars. It was the only theater show that I have been to that has been dependent on river tides, with the extra frisson that if you were caught in the middle you might get eaten alive—not by alligators, though: the river was wrongly named and the huge reptiles that skulk around this fast-running river are actually crocodiles, but no less fierce for that. "Man got eaten last year," a ranger said cheerfully, when we were waiting to cross into what one of the white theatergoers gleefully called "the forbidden land."

The play was based on the personal history of a storyteller called Thompson Yulidjirri, whose family members were removed from their homes by missionaries and taken to Goulburn Island, mixed up with the Dreaming story of a Crying Child, whose parents did not look after it, their lack of care resulting in the Rainbow Serpent taking its revenge. The story was chosen to highlight some of the problems of so many settlements throughout Australia, where alcoholism is rife, and children can too often be abandoned. In the audience Old Bill Neidje —one of the respected elders of Oenpelli—was sitting in a wheelchair. When Neidje was a child the missionaries gave him and his family white flour. They didn't know what it was and they used it as body paint. "You're wasting food,"

the missionaries told them, laughing, before introducing them to the mysteries of damper—a flour-and-water glue that is cooked over a fire into an unleavened bread. But the Aboriginals would have been wise to have stuck to the body paint theory. Their new diet of wheat and sugar was the first step on a journey toward diabetes and dialysis. [20]

At the end of the play I went to talk to Thompson and his fellow elders. They were daubed in white ochre, and said they would be happy to talk about their use of the pigment. We could talk now, they said, or I could go to Oenpelli to see them. But now was impossible—the Alligator tides were turning and we would soon be unable to return to Kakadu—and the next day I learned that, invitation or not, it would probably take at least ten days to get a permit. I thought I could just make it, I said, filling in the form. "That's ten *working* days," said the white administrator, reluctantly taking the application from me anyway.

I spent some of the intervening time looking at part of one of the biggest collections of art in the world. There are many thousands of paintings in caves and rock shelters all over the plateau. Some of them tell sacred stories—of rainbow snakes and lightning gods, of hunting grounds, and of ancient sisters who walked across the land making waterholes and hillocks and places so dangerous that only initiated men can go there. Then there are Mimi paintings, said to have been made by the shy stick-like spirits who live in the cracks between the rocks. You can see the work of the Mimi in the highest paintings at the tops of caves, which can only have been executed by very tall creatures, or perhaps by humans with scaffolding. There are also spray paintings, probably done by someone putting wet paint in his or her mouth and spraying it over their hand (or a child's hand) or foot. And then there are the so-called "rubbish" paintings—with a whole host of subjects, some of which are rude, some historical—including three-hundred-year-old paintings of Macassan traders arriving in their boats—and some the kind of distilled Dreaming stories designed to be told to children.

Although the most sacred paintings were believed not only to depict the Ancestors but to embody them, many of the other cave paintings were never meant to last. They were illustrated lessons and they had a similar significance to, say, blackboards in a religious college. What they signified was precious, but what they were was not. However, today, when much of Aboriginal tradition has

disappeared, all the paintings have become valuable in their own right, both as artifacts and as ancient messages for future generations.

According to George Chaloupka, in his book about the paintings of Arnhemland entitled *Journey in Time*, there are eight main color terms for the paints: black, yellow, deep yellow, the red that is made by burning yellow, a light pink and the shiny hematite red with a purple tint. A color from the twentieth century is "blu" or Reckitt's Blue, introduced in the missionaries' laundry baskets in the 1920s. And then there is *delek*, which is the word both for "white" in particular and for "color" in general—a linguistic affirmation perhaps that although red is sacred in these parts, a good white is also very precious. It is valued partly because it shows up well on both caves and bodies, partly because it is useful for painting both spears and coffins (one evening I found myself in the Aboriginal Town Camp in Jabiru, in the middle of Kakadu, and was taken to the home where a man had just died, and where his relatives were painting around the car with white paint) but partly because the best of it—a clay called huntite—is believed to be the feces of the Rainbow Snake.[21]

When I first heard this I was rather taken by the metaphor: the idea that the rainbow spectrum should somehow shimmer through the sky and over the earth, and that it should leave a dazzling white behind it. The truth was rather more prosaic. "Have you ever seen reptile droppings?" asked Alex Dudley, a ranger with whom I discussed the myths one evening. I hadn't, I admitted. So with his penlight we went hunting for gecko droppings, and soon found some on the glass dome of a Telstra phone box. They looked like little white slugs. A python's droppings are bigger, he said, making a shape in his hand that suggested feces the size of a tennis ball. "Imagine what the Rainbow Serpent could do after a good meal."

A few mornings later I was disconsolate—I had returned to the permit office and no progress had been made. "Thompson invited me," I said. "How do we know?" was the answer. I knew no Oenpelli phone numbers except for the arts center telephone, which rang and rang. I asked the woman whether she could try again, and went for a long walk to think about what I was going to do instead in order to learn more about this elusive paint. During the walk I bumped into a guide who specialized in animal tours. "You'd better go to the buffalo farm," he said. "Patsy will show you how colors work." Which is why the next morning I

found myself pulling up to what appeared to be a deserted homestead at the end of long tracks guarded by plenty of “Trespassers Will Be Prosecuted” and “Attention: Electric Fence” signs. It was a strange place: there were huge bits of iron everywhere—red and raw as if a container ship had rusted in the desert. I got out of the car and looked around. It was one of those mornings that shimmer with heat and silence, warning that it is going to be hot. There were flies buzzing around a buffalo horn that had been neatly sawed in several places and left lying on the ground, exposing blood and marrow, and everywhere there was the sweet smell of the abattoir.

Just when it seemed as if there was nobody there at all, Patsy and her husband Dave appeared from a shed. Patsy was born in Arnhemland and had grown up in a traditional community; Dave was a white Australian who had been a ranger for many years and was now managing the farm as a live larder for the local Aboriginals. When they wanted meat they would come and get it from him. Patsy had been married to a man in Maningrida, a coastal settlement in the heart of Arnhemland, but when he died she was pursued by a man she disliked. “My uncle Paddy said marry Dave, so I did.”

Patsy was quiet at first, then she warmed up. Later she told me why she was so sad: her younger brother had died the Sunday before. He had been thirty-one and one of the last true bushmen, I heard from someone in town later. He had also not been a drinker. On that Saturday night he had seen a cat in the darkness, and the next morning he was dead. He had had an argument with a close relative a year back, Patsy said, and shrugged. In our different ways we both paused to picture a world that encompassed sorcery and revenge. She agreed to take me into the bush, to show me how she finds the dyes for baskets. We drove for several kilometers past electric fences that Dave had promised he would switch off—and as Patsy leapt out of the car with her axe and started digging up a small bush lying near one of them, I prayed that he had remembered. “Yellow color,” she explained. “And red too.” I asked what she meant, but she said she would show me later. She also showed me how she found gray from the green fruit of the kapok tree, which contained gray feathery intestines also used to stuff mattresses in the old days.

Breakfast was the white heart of a sand palm—succulent and bittersweet—and for “jam” we ate bush apples and red ants with green bottoms that were so full of vitamin C they tasted like stings. As I looked out for buffalo (which apparently

could be dangerous) Patsy chopped down half a tree to make a forked stick, and then started hooking out the leaves of a pandanus tree—a palm with long spiky leaves bursting out from it like wild thick hair. This was the raw material for making baskets, she said, and when we returned to the farm we sat on a mat made of corrugated iron and she showed me how to strip the leaves, separating the soft underside from the hard top. She completed fifty to my one, but we sat companionably for an hour or so. Her puppy was getting tangled up in all the leaves. Patsy smacked him and then hugged him and then smacked him again. Suddenly a dinosaur crossed the path near us. “That’s just Stumpy,” she said, laughing at my look of alarm. Stumpy was a goanna—a meter-long lizard with a fierce face that gives a good clue to his general disposition, and no tail, having lost it in a fight.

Patsy took the roots of the yellow bush—which she called *anjundum*—and scraped off the skin. She divided them between two saucepans and started to boil them with the stripped pandanus. All my many wasted pandanus-stripping attempts were then gathered up and burned into ashes on our corrugated mat. “This is the red one,” she said, adding the ashes to one of the pots. “And this is the yellow one,” she added, pointing to the other. I realized that *anjundum* had a similar characteristic to pieces of ochre, in that the yellow ones could be transformed into red through cooking— although for the dyes it was a matter of adding some kind of alkali, like wood ash, and not just heat. She showed me a book: Penny Tweedie’s *Spirit of Arnhemland*—which contained photographs of a boy called Jazmin being decorated for a ceremony, his face sprayed from a man’s mouth with white ochre, rather like the technique of hand painting I had seen in the caves, and his thin chest painted with a singlet of yellow, white and red ochre stripes.

Another picture showed a ceremonial dilly bag on the back of an elder. It was cylindrical, hard like a basket, and covered in white, red and yellow diamonds. I suddenly realized how strongly the natural dye colors mirror the ochres—red, white, yellow and black. “Dangerous,” Patsy commented casually, flicking through the pages. “Women can’t see this,” she said, pointing at other pictures. I asked her whether it was dangerous for us to see the pictures. “No, we can see the photos, just can’t see in real life,” she explained, suggesting that by the very act of being set up for a photograph, the subjects had suspended their sacredness for the camera. Her sense of danger was reinforced by stories of women being

killed for looking at ceremonies. “It happened before whitefellas came,” she said. “But even now too,” she added pensively. “Maybe.”

Three days later my permit was turned down again: I realized I might not get my interviews. I had been circling carefully around both ochre and Arnhemland. I had talked to people who used it for hunting, and seen how it was still used for funerals. I had seen the colors that women use to imitate sacred patterns. But now it was time to meet some painters. “There’s a good mob down Barunga way: they do painting,” said a man I met at the Jabiru Social Club. So I called them. The Beswick and Barunga areas are in a protected area to the south-east of Kakadu. Could I come? How could I request a permit? I asked the arts coordinator, David Lane. “You’ve got a permit,” he said generously. “Come down when you like.” And yes, he confirmed, they did use natural ochres. “We’ll take you to find them if you want.”

I hired the only available four-wheel-drive in the area—a huge Nissan Patrol that made me feel I was Queen of the Road. When I arrived at Beswick, which was at the end of a red dust road so well made I felt a bit of a fraud in my grand car, I found a pleasant rural community of about five hundred people. There were picket fences and a well-tended playground and community center, with big houses set off the road and surrounded by grass and old mattresses. Beswick had been built in the 1940s when there was an emergency relocation of Aboriginal people from the coastal areas after the Japanese started bombing. Some had returned to Arnhemland but many had stayed, although some still dreamed of going home—and one of those dreamers was Tom Kelly.

Tom—a man in his sixties with a timeless etched face—was sitting on the porch of the main offices of Beswick. He had been a hand on a cattle station for many years but he had retired to Beswick to make and play didgeridoos—or “bamboos” as they call them in the creole that the people (who come from seven language groups) tend to use. “Tom’s one of the best,” David Lane told me. “He’s travelled the world with his didge.” Tom nodded matter-of-factly. “Been around,” he murmured. His group, the White Cockatoos, had been to many international music festivals, although now his dream was only to go back to live in Maningrida—the Arnhemland community where he was born—before his wife became too ill. Of all the places he had visited he’d liked America the best, especially meeting “them Indians,” who, he said, “also paint with ochre like us.”

He and David first showed me the didgeridoos. The stick-like instruments were covered in stories and pictures of lilies and file snakes and turtles in different ochre colors. One was decorated with a series of concentric red circles filled with white dashes, all on a black background. It represented water, Tom said, and the dashes were the effect of leaves falling on a waterhole. “It’s not country,” he said. “We don’t paint country on bamboos. Just pictures.”

He and two relatives—Abraham Kelly and Tango Lane Birrell— were to take me to find ochre from a nearby source called Jumped Up Creek, and suddenly my Nissan no longer seemed like an embarrassing overestimation of the terrain. Ten minutes out of town we turned off the main road onto what they said was a track, but I had my doubts. We churned up spiky spinifex for about a kilometer when Tom suddenly told us to stop. So we stopped in what seemed the middle of nowhere, got out, and suddenly I realized we were standing in a giant paintbox. The dried-up creek bed didn’t just have one color, it had dozens, all combinations of the basic four colors—dark red hematite, lemon yellow, white pipeclay and black manganese that looked like chewing gum spat out by dinosaurs and left to ossify. The colored stones and pebbles were strewn in every direction. You could pick up almost any of them and you had paint in your hands.

Abraham found a big flat white stone from beyond the creek. That was to be our palette and canvas, and Tango—who had a water bottle with him—showed me how to pour water on to it then take a stone and rub it vigorously over the water to make it into pigment. The stones had the right combination of clay and color to make painting easy; they were even smoother than my little Italian stone. Is this what they use for the didgeridoos? I wondered. “Yeah,” said Abraham. “We used to,” said Tango. “Now we use acrylics. Ochre needs a vehicle, it’s too far to walk. We had a vehicle before but the engine got buggered.”

Beswick is the last domain in the area to the south of Arnhemland that is considered culturally “intact.” Its inhabitants still organize initiation ceremonies, with boys going into the bush for four or five months to prepare. “We’ve only got five or six old men left now to teach the young ones,” Tango said. In all the settlements there were problems, he said. “Ganja, petrol-sniffing, all that.” But one of the biggest problems for cultural life was that the old men were dying. “Me, I’m forty-eight years old. If I don’t get anyone to teach me then I’ll fade

away, the whole thing will just fade away." The multicolored stones of Jumped Up Creek were used for both art and ceremonies, Tom said. "But we don't tell you about ceremony," he added firmly. "It's secret."

"Secret" is such a vulnerable thing in Aboriginal communities today. The stories have been passed on only with difficulty. Yet they have probably never been so important—not only in the religious sense, but also in the sense of identity. What meaning do stories and paintings about land and country actually have for a sedentary person who rarely sees the places they refer to? Today, when there are so few stories for men like Tom Kelly to pass on, it is important to pay attention to what is left, and to respect the very thin blanket of secrecy that can be spread over them. Things were not in fact so secret sixty years ago, when there were more stories and they were told fairly freely to anthropologists.

ALICE SPRINGS

Theodor Strehlow was the son of a missionary; he grew up with Aranda playmates, spoke the language fluently, and kept diaries and accounts of the ceremonies and traditions that he witnessed. His papers and pictures are held in the Museum of Central Australia, just outside the center of Alice Springs and an overnight bus journey from Beswick. To access them I turned away from the dark display cases of stuffed possoms and exotic rock samples, and went through a nondescript door into a triangular room with space for four chairs, a telephone and what looked like a two-way mirror. I felt as if I were in a spy film, or entering the secret headquarters of a cult.

I sat down in a chair and looked at the telephone for a while, wondering whether I had a good enough reason to dial 11–111 and ask to consult the files in order to learn more about ochre. Then— and as I write this a few months later I'm surprised I did this—I stood up and left the room without even picking up the phone. These were secret documents, so secret that in 1992 they had been confiscated from Strehlow's widow's home and put into the safe-keeping of the museum, for whenever the Aboriginal elders or scholars wanted to consult them. It wasn't right for me even to try to see them, I decided. Whatever I was to find out about red ochre would either be things people told me in full knowledge of

why I was asking, or things I found in public libraries, open to anyone. Even if that meant I knew less, it meant I knew it fairly. And, to my surprise, that afternoon I found in the reference section of Alice Springs's public library some of the information I had been looking for. It was an account—written up in Strehlow's *Songs of Central Australia*—of a sacred ritual that might help me understand why red ochre was so sacred.

In the hot summer of 1933, Strehlow was invited by four elders of the Loritja tribe to see a rain ceremony at a place called Horseshoe Bend, not far from Alice. He described how the men—having approached the cave banging shields and boomerangs to warn the Ancestors of their arrival—pulled three sacred rain sticks or *tjurunga* from the bottom of the cave. Two were slim poles, about the size and shape of didgeridoos, representing rain brothers who had travelled through the Central Desert country at the beginning of time. The third was smaller, and symbolized the brothers' two grandchildren: greedy infants screaming for blood.

The thirst of even the most hemoglobin-challenged of ritual objects was satisfied that afternoon. In order to honor the rain ancestors, the four blood donors cheerfully set to work tying their arms and opening the veins on the forearms, Strehlow wrote. They all had problems getting a good flow and spent the first five minutes cutting, splintering glass chips, and pulling at the opening of the cuts. But when the jets came they came quickly, spraying the *tjurunga* and then drizzling on top, bottom and sides of the cave entrance. It was, the missionary's son noted, the greatest quantity of blood he had ever seen sprinkled about for a ceremony.

The account is written in a very matter-of-fact way, but Strehlow added in a footnote that he had to brace himself for this "orgy of bleeding" by downing several good brandies, and even then he had to watch it through the lens of his Graflex camera, standing a short distance away, so he did not feel too sick. It was a hot day and a small gully, and he found the smell of blood quite overpowering. He was told that these three *tjurunga* were unique among the Loritja in that they were never painted with red ochre, but instead had to be refreshed with human blood at frequent intervals. Later he speculated that the usual practice of smearing *tjurunga* with red ochre might be a substitute for covering them with blood, although this was, he emphasized, purely a guess.

When the ceremony ended, the bloodstained sand was trampled until all signs had been wiped away; each man had to scrape the marks from his arms, and wash himself before returning to camp. It was important that the women shouldn't smell the blood, Strehlow noted. I was reminded of a story I had heard a couple of weeks before, whispered over a beer by a man in the Northern Territory. He knew a man, he said, who had been to an initiation ceremony in the mid-1990s, and had carelessly left the ceremonial red ochre glistening on his arm so that the women could see it. He had carried something dangerous into the world where it could not be contained, and the penalty for that was death. "They did it with spears," the man whispered, glancing melodramatically over his shoulder.

In the same library was a book about the Dreaming places of Alice Springs—which directed me to the road running along the Todd River (so dry that there is an annual regatta where the racers run, carrying the boats) and leading to the casino. The map recorded it as Barrett Drive; the Aboriginals preferred to call it Broken Promises Drive. When it was first proposed, the Aboriginal guardians gave permission for it to be built—as long as it wriggled round a spot that was known as the Caterpillar Dreaming because it included a long mound believed to mark the space where the caterpillar Ancestor rested beneath the earth. But the road builders were greedy; the wriggle would cost dollars. They blocked the road off and a few months later opened it unrepentantly—with several meters cut off the tail of the caterpillar. The wound was still there. From the road I could see a long mound about three meters high and five meters wide curling away into the distance, covered with eucalyptus and grass and signposts warning people to stay away. The mound ended abruptly at the road, where it had been chopped, and I saw something glinting in the debris. In fact I saw a lot of things glinting. It turned out that the "caterpillar" was made of a rock that flaked off with shiny silica dandruff. This rock on the road to the casino was not just ordinary stone, it was stone that changed color as you moved. Once again I saw how the "sacred" was something that was full of gleaming colors.

Everywhere in Alice Springs you can find Aboriginal designs. They are on logos and place mats, T-shirts and didgeridoos, and, of course, they are on canvases—in the dozens of art shops that line the streets of the town center. There were a few of the Northern Territory ochre paintings I had seen at the beginning of my

journey, and there were others that seemed to represent some kind of stylistic transition—by artists who came from the Kimberleys to the north-west of Alice, who still used ochre but in ways that involved large areas of paint, rather than either dotting or stripes. One of the most powerful of these was a man called Rover Thomas, who lived between 1926 and 1998 in Warmum, Turkey Creek, just to the west of the Darwin–Alice road, and about halfway along it. His paintings look like pieces of kangaroo skin stretched taut with pins of white pigment. The work seems less a painting of the country than a kind of wrapping up of the country—rather as Christo did with the Reichstag in Berlin. He uses a deep chestnut brown and his skies are the color of bitter chocolate. He always uses natural pigments, often mixed with bush gum and applied to marine ply.

But most of the paintings in Alice were, quite naturally, from the Central Desert. They were bright acrylic canvases in patterns of dots and curls and splashes and concentric circles. If they had been from Europe or America they would have been given labels like “abstract expressionist” or “neopointillist,” and the influence of such artists as Miró and Picasso would have been discussed in unending detail. But they were from Australia with their own distinctive artistic inheritance, so although those comparisons have been made, they have mostly been allowed just to stand for themselves. Many of the paintings had a title like “Two Snakes Dreaming” or “Dingo Dreaming,” and some included explanations of the iconography—that, for example, a concentric circle meant a waterhole, or that an oval shape was a shield, or that little curled lines represented men sitting at fires. These were some of the stories that had so intrigued Bruce Chatwin, in his journeys for the book that became *Songlines*, describing the way Aborigines traditionally conceptualize Australia as a series of sung stories, criss-crossing the land.

The paintings, when you look at them for more than a few minutes, seem to be an exercise in optical effects—like one of those Magic Eye games, with an obvious picture in the front and another picture “behind” it which you can see if you focus away from the paper. Like the shiny red ochres that I had not seen but had heard of in Arnhemland and South Australia, the paintings from the Central Desert seemed almost like another way of flipping reality. In their case by dotting it into non-existence.

I began to recognize some of the different artists—particularly the more famous ones. Ronnie Tjampitjinpa, whose work was made up of bold squares,

either set inside each other or spiralling geometrically into a central point. Then there was Rover Thomas, of course. And the Petyarre sisters—Ada Bird, Gloria and several others, much of whose work is made of small, swiftly painted dashes in contrasting colors such as green and purple, giving the effect of a weeping willow shivering in the wind. Listening quietly to conversations in different galleries, I learned that “Glorias” were getting more expensive, while “two Ronnies” cost about the same as a car nowadays. “Though good Ronnies are so hard to get nowadays,” was the sad comment from the dealer I was eavesdropping on. “He’s having domestic problems.”

UTOPIA

The Petyarre family comes from a place called Utopia. Perhaps it was the name or perhaps it was the art from that Central Desert settlement—with its bold control of color contrasts—which intrigued me. But I was determined to go there, and was fortunate enough to get an invitation from Simon Turner, the arts administrator who works as a go-between connecting dealers and artists. The settlement is about 100 kilometers north-east of Alice Springs. To get there from the Darwin Highway you turn east onto a dusty track and north onto an even dustier one. For kilometer after kilometer the land stays flat, a dry plain of gum trees. Then there is a tiny rise. Just 10 meters elevation or less, but suddenly you are in another world. The Aboriginals describe it, when they do, as the Mountain Lizard Dreaming or the Bush Plum Dreaming, and they tell its stories in layers and paint them in dots. With my stranger’s eye, I knew only that the country was suddenly greener and lusher. The land had lumped itself into rocky formations like stone citadels, or entrance gates to another country. In a strange way it felt as if I had really arrived somewhere.

And then, a few kilometers later, I did indeed arrive somewhere. Utopia was named a long time ago before there was a settled community here, and so the name was not as ironic as it may have appeared. It was certainly a strange, dislocated place. It was a scattered series of seemingly unplanned houses or “camps” separated by trees and tracks and “humpies,” which were blocks of corrugated iron surrounded by mattresses and bits of dirty clothing, where many people stayed outside on the warmer nights. There was a convenience store—

containing the strangest mixture of highly priced items such as televisions combined with cheap ones like white bread and fried food. And there was a playground with broken equipment. One swing had curled up on top of the frame and begun to rust up there. Helped by two half-naked children, I prodded it with a stick until it swung down again. They grinned and jumped on it. The job had taken only ten minutes, but nobody had bothered to do it.

Utopia is what is called a decentralized community, consisting of sixteen outstations. I had been invited to the main one, called Yuendumu. It was the first dry Aboriginal community I had visited (which made it safer, especially for children and women who lived there), although the place had other problems, largely due to boredom and lethargy. It is a terrible thing to lose your land, but when (as in traditional Aboriginal culture) that land is not only physical but also an embodiment of the spiritual, it is hard to find anything to take its place. The nomadic life has its own purpose to it: without the need to walk, what do you do? On my first morning I went for a walk and some women beckoned me over to their "camp." From the outside it looked like a house with a verandah but inside it was like some of the air-raid bunkers I used to break into in my childhood: bleak and dank, covered in graffiti and radiating a sense of unkemptness. One woman had a black eye. The others had invited me over because they wanted to see whether I had any clout with the arts administrator and, more importantly, whether I could use it to get them new canvases. "Finished this one," one said, pointing to a painting that showed her "country" in tiny dot patterns of bright greens and whites. "Without a canvas, nothing to do."

Later I went down with Simon to the arts center—a tumble-down place, although recently built. So many things in these communities age too quickly. The Formica cupboard doors were hanging off their hinges and rubbish threatened to take over; there was a sign stating (on behalf of Arapuntja Artists Inc.) that no dogs were allowed in the studio. This one-room building was not intended to be a retail point—few individual art-buyers reach Utopia—but a place where art was made, although now it is more like a place where canvases are doled out and cash transactions arranged.

Utopia was the country of the late Emily Kame Kngwarreye, dubbed "the old lady," a former horseback rider in the stock camps who became one of Australia's most famous female artists (whose paintings of her country were used as evidence in land rights hearings). Many of the artists of Utopia are

women, and it seemed that most of them were at the arts center that morning handing in their latest works, and lobbying for new canvases, while their toddlers and babies played on the dirty floor of the center. The paintings were made up of pointillist dots, and the effect was rather similar to looking at spring meadows full of flowers—but with blurred eyes and from a vantage point high above them. “What do you want to say here?” Simon asked each of them as she handed in her completed painting. “White is flowers,” Polly Ngalr said. What kind of flower? “Yam flower. And yellow is seeds.” What kind? “Yam seed,” she said, being patient. Some of the titles of the paintings shifted during the morning from *Emu Tucker* to *Bush Plum Dreaming* , and back again. Nobody seemed too bothered once the price had been set and the negotiations started for another fresh canvas.

Amy Nelson Napangardi hadn’t been given a canvas last time, so this time she was desperate. She has custodianship for the Witchdoctor Dreaming, which describes how bush medicine can be found. “Like that one,” she said, pointing to the Bush Plum Dreaming someone else had painted—interlapping dot patches in pinks and yellows. “But my colors are not pink, ” she added emphatically, and explained that the Witchdoctor Dreaming used just four colors—yellow, red, white and brown. That morning I had found myself desperate to somehow understand the paintings better—to understand what made them represent “country” or a Dreaming story, to appreciate them for more than their (often spectacular) color contrasts. I had hoped that perhaps by knowing what was not allowed, or at least not appropriate I could understand the paintings better. “Why not pink?” I asked her. “ ’Cos whitefella buyers don’t like it, ” she said.

And this is one of the curiosities of this extraordinary art movement. The buyers seem to want a sense of “authenticity” and yet nobody is quite sure what that means, nor indeed what it should mean. The fact that the painting is done by Aboriginal people seems to be vital—when, in 1977, it was revealed that the “Aboriginal” artist Eddie Burrup was in fact an eighty-two-year-old white woman called Elizabeth Durack, there was national outrage —and that it is made by Aboriginal people who somehow have some insight into nature seems to make it even more “valuable.” The fact that many “whitefella buyers” demand paintings in the natural colors of the land (ochre colors, although in acrylic versions of the original earth) also suggests they are searching for that ever elusive authenticity—a country and a history embodied in the canvas of a

painting available in an art gallery or auction house. In Alice Springs I had visited one gallery advertising the work of an artist “who had come in from the desert.” Somehow his work was seen to have more integrity because he was a nomad—by buying it, or having it, there was a sense of being part of a world that has now disappeared. Yet in truth, as I would learn later from the man who helped start it, the painting styles of the Central Desert Art Movement are actually combinations of Aboriginal patterns and colors and the visions of white art administrators. And the two influences can scarcely be separated anymore.

Gloria and Ada Petyarre were away from Utopia—invited by art galleries to tour with their own paintings. But their sister, Margaret Turner Petyarre, was there at the arts center. So I sat down next to her on the floor and—struggling to understand what it was to paint a “Dreaming” rather than a mere representation of a story—asked her several questions about what the paintings meant. Suddenly she looked at me kindly: “You gotta garden, right? You must have nice flowers in your garden; lovely flowers? ” I nodded, not wanting to go into the issues of space limitations in Hong Kong. “Well then, you know; that’s what this is,” she said. “Flowers.” I felt rather foolish, almost as if I had pointed to a landscape painting in a European art gallery and asked for its meaning, only to be told that it was trees and water and hills. Couldn’t I see?

My question hadn’t been entirely misguided, of course. This art, like the shine of the ochre it was originally painted in, is elusive. Yes, it is about texture and tone and contrast and technique, but it is also about something else, something I couldn’t quite grasp. Sometimes, in my travels through the Outback meeting artists, dealers and dyers, I had the fleeting impression that we were not talking about art at all, but about the universality of the human spirit. And then that feeling would disappear again and the talk would be of dollars and four-wheel-drives.

On the way out of Utopia I went to see Greenie and Kathleen Purvis at Boundary Bore, about ten kilometers away, past a shallow lake that stretched through the middle of this parched land. Greenie had the famous name but it was his wife, Kathleen, who was doing the painting, sitting in the sunshine on the ground, surrounded by slobbering dogs, while her husband dozed in the shade of his “humpy” or corrugated-iron windbreaker. These two old people have a house —quite a big one—but as Kathleen explained they don’t use it much “because it’s full of dogs.” Unless it’s too cold they like to sleep outside, on swag

mattresses under the moonlight: given the choice, I thought, I would do the same. There are few things as spectacular as the night sky in the Outback. They looked poor, but their work was selling well. They were planning to get a satellite television and a Toyota was being delivered the next day. Four-wheel-drives have been a popular means of payment for Aboriginal desert art—in the early days it was secondhand Holdens from a car dealership in Alice, now it is new Toyotas—and in many ways this is appropriate. In the past, the act of painting (as body art or on sand) was one way of passing on the wisdom and the maps, so other people could know both the land and what lies beneath it. It seems right that today the act of painting should still help Aboriginals reclaim the land. Even if it is from behind a steering wheel.

I had seen how the Central Desert painting movement had not only transformed people's lives but also how it had provided a language through which outsiders could try to understand something of Aboriginal culture, as well as helping to keep some of the traditional stories and Dreamings alive in people's memories. And I was intrigued by a tale I had heard again and again about how the movement had started in the early 1970s, with the gift of paint.

WHEN THE COLORS WERE TAKEN AWAY

Geoffrey Bardon was a young man full of ideas and ideals when he went to the Aboriginal settlement of Papunya in 1971 as an art teacher turned social studies teacher. "A dreamer in a blue VW Kombi van," he once described himself. When he left that place eighteen months later he was in some ways a broken man, as his story would tell. But in that short time he had helped start up perhaps one of the most astonishing art movements of the twentieth century.

I contacted him, and flew up to the small town north of Sydney where he now lives with his wife and two sons. He picked me up from the airport in a VW Kombi van—the kind of van you can just get into and travel wherever you want to go, with your swag mattress in the back. I commented on how he was still driving the same type of vehicle he had been using so many years before. It was a cherished possession, he told me: a reminder of the days before things went wrong.

When we got to his home, we sat on the porch overlooking a garden full of gum trees and flowers, and talked for hours—although he sometimes found it hard, and we would stop and talk about something else. I wanted to learn about the paint, of course. But first he told me about Papunya. It was a hell on earth, he said. A shameful place that in just one year lost half of its population to disease, a so-called "community" where there were five tribal groups speaking at least five languages, trying to coexist and find a new purpose in life when everything they knew had been forbidden to them. It was as if the colors in their lives had been taken away along with their land, and all that was left was lethargy and depression. They were being administrated by arrogant white officials "in white socks"—most of whom, according to Bardon, did not care anything for their charges. "Some of them hadn't talked to a blackfellow in ten years," he said. And as for the 1,400 or so Aboriginal residents of Papunya, "they were retiring, withdrawn, and outnumbered," he remembered. "And they didn't have the kind of leaders anyone else understood, so they weren't properly represented." But as a teacher he was full of ideals and a desire to challenge the system. And although he knew that many of the children went to school only to get hot meals, he tried to teach them as well as he could.

At first the children's paintings were crude drawings of cowboys and Indians —mimicking the exciting films that were shown on a big screen at Papunya. But Bardon noticed that when they were out of school, talking and playing in the playground, they would draw designs—dots and semicircles and curvilinear lines—in the sand with their fingers and with sticks. So one day he asked them to draw their own designs, and with a little bit of persuasion they began to do so.

The old Pintupi tribesmen were watching, interested, as Bardon's lessons progressed. The children started calling him "Mr. Patterns" because of his insistence on neatness and careful presentation—and, as he says, it is hard to know just how much this kind of early guidance (from him and from the art coordinators who followed) influenced the work we see today. The elders had their own rich painting traditions that had in the distant past been concentrated on body and sand painting, with some more lasting ochre designs on the walls of caves and the sides of rocks. They had tried a few times to revive the practice. But they had almost no modern paints and no encouragement, and Bardon gave them both. And he did something extraordinary. He asked them what they wanted. "This was an amazing inquiry: I saw that in their faces. Nobody ever

asked them what they wanted, they were always being told what to do. The slogan was that if you help one fellow you help them all . . . so nobody helped anybody at all." When Bardon asked them there *was* something the Pintupi elders wanted desperately: paint. And what they offered in exchange—what a delegation of men came over to Bardon's apartment and offered one evening—was to paint one of their sacred Dreamings on the gray concrete outside wall of the school. It was to be a work of art that was significant to the black people themselves, in contrast to much of what is painted today which as I had seen in Utopia is designed for white buyers.

The Honey Ant Dreaming (describing a story, or songline, that runs through Papunya from west to east and was felt to represent all the people of that troubled settlement) had three incarnations on the school wall. All the versions were in ochre colors, red, yellow and black, and all of them showed a long straight line with patterns of concentric circles posted along it at irregular distances, making it seem like string with enormous knots. The first version included little semicircular lines like double bananas, placed around the "knots," and representing the honey ant Ancestors. When it was finished, some elders were horrified that it revealed too many of their tribal secrets, and they held an emergency meeting. The next day the controversial curved lines were scrubbed off and replaced by very realistic little line drawings of ants. But this time it was Bardon who objected, saying he didn't like them: they were too much like "whitefella" painting. So on the third attempt, the "honey ants" were replaced by symbols that all parties agreed on. In retrospect they looked like little fast-food hamburgers, a yellow filling between red burger buns, but it was an important moment in the development of this new art movement. It was probably the first time that symbols had been deliberately swapped in order to show the "blanket" and yet keep the secrets that lay beneath it. In a way it marked the beginning of these dispossessed people finding a way of representing what was esoteric by something that was exoteric—something that was hidden by something that could be shown.

It was an amazing act of generosity for these men to paint their Dreaming—the representation of their layered system of knowledge—on the walls of a whitefellow building, Bardon said. "But few people really appreciated it. Nobody cared what they were doing." In those days he used to joke that with the industrial-strength glue he had provided to bind the colored poster paint, the

Honey Ant Dreaming would last a thousand years. But it didn't, it lasted only until 1974, when a maintenance man, on someone's orders, painted over it with acrylics. If it existed today it would be one of Australia's greatest pieces of art.

The honey ant was just the beginning of the journey. A few men— like Old Mick Tjakamarra, or Clifford Possum Tjapaltjarri or Kaapa Tjampitjinpa, whose names are now huge in the Aboriginal art world—started painting a few canvases in a converted storage area that they had fixed up like a cave. Bardon took the works into Alice Springs (about 250 kilometers to the east of Papunya), and to everyone's surprise came back with substantial amounts of money. Suddenly everyone went wild for materials. The crates that held the oranges for school break would be dismantled as soon as they had been emptied, and used as canvases; "people were painting on matchboxes and bits of board; anything," said Bardon, who remembered one day even using toothpaste as a primer to prepare the wooden planking, because he had run out of everything else. He used up the substantial poster paint supplies in the school and then ordered more. "They particularly liked the bright orange paint," he said. "They said it was from the land—it was the color of the ochre pits."

His first thought was to continue the tradition of painting in ochre or ochre-like colors, and one day he was taken by some of the Anmatjirra artists to a mine in the McDonnell Ranges to the north of Papunya. It is called Glen Helen and has river cliffs of yellow and white paint running through it, representing 700 million years of geological history. "I thought we could have truckloads of this stuff and big cauldrons of glue and we could paint the town red ochre." But the artists, despite being aware of this great natural paintbox, preferred to use non-traditional paints. Perhaps because they were brighter on the canvas, or smoother to use, or easier to find. But perhaps also because it made it less complicated for them to represent their Dreaming stories for outsiders if the materials themselves were not sacred but only represented sacred colors— like images in a mirror. It was almost as if by changing the paint, the designs had begun to lose the things that made them dangerous and powerful. It was also an immensely practical choice: as I had seen with Katherine and Greenie Purvis at Boundary Bore, much of the work is done outside. The advantage of acrylic-based paints is that they dry fast. Ochre mixed with linseed oil would be corrupted by red sand long before it dried.

The story of Papunya (the art movement was labelled Papunya Tula, with

Tula meaning the meeting place of siblings or cousins) seems on the surface a simple and heart-warming tale of success despite the odds. Having been released from the pressure of being powerful, having even been released from the pressure of being ochre, ochre paintings became a way for dispossessed people to operate in their new environment, as well as also being extraordinarily moving works of art in their own right. But Bardon's story—partly told in his 1991 book *Papunya Tula: Art of the Western Desert*—has many layers too. And the ones below the sparkling surface are darker and more difficult.

At first it was exciting; he was selling the art in Alice, bringing back money—and later cars—for the painters. But within a few months, he said, things started turning bad, until they culminated in one terrible night that Bardon will never forget, and will still not talk about. The white administrators started to resent the fact that their "dispossessed" people began to have possessions. The paintings suddenly had a value, and as Bardon said: "Anything the Aboriginals had of value they had to be relieved of. It was that kind of place." One constant threat was that Kaapa Tjampitjimpa, one of the star artists and a respected man in the community, would be deported from Papunya. "They had a game with me, I can't be more emphatic than that." But Bardon kept selling the paintings, and returning with increasingly large amounts of cash for the artists. He started giving driving lessons on the air strip—although, as he said, the police discouraged Aboriginal men from having licenses, and nobody was granted one while he was there.

And then there were more threats, with the superintendent telling Bardon that the paintings were by "government Aborigines" and were therefore "government paintings." One day, while Bardon was away from the settlement, an administrator went to visit the painters—to tell them that, of a consignment of paintings worth $700 and left in Alice Springs, they were owed just $21, with the rest deducted as expenses. When he came back, oblivious of the lies that had been spread, Bardon felt shunned by both white and black communities: "I couldn't have been more isolated than if I had gone to the South Pole on my own. There weren't even penguins for company."

The way he describes the end of his time in Papunya, it is like a bad dream—he fell sick, the Aboriginals began to distrust him and once even chanted the words "money, money, money" in their own languages outside the school in

protest at what they felt was his perfidy. It seemed, he wrote later,[22] as if he was becoming quite separate from the artists and, in a way, even from himself. “From my window I’d see strange and wistful caravans of black faces coming back and forth along the spinifex tracks. I’d see someone I thought was one of the painters, and then whoever it was would walk away.” It was finished, he knew, but it really ended late one night, when someone or several visitors knocked at his door and demanded to talk to him.

Whatever happened under the Southern Cross in the bush that night shocked him so much that he left Papunya in despair and in a hurry, and a few days later had a nervous breakdown and was admitted to the hospital. Thirty years later he has recovered from it, but the pain is still there. “There are certain things which can’t be said, so I can’t say them either,” Bardon said as we sat companionably on the verandah looking out at his garden. “I’ll stop now,” he said. And we stopped; it wasn’t right to look under the blanket of secrets anymore.

After you take off in a 747 from Sydney’s International Airport it takes nearly five hours to leave Australian airspace, and I spent most of that time just gazing out at the bush below. From above, the whole desert is a strangely mesmerizing shimmering orange. Whenever a friend was asked what his favorite color was, he would say it was just that: the red of the Australian center, when you flew over it in the morning. From this bird’s-eye perspective, the spinifex and other bushes made little dots on the landscape, just like so many of the Central Desert paintings I had seen. And from a plane the dried-up creeks and the curves of rocks turned into whorls and wiggles that no doubt had whole epic choral symphonies enclosed in them. But I had seen that before, and what I took back from this journey was something extra, something more complex.

It was a sense of ancientness, in a way—the ancientness that had so charmed me with that little yellow stone in Italy—but it was also a sense of the land as a conscious thing. And about how although on the top there is, along with all the beauty, a great deal of misery—alcoholism, racism, ill-treatment of women, and that terrible dull sense of boredom and pointlessness that I had seen in my travels—there was still a sense that below that ochre surface there is a different reality. It is a reality that the best red paint and perhaps the best art can give a glimpse of, but just a glimpse. Old Bill Neidje from Oenpelli had tried to explain its

elusiveness. We don’t know what it is, he had said, in words that were recorded in his book *Kakadu Man*, “but something underneath, under the ground.” [23]

Eight months after my journey to find ochre, Christie’s held an auction of Aboriginal artworks in Melbourne. “What a night,” art dealer Nina Bove wrote to me a few days later. “The atmosphere was electric.” There were a few big sales that night—of “Emilies” and “Clifford Possums” and “Ronnies”—but the biggest interest was when Rover Thomas’s 1991 ochre-and-gum painting of *All That Big Rain Coming from Topside* was brought onto the stage. It is an extraordinarily powerful depiction of something elemental: the white dots pouring down the ochre-brown canvas, seeming to settle for a moment in a ridge and then cascading to the bottom in floods. And that is a fair description of what happened in the auction room that night: a cautious start increasing in momentum until it reached an unprecedented high tide.

There were several big foreign buyers pushing up the price, but every time they did there was a phone bidder who matched them until it reached 786,625 Australian dollars and the hammer came down. As everyone was speculating on who the mystery buyer was, Wally Caruana of the National Gallery of Australia slipped back into the reserved seating section. He must have been shaken by his own actions, but from a telephone in the downstairs bar he had just paid more money than anybody had ever paid before for an Aboriginal artwork in order to keep the ochre painting (quickly dubbed by the local press *All That Big Dough Coming from Topside*) for Australia.

The modern art movement that had started in a place that wasn’t loved, pioneered by people who weren’t valued, had come a long way from the early days of Papunya. People who buy Aboriginal art are looking for many things: for movement and texture and tonal hue and stories. But they are also, I believe (in this coming together of paint, canvas and of the patterns made by people sitting under humpies in the desert and surrounded by dogs and four-wheel-drives but with glory in their minds) looking for something else. They are looking for country. They are looking for the crock of earth at the beginning of the Rainbow Serpent. And yet they don’t have to look so carefully anymore to see how it glitters.

6

Yellow

“There are painters who transform the sun into a yellow spot, but there are others who, thanks to their art and their intelligence, transform a yellow spot into the sun.”

PABLO PICASSO

“What is purple in the earth, red in the market and yellow on the table?”

Iranian riddle (answer below)

On the shelf above my desk there is a box containing five things. They make an odd collection, and if anyone came across them by accident I’m sure they wouldn’t think of them as particularly precious. But they have come a long way, and they all have stories to tell.

The first is my favorite—a bunch of mango leaves, which have turned moldy after only two months in the Hong Kong humidity. Then there is a small cylinder of what looks like dirty plastic; it’s the color of dark amber, but when I touch it with even the tiniest amount of water it beads into an incredibly bright, fluorescent droplet of yellow. Once I thought it was a little miracle, and showed the trick to everyone I met, sometimes using spit if I didn’t have water. But now that I have found out more about it, I have to be careful of it. Then there is a little cardboard container the size of a matchbox: outside it is covered in Chinese writing and inside there are little yellow slabs. But I don’t take them out much: I have to be careful of them too. And finally there are two small glass vials containing the world’s most expensive spice. One of them is redder than the other, and the reason for that is part of my story too.

It isn’t surprising, given the chapter heading, that all my little souvenirs can be

used to make yellow paints and dyes. But what has surprised me, in the collecting of them, is how, with such a bright, happy color, it has been so necessary to use caution. No color has a neat unambiguous symbolism, but yellow gives some of the most mixed messages of all. It is the color of pulsating life—of corn and gold and angelic haloes—and it is also at the same time a color of bile, and in its sulphurous incarnation it is the color of the Devil. In animal life, yellow—especially mixed with black—is a warning. Don't come near, it commands, or you will be stung or poisoned or generally inconvenienced. In Asia yellow is the color of power— the emperors of China were the only ones allowed to sport sunshine-colored robes. But it is also the color of declining power. A sallow complexion comes with sickness; the yellow of leaves in autumn not only symbolizes their death, it indicates it. The change shows that the leaves are not absorbing the same light energy that they used to take in when they were green and full of chlorophyll. It shows they no longer have what it takes to nourish them.

INDIAN YELLOW

In Mumbai's Prince of Wales museum there is an eighteenth-century watercolor of two lovers, sitting beneath a tree. One is Krishna, the playboy incarnation of Vishnu, the cloth of his yellow dhoti contrasting beautifully with his blue skin. He is playing the flute to his girlfriend Radha, who is looking at him with admiration. They are sitting under what is perhaps a mango tree, which is a symbol of love in Hindu mythology. What we cannot see here—although we can see it in other watercolors nearby—is that on the other side of the garden there are cows eating grass and leaves, herded by pretty milkmaids. Krishna will later pursue them, which will wreak havoc in his relationship with his girlfriend. But this is in the future, and for the moment all is perfect. The miniatures illustrate a popular Hindu story of the playfulness of the gods, of tragedy and misunderstanding, and of course of the wonderful intoxication of romance. And they are also, with their cows, trees and yellow color, the summary of the story of one particular paint—the color, quite possibly, that adorns Krishna's clothes.

For years in both England and in parts of India the ingredients of Indian Yellow were a mystery. Throughout the nineteenth century little parcels arrived

irregularly at the London docks from Calcutta, sealed no doubt with plenty of string and sealing wax, and addressed to colormen like George Field and Messrs Winsor & Newton. Those who sniffed the stale contents must have wondered where they came from and what they were made of, but if the companies made active enquiries about what they were buying, then the answers have been long since lost. Some suggested it was snake urine, others thought it might be something that had been dug out of the insides of animals (like the ox bile that had been used to make yellow in the previous century) and a German scientist called W. Schmidt stated authoritatively in 1855 that it had been excreted from camels that had eaten mango fruits. George Field didn't like it much—not because of the strange smell but because it faded quickly—and his theory, agreeing roughly with Professor Schmidt's, was that the "powdery, soft, light, spongy" lumps with their fetid odor, were derived from the urine of camels.[1]

Then, one day in 1883, a letter arrived at the Society of Arts in London, from a Mr. T. N. Mukharji of Calcutta. This gentleman had investigated Indian Yellow on the request of the eccentric but brilliant director of Kew Gardens, Sir Joseph Hooker, and said he could now confirm exactly what Indian Yellow was made from. Mr. Mukharji said he had recently visited the only place in India where it came from—a town called Monghyr in Bihar state—and had actually seen it being made. The information that he gave them may have been a little shocking to some of his journal readers, but what he told them was that Indian Yellow, which was also known as *piuri*, was made from the urine of cows fed with mango leaves. He could assure readers that he had actually seen them eating mango leaves, and urinating—on demand—into buckets. And, he warned, the cows looked unhealthy and were said to die very early.

But here is another mystery about Indian Yellow. According to some accounts that letter, or at least the industry it described, started off protests, which culminated in laws—passed sometime between the 1890s and 1908 in Bengal—forbidding the making of Indian Yellow on the grounds of cruelty to animals. But I could find no records of such laws in either the India Library in London or the National Library in Calcutta, nor did either of those excellent archives contain any newspaper articles or correspondence on this intriguing slice of Indian art history. The four researchers for the Indian Yellow chapter in the National Gallery of Washington's excellent series on artists' pigments couldn't find any either.[2] In fact, the only piece of nineteenth-century documentation that

anyone seems to have located in English was Mr. Mukharji's printed letter in the *Journal* of the Society of Arts. It seemed odd that nobody else had written anything—not even, it seems, a letter to a newspaper— about the mango cows of Monghyr. So, with photocopy firmly in hand, I decided to go to India on the trail of Indian Yellow.

Bihar is a large, mostly flat state between the Himalayas and Calcutta. It is the poorest state in India. I flew into the capital, Patna, which one guidebook described as a city you wouldn't want to spend much time in, in a state you wouldn't want to spend much time in either. That first night in Bihar, the night clerks at the one-star hotel I was staying in phoned me three times. "It's the middle of the night," I groaned. "Yes, madam, but it is Saturday night, and Patna is alive with disco." Mine was the first foreign name in their visitors' book for a month, and the first single female name since the book started.

Monghyr is 150 kilometers from Patna, and the train journey takes four hours, through flat countryside showing the healthy green of well-nourished farmlands. This land I was passing through was important to art history not simply because it was the home of the yellow paint that had so caught my imagination but because, according to Tibetan tradition, this is the mythological birthplace of painting itself.

There were, so the story goes, two kings who lived in the sixth century B.C. Every year they would exchange gifts—outdoing each other, as rich people often try to do, with the cleverness and expense of their choices. One year one of the kings decided to give his rival the ultimate present—a painting of the Buddha, who was at that time still alive and living in Bihar. No painting had ever been done before, but, undeterred, the king assigned the job to a man who seemed to have potential. But when he arrived at the place where the Buddha was in meditation, our first artist realized he had a problem: he was so overwhelmed by his subject's enlightened glow that he could not look at him. But then the Buddha made a suggestion. "We will go down to the bank of a clear and limpid pool," he said helpfully. "And you will look at me in the reflection of the water." They found an appropriately limpid pond, and the man happily painted the reflection.

When the king received the gift and looked at the portrait, he had an intuitive understanding of reality.[3] In terms of Buddhist teachings he realized that the world we see with our eyes is just a reflection of a reality that we cannot quite grasp. But the story also gives an insight into the power of painting, suggesting that this thing that is a reflection of truth can also somehow *be* truth, and that the best art can give its viewers enlightened understandings of the world.

As my train slowly rattled through the countryside, it was as if the land itself conspired to celebrate the myth that it was here that painting had begun: the whole landscape was covered with paint. It was harvest-time in Bihar, and the Hindu farmers celebrated the safe gathering of the crops by covering their animals in pigments. I saw a great cart moving toward the railway line. It was pulled by two white bullocks, both daubed in pink as if a child had been finger-painting over them. The paints I saw were synthetic, but there must have been similar scenes every harvest-time for hundreds of years. Perhaps it is what the Buddha saw, as he walked toward enlightenment; it is almost certainly what the Mughal rulers must have seen as they tried to conquer the predominantly Hindu sub-continent in the sixteenth century. And I am sure the British colonizers in the eighteenth and nineteenth centuries saw painted animals every September, celebrating the harvest.

I was not sure what to expect of Monghyr. My information was very out of date. In 1845 a Captain Sherwill, who had the job of revenue surveyor, described Monghyr as a town with "a probable population of 40,000 souls." [4] It was, he wrote, "a well-built, substantial and flourishing place, with about 300 brick houses and numerous markets carrying on a brisk trade in brassware, cutlery of an inferior kind, guns, rifles, pistols and ironware in general, but of a very doubtful and dangerous nature as far as regards firearms." I was intrigued by how, although Monghyr was clearly a welcoming place, the rest of the district was somehow shadowed by a kind of physical corruption that this British officer found threatening. The nearby town of Shaikpoora, he wrote with a horror that comes through even in his formal report to his bosses, was "remarkable for the great number of individuals who possess but one eye and have deformed noses, the effects of syphilis." That town was "composed of one long narrow street of disgustingly dirty and ruinous houses, with a filthy population and very little trade; grain and sugar are exported toward the Ganges, and an opium godown is situated to the east of the town."

There is a map that accompanies the statistics in Sherwill's report. Monghyr and the nasty Shaikpoora are in pink, but the region of Bullah across the other side of the holy Ganges river is in a yellow that still shines. I like to think it was painted with Indian Yellow watercolor, even though when I sniffed it—making sure that my fellow library-users did not see what I was doing—I detected no faint 150-year-old scent of ammonia. Whether it was used on that map or not, Indian Yellow would almost certainly have been in the paintboxes of many of the surveyors and map-makers sent to the colonies in the Victorian years. Captain Sherwill's report was extremely detailed about all the industries in the area—he even described a mysterious and obscure mineral found on a small hill, west of the station of Gya, "used for dyeing clothes, of an orange color, also for metalling the roads in the station. This mineral is either of an orange, purple, light-red or yellow color." So it is extraordinary that he didn't even mention Monghyr *piuri*.

Monghyr is a place that is entirely off the *Planet*—or any other guidebook—and I didn't have any clues about where to stay. I told the taxi driver I wanted to go to a hotel, but he took me instead to an ashram, insisting this was where I wanted to go. Acolytes dressed variously in orange, yellow and white strolled quietly along empty avenues. It was a complete contrast to the noisy mayhem a few kilometers away in the town, but I could see that it wasn't the place for me. White was for the uninitiated, I read in the brochure, aspirants wore yellow, and the teachers wore "geru." "Can I ask a funny question?" I asked a slim young man with white stripes on his forehead, who was manning the office. "You can ask a funny question and I will give a fine answer," he said. What is geru? "It is orange," he said, indicating his own clothes which put him firmly in the highest category of Bihar yogis. "It represents the luminosity within." And what does yellow represent? "Yellow is the light in nature. It invites the soul, as black protects the soul." I nodded, and thanked him, but he had one thing more to tell me. "You see the thing about yellow is that it has to be purified."

A friendly Bihar bank manager, fresh from a class, gave me and my bags a lift into town on the back of his scooter. "You have to go to see Monghyr's oldest artist," he said as I explained my quest above the sounds of the motor. "If anyone knows of this paint then Chaku Pandit at Mangal Bazaar will know." So the next day I crossed the railway line heading toward Mangal Bazaar. Monghyr is a simple town—it reminded me very much of the India I saw eighteen years

earlier on my first visit as a teenager. Everything is rickety, with places that were once probably palaces now hidden behind padlocked railings and being pulled down by vines and mold. The gun shops had gone, but there were plenty of hardware stores selling the kind of “inferior cutlery” that Captain Sherwill had commented on 150 years before. The syphilis problem was evidently still there as well: on every street corner there were hand-painted promises for venereal disease checks as well as operations for piles, conducted “without anesthetic.”

Everywhere the people seemed astonished to see me: they weren’t used to visitors. “Mangal Bazaar?” I asked, and the world followed me. “You go down the street and turn left,” an old man said, indicating right with his hand. You mean go right? I queried. “Yes,” he said, “left.” In the end neither was the correct way, but I did eventually find Chaku Pandit, a man with nearly blind blue eyes, in a blue house with round columns. We had a spontaneous conference organized by his son, with three of us on wooden chairs. One man went to get me a cold drink; another was summoned to sit on the floor and wave a punkah fan in my direction as the sweat ran down my nose onto my notes. “There are many kinds of *piuri*,” his friend said carefully. Which one was I interested in? I felt highly optimistic that I was on track to discover something. Mr. Mukharji, after all, had stated in his letter that there were two kinds of *piuri*—a mineral one “imported from London” and an animal one, which is what I was looking for. “Any kind,” I said airily, and a boy was sent off with careful instructions in Hindi. I tried to explain it was Krishna’s yellow, the one he always wears in watercolors, or at least the one he wears when he’s not wearing orange. They explained to me sadly that Krishna was blue; and it was in vain to protest that I knew this.

Chaku Pandit brought in a very brown Monarch-of-the-Glen-like portrait of a stag, the canvas bloated and bumpy where the damp had settled. His other paintings were rather gaudy pictures of idealized landscapes. The boy came back with a paintbox of oil tubes, manufactured in Bombay. “I have not heard of your Indian Yellow before. But why would we use cow urine when we have these good paints?” mused Chaku Pandit. I had to concede he was right, and thanking him for his time, his son for the cola and the man crouched on the floor for the fan, I went outside and hailed a cycle rickshaw. It had the motto “enjoyment of lovers” written on its seat. “Mirzapur, please,” I said. And we began to head out into the countryside.

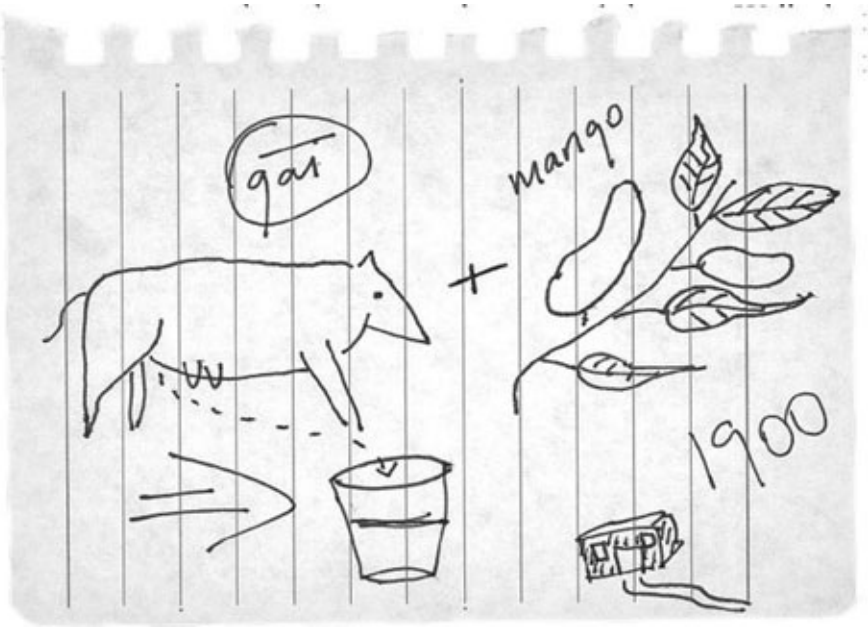
I thought of Mr. Mukharji heading out on the same road 120 years before. What would he have been looking for? I wondered. Was he simply looking for a paint made by cowherds, or could there have been another reason for his interest? My predecessor had probably known that *piuri* had most likely been invented by the Persians in the late sixteenth century, and had mostly been used for miniatures—first by Mughal artists, later being adopted by the Hindus and the Jain painters. It was strange that the Jains—who are vegetarians and very strongly against inflicting pain on animals— should have painted with this apparently cruel color. “This is Mirzapur,” announced my driver, and stopped. It seemed we were not stopping anywhere in particular: it was a bit of road like every other bit of road. I was briefly encouraged to see a bovine creature peeing in a nearby meadow, but then realized it was a buffalo.

There was a little tea stall nearby, so I decided to do what I usually do when I’m hoping for an adventure. Sit, have a drink—tea in this case—and wait for it to come to me. I went over and the man made space for me to perch on the edge of a well. I hoped the tea water came from somewhere else, as the well water was covered in scum. Usually in this kind of situation someone will ask in English “What are you doing?,” leading me to my quest. But this time nobody did. Nobody could speak English. I cursed the fact that the young man I thought I had hired as my translator the night before had not turned up in the morning.

The stallholder was evidently a popular local character. He would leap up to put on the milk then go back to squatting on his wooden perch, carrying on conversations or handing a biscuit to a silent child. I was on to my second cup when I noticed his bare feet, and saw with surprise that this athletically built man had the worst case of elephantiasis I had ever seen on someone who was not a beggar. I asked him whether he knew of *piuri* but he just laughed nicely and asked me whether I knew of Hindi. I finished my tea and, wondering what the hell I was going to do without a translator and with a truly stupid and unlikely story about cow’s urine, stood up and crossed the main road. I headed down a path, and suddenly things began to happen.

Two boys appeared, returning from school, perhaps. “What are you doing?” they asked. “I’m looking for a *gwala*,” I answered, using the word for milkman that I had learned from Mr. Mukharji’s letter. The only people—perhaps in the world, certainly in India—who made *piuri* at that time, he had written, were members of one sect of *gwalas* at Mirzapur. “My father is a *gwala*,” one of the

boys said happily, and pointed to his home at the end of the path. There were three cows in the shed and one by the trough. They looked well fed and the father seemed friendly. I began to draw in my notebook. “Buffalo?” they asked, as I drew something that I was convinced was an archetypal cow. “No, cow,” I said firmly, and drew in what I hoped would look like udders, but realized too late that they were rather gender-ambiguous. By now the whole family had gathered to engage in art criticism. “Tail!” the father demanded enthusiastically, so I added a tail and he nodded approvingly, the udder fiasco forgotten. The mango was easy, then the mango leaves, and then . . . Well, that first time I was not courageous; I drew a little bucket that could have contained anything and then started pointing to the walls of a nearby house, which were conveniently yellow. The son tried to explain, but nobody had heard of any connection between cows and yellow walls. “Come now, come!” said the boys, impatient to show me off to the rest of the village. So we continued along the path with the younger one chanting “Where is *gwala*?” in great excitement.



A cow or a buffalo?

Mirzapur was not a rich place, but it was not devastatingly poor: people lived in simple houses with clean pathways and plenty of fields around. As we walked, other people joined us, and at the next home someone brought out a chair for me, and I was invited to tell my story again. I was just getting to the mango leaves, and the crowd had swollen to a hundred strong, when there was a

sort of hush, and along the path came a charismatic young man with a most infectious smile. He was riding a tricycle that had been rigged up as a wheelchair. His knees were attached to the chair by small metal shields and he wheeled it with his arms, assisted by two friends. Here was another handsome young man of Mirzapur with a disability. He introduced himself as Rajiv Kumath; clearly he was a man to whom, when he spoke, people listened. So the cow thing started again, and the mango leaves, which was easy now because I knew the Hindi for leaf—but then came the moment of truth. Cow plus mango leaf plus . . . I drew a bucket then mimed squatting and made a ssssss-ing sound. "*Dudh?*" asked one boy, using the word for milk. "Er, no," I said, and did the "sssss-ing" more enthusiastically. Looks of disbelief passed between the sari-wearing grandmothers and the younger women holding babies. Even the little urchins of Mirzapur could not believe that this smiling stranger could be quite so crude. Then, in the silence, there was a burst of clear laughter. Rajiv Kumath roared with joy and the whole village roared with him.

So, he summarized, "in 1900"—he pointed to the date I had written down —"people make yellow from this plus this plus this?" He indicated the pictures. "Yes," I said. "Where?" he asked. "Here," I said. "In Mirzapur." He asked where else this happened. "Just in Mirzapur, nowhere else in India," I said, and we spluttered with laughter at the absolute absurdity of it. "It's called Monghyr *piuri*," I added, "and it travelled from Mirzapur to Monghyr to Calcutta to England." By this time both of us had tears running down our cheeks. Rajiv appealed to the crowd, but not even the old ones nodded in recognition of the practice. If *piuri* had ever been made in Monghyr it was not even a folk memory by the twenty-first century.

A few months earlier I had been in touch with Brian Lisus, a violin-maker in South Africa, who had experimented with real Indian Yellow as varnish. He had consulted a vet, who had recommended giving the cows mango leaves for one of two daily meals, which he did for a fortnight, "followed by some interesting times standing behind the cow to catch 'the treasure' in a bucket."[5] He then followed instructions from the National Gallery in London about how to boil down the urine for several hours, a process that "kept visitors away," he said. The color, however, was not at all intense, and he guessed that to get enough color in the urine the cows would have to be fed more mango leaves; he didn't want to harm their digestive systems, so he gave up on the idea. His story of his

very unusual “treasure” hunt had made me refer back to the 1883 letter for a section that I had never seen repeated in any secondary sources, for reasons no doubt of delicacy. It’s all very well if you are doing an experiment with cows for just a fortnight and can wait around with a bucket and a sense of humor, but how did the original *gwalas* do it? Mr. Mukharji was very clear: “The cows treated with mango leaves are made to pass urine three or four times a day by having the urinary organ slightly rubbed with the hand, and they are so habituated to this process that they have become incapable of passing water of their own accord.” It seemed highly suspicious that passing water on demand should be such a similar process to being milked.

I would at least like to see some cows, I decided. Yes, Rajiv said. “And you must see the mango garden.” The mango garden? Of course. There had to be an orchard or two in the area, I suddenly realized. In a survey report from this area dated from 1905 to 1912, a P. W. Murphy reported plenty of excellent opium (slightly storm damaged) and some rather nasty mangoes. “The local mango is not good, and in the Jamui subdivision degenerates into a small hard fruit with an extremely acid taste,” he had written. He had also counted all the adult cows (130,799) and buffaloes (45,164) in the area, and yet had not mentioned Indian Yellow. What he had noticed was “that the cows, bullocks and buffaloes of this district are much smaller and less well-nourished than in other districts”— but he included all of them in that appraisal, and he made no mention of a small minority whose digestive tracts were being ruined by the wrong diet.

“Yes, we have a very beautiful mango garden,” Rajiv affirmed. It was beyond the power of his chair to accompany us, but led by a ragtag crew of little boys and girls all chanting “Mango garden, mango garden,” I crossed that road I had found so unpromising an hour before. And laughing at myself for feeling rather like an explorer, I suddenly found myself at the possible source of Winsor & Newton Indian Yellow. The end of my search, I thought dramatically and happily as I clambered with the children over a bit of broken wall. And as dusty and hot as it was outside, in the mango garden of Mirzapur it was green and quiet, and however far we walked we never saw the wall that marked its boundary on the other side. The children and I marched and chanted and whenever I decided to take a picture of the famous mango leaves they would rush to the tree of my choice and shimmy up it, perching like mynahs in the branches. There were several young couples walking there as well. The god

Shiva married Parvati under a mango tree, and the leaves are often used to decorate marriage pavilions, even today.

One child was dispatched to find fruit for me. Not mangoes—it wasn't the season—but strange things called paniala that were slightly different from grapes, and eaten whole. They would have been nicely sweet but had the strange lemon-like aftereffect of squeezing the mouth dry. Whenever anyone new arrived I was asked to do the mime again, with everyone joining in the "ssss." I pictured a stranger arriving in that same village in ten years' time, and asking about *piuri*; and I imagined someone carefully explaining the cow and the mango leaves and the pissing in the bucket. And the stranger would write down the date that I had selected at random, 1900, and the folk memory would again be created.

I gathered the whole crowd for a photograph: five extra children ran into the group so I stepped back to include them and, suddenly, there was a loud splat. I looked down, and there covering my left foot from heel to lace was the gungiest, yellowest and smelliest example of bovine diarrhea I could imagine. Everyone held their noses in horror, and laughed with me, although none of them could have understood the true beauty of the joke. I had, after all, gone to India to find bright yellow cow pee and had found something rather strikingly similar, all over my shoe. The gods had evidently heard about my search, but they were a little deaf.

They took me on a tour of the cows and the houses—but at each place, when we asked, nobody had heard of the *piuri*. I offered one cow a mango leaf, but it turned away. The cowherd offered it again, and it looked distressed. He tried to force-feed it by opening its mouth, but I asked him to stop. And I felt glad that, in Mirzapur south of Monghyr, if Indian Yellow was ever made, it no longer is today.

As I returned to Monghyr, I thought of the ingredients of my story, and of Mr. Mukharji going back the same way. What kind of world did he live in? In the 1880s there was a rising national consciousness all over Asia—and in British-occupied Bengal it manifested itself in a desire to reassert and in a way reconstruct ancient Indian traditions. It was around 1883 that the world "desh" started being used to describe the whole of India or Bengal (part of which would later become "Bangladesh" with Independence), when originally it simply meant

one’s ancestral village. At the same time the early poems of the nationalist Rabindranath Tagore were just beginning to have an impact on Bengali thinking. The half-forgotten Vedas were being retranslated from Sanskrit, yoga was coming back into fashion, and Hinduism was suddenly a philosophy, not just a pantheistic religion. There was even the genesis of a movement to preserve the sacred cow—because in so many places the sacredness of cows had been forgotten. Cows were an important issue for many reasons, but a sense of national identity was one of them.

Perhaps Mr. Mukharji really was just an honest emissary, out to solve a simple mystery in the history of paint. But what if he was a nationalist, wanting to make a point, or at least a joke, at the expense of the British? Would it not have been tempting (when presented with the opportunity) to mix up the germs of truth—of a paint that was indeed made with some kind of urine[6] and some kind of mangoes—with some random elements of Hindu mythology, and tell the British that their paint was not only totally impure but, since it involved cows, a violation against Hinduism?

Perhaps Mirzapur really was the only place in India where a particular paint was made, and perhaps the banning of that paint was really of so little interest to anyone that nobody bothered to record it, and perhaps the grandchildren of the people who supplied the world with this paint really have forgotten all about it. Maybe all those things are true. But when I think of Indian Yellow I will always wonder whether the explanation that I have heard is reality or merely a reflection of reality, and whether this story is simply an example of somebody gently, and literally, taking the piss.

GAMBOGE AND ORPIMENT

Man Luen Choon[7] is on the second floor of an old building in the back streets of Hong Kong’s Western District. It is hard to see the door for all the stalls selling fake bags, buttons and boas made of dyed chicken feathers. Just two blocks away from this old alleyway is the glass skyscraper that calls itself The Centre, but which locals tend to call the “Building of Color,” because every night it lights the skyline with a computerized sequence of ever-shifting turquoises,

pinks and greens. It is an example of the gracefully modern juxtaposed with the determinedly traditional. While The Centre blazes with millions of dollars of color technology, Man Luen Choon is Hong Kong's most famous Chinese art supplier. The first time I went there I wanted it to be dark and old fashioned, but instead it is bright and neon—a bit too much like The Centre for my liking. However, the lighting was probably a good thing. It meant I would see with neon clarity the miraculous transformation of one particular paint from something brown to something beautiful.

I was there with two friends—Fong So, who is an artist, and his partner Yeung Wai-man, a writer and photographer. They had offered to introduce me to the owner, Li Chingwan, who comes from a family that ran a famous art shop in Guangzhou for many generations, and who has been in Hong Kong for twenty years. There were few mass-produced paint tubes in the shop—Mr. Li's pigments were proudly displayed on small white dishes under a glass cabinet. For a dedicated paint searcher it was a kind of heaven. Here was a pinch of cinnabar, there were lumps of azurite and malachite, and over there were even little clay-like squares of orpiment.

Orpiment means "gold pigment." For a long time it was an immensely exciting commodity for alchemists. If it was gold in color, went the argument, then it must surely share characteristics with gold, and could be used for transformations. Artists were less thrilled about it—partly because if anything is laid on top it blackens,[8] but mostly because it contains arsenic. It is "really poisonous," warned Cennini—and on the general toxicity scale it is beaten only by its more orange cousin realgar, which is even worse.[9] "We do not use [realgar], except sometimes on panel," Cennino warned. "There is no keeping company with it." And then he relented: "It wants to be ground a great deal with clear water. And look out for yourself."[10]

I shouldn't have been so surprised to find both orpiment and realgar so easily in a Chinese art shop. The Chinese have always had a less cautious attitude than Europeans toward these two paints. In 1705 an extraordinary book called *The Ambonese Curiosity Cabi*net was published posthumously in Holland.[11] It was written by a German called George Everhard Rumphius, who had spent most of his life working for the Dutch East Indies Company—and it led to him being

dubbed the “Indian Pliny.” Which was partly a positive reference to his infectious enthusiasm for knowledge, but also partly because of his notable reluctance to distinguish between myth and fact.

One can find on Java a kind of orpiment, he wrote. “Its taste is not astringent but almost tasteless, or perhaps veering a little to vitriolum,” he continued, bravely. He had found it for sale in Javanese trade towns, as well as on Bali and in China. Apart from painting on paper, it was also used to color a special gold, red and white linen, called krinsing. After smearing orpiment on the cloth, the krinsing-makers used to hang it up for days in a smoky room, to make the color fix. The Chinese and Javanese didn’t see it as a poison, in fact quite the opposite: they would take it fearlessly as medicine, “but in small quantities, wherein they are not careful enough in my opinion.” Once, in 1660 in Batavia—now Jakarta — he had seen a woman who had become mad from it, “and climbed up the walls like a cat.”

Rumphius was not against orpiment in moderation. He recommended taking it in small doses to cure anemia, and for its tonic effect on the nervous system. People in the Tirol, he reported, ate arsenic regularly to improve their strength and complexion—a practice that was to continue until the end of the nineteenth century, and which led to the word “arsenicophagy.” More intriguing, though, for our myth collector, was realgar or *hinghong* . It was easy to find: just look for a place “where the peacock has made its nest three years in a row.” The peacocks, he explained, probably meaning the peahens, put it next to their eggs to keep snakes away. It could be useful, I decided, thinking of the pythons on the Peak, and I bought a few grams’ worth in a small cardboard box printed with red Chinese characters. Mr. Li had samples of nearly all the natural pigments mentioned in this book. All the paint materials were from China except for two, he said: Japanese soot-based ink (“the most expensive in the world”) and gamboge yellow. And it was gamboge that I had come to see.

This paint has been used in Chinese and Japanese paintings since at least the eighth century, and it has also been found on early Indian miniatures—in fact it was probably sometimes used to paint Krishna’s yellow clothes, as a less smelly alternative to cow-urine yellow. It was always imported: gamboge comes mostly from Cambodia—its name is even a corruption of the name for that country.[12] It appears in other Southeast Asian countries as well, and there was certainly

enough gamboge on the Thai border in the 1880s for King Chulalongkorn to send some good samples of the resin to the United States as part of a “gift of respect.”

During the horrific Khmer Rouge regime in the 1980s, and then earlier in the Vietnam War, the color was almost impossible to find. “In wartime it gets mixed with mud,” Mr. Li explained. “Once I imported fifty kilos of dirty gamboge, because even that was rare.” He showed me a clean piece—a “peacetime piece,” he called it. It was the shape of a lump of Brighton rock, although it was slightly squashed as if it had been in a child’s pocket for too long. It had the smooth brittleness of hard toffee, and was the color of dry ear wax. But when Mr. Li dipped a paintbrush in water and waved it lightly over the unappetizingly brownish rock, he released a miraculous drop of the brightest yellow imaginable, almost fluorescent.

The Chinese call it “ivy yellow” or “rattan yellow,” but gamboge comes from neither ivy nor rattan, but from the *Garcinia hanburyi* —a tall tree related to the mangosteen, but without such a delicious fruit. The paint in Mr. Li’s hand was the resin of the garcinia, and had been tapped using a similar method to rubber extraction—except for one critical difference. A semicircular slash in a rubber tree’s trunk bleeds white latex within a few hours which can be collected the next morning. By contrast, a gamboge collector makes his or her cut deeply in the trunk, carefully places a hollowed-out bamboo beneath the gash . . . and doesn’t come back until the following year.

I wondered whether Mr. Li had any wartime pieces. “Somewhere,” he said, and disappeared into one of the back rooms. A few minutes later he emerged with a dirty plastic Park N Shop bag from one of Hong Kong’s big supermarket chains. It was full of dark green-brown crumbly versions of the clean gamboge: as if someone had chewed the toffee and spat it out onto dirt before leaving it to harden again. “This is the stuff we got during the war: very bad, full of impurities.” Many of the bamboo gamboge-holders would have fallen onto the ground, so people would have gone looking for the resin that had dripped onto the soil. “I should like to find some gamboge,” I said, dreamily, imagining myself in a woodland grove deep in the jungle, learning how to make that gash in the trunk with a curved knife, and later being told the ancestral myths of the trees that bleed yellow paint. “No you wouldn’t,” said Mr. Li firmly. We all looked up in surprise. What did he mean? “There are landmines there: people get

killed for gamboge," he said.

This pretty paint can be dangerous in other ways, I learned later. Winsor & Newton have been receiving small parcels of gamboge from their Southeast Asian suppliers since before anyone can remember, and probably since the company started in the mid-nineteenth century. When it arrives at the factory they grind it up carefully and sell it in tubes or pans as one of their more expensive watercolors. But some of the packages that arrived in the 1970s and 1980s from Cambodia and possibly Vietnam were different: the gamboge contained exploded bullets. The company's technical director, Ian Garrett, has five of them displayed in his office now: a reminder to him and his colleagues of how some of the paint materials they can so easily take for granted come from places where people have lived through unimaginable suffering. One day, during the height of the Vietnam War, or perhaps during the horrors of the murderous Pol Pot regime, a soldier, or a group of soldiers, must have gone into the garcinia grove and sprayed bullets around the area with machine guns. Some of these lodged safely in the bamboo, to be found months or years later by paint-makers in Harrow. What happened to the other bullets can only be imagined.

I liked my piece of gamboge from Man Luen Choon very much. When I added a drop of water to it and created bright yellow paint, I felt like a magician and showed the trick to all the children I met. Once, on a train in England, I sat opposite a nine-year-old boy who liked strange artifacts in the same way that I have always done. He was travelling with his grandmother and had just been to visit a relative who had given him a skin drum from Indonesia. He held it proudly—he knew this was a magical thing. I showed him my gamboge trick and told him the story, explaining about the war, and why people are sometimes prepared to take different risks in wartime. He was interested, so I gave the piece to him. I now wish that I hadn't.

Four days later I was in America, talking to pigments specialist Michael Skalka at the National Gallery in Washington. I mentioned I had bought gamboge in Hong Kong. He commented that it made a pretty paint. "But it's poison," he said. Gamboge probably won't kill you like orpiment, I learned later to my relief—although it has been a possible murder weapon in at least one Chinese detective story, injected into a peach [13]—but it won't be nice. It is one of the most efficient diuretics that nature knows— put it accidentally in your

mouth and you'll be in the bathroom all day. Another yellow dye—buckthorn—has the same effect. In fact it is quite a characteristic of things that are vibrating at the yellow resonance. Gourds, unripe pineapple, yellow dock root and yellow flag irises all have the same violently purgative effect. Perhaps it is not a coincidence that Indian Vedic tradition places yellow at the second chakra—the navel, just above the colon.

I called my friend Yeung Wai-man a few weeks later. Did she know that gamboge was really poisonous? Oh yes, she said cheerfully. "I did know that . . . Actually, it's the reason why no cockroaches will eat Fong So's paintings. He leaves them on the floor at night and at first I was worried that insects would eat them because they eat everything else." She called out to Fong So, who was painting in the other room, to check. He concurred that his art was preserved for posterity partly because the yellow paint scared away the hungry creepy-crawlies. "People would use gamboge as insect repellent, but it's too expensive," he said.

SAFFRON

The last two souvenirs on my shelf are jars of the most expensive and most colorful spice in the world: saffron. And, like gamboge, it is full of paradoxes. It is red but it is yellow; it is expensive but it is affordable; it can dry out your liver but it can make you roar with laughter; it has almost died out but it is produced in bulk. Unlike gamboge, however, saffron is frequently faked. As I found out to my cost.

My first encounter with saffron, in name at least, was in Kashmir in the mid-1980s. I visited the northern Indian state three summers in a row while I was a student, in the years before it started its messy fight for independence. I was waiting for the passes to open to the north, and one year the snow stayed longer than I expected, and I spent several days hanging out on a houseboat on Dal Lake in the capital of Srinagar, enjoying the home cooking and watching the shikara gondolier salesmen touting their wares. "You want marijuana?" they would cry, when I'd turned down the colas and sweets. No thanks. "Opium?" they would banter. No, really. "Aha, I know," they would say, in triumph,

pulling out their last card in the poker game of Western decadence. “You want Tampax?”

I only ever bought one thing from a shikara man: a grubby packet of something yellow. “You want saffron?” he had asked, and I was curious and asked to see the goods. The man used far more subterfuge than his colleague, who was busily offloading stubs of hashish to more savvy travellers on the next-door houseboat. Of course he was acting suspiciously, I realized later. The bag was full of safflower—that cheaper red spice I encountered in the orange chapter, which doesn’t have either the charm or the bitter earthiness of the real thing. And I, an ignorant teenager on my first travels, bought it eagerly. Perhaps it didn’t matter that it wasn’t saffron on that occasion: after all, at the time I didn’t really know what to do with it.

I knew that it was the world’s most expensive spice, I knew that it was yellow (although in the packet I had bought it looked orange and in fact, if it had been genuine, it should have been crimson red), and I knew it was from a flower. I also knew that the Indian government had restricted exports of Kashmiri saffron as part of the same protectionist policy that meant I was drinking a drink called Campa Cola instead of any familiar American brands. But I didn’t know then that a double pinch of saffron in hot water with honey can be an instant reviver, nor did I know how to add this spice to long-grained rice to make it taste like the earth and look like the sun; I didn’t know that the flower it came from was the crocus, nor did I know how long it was going to take before I learned all these things.

A few years later I thought I found real saffron again, this time on Tibetan monastic robes. I had read many descriptions where the yellow (and sometimes even the red) robes are described as “saffron,” and I had accepted the image gladly, probably using it myself. But where, I asked once, innocently, do they get the saffron for dyeing the robes? After all, although the spice had been grown in nearby Kashmir since at least 500 B.C. and probably much longer, Tibet was surely too high for anything so delicate to grow. My nun friend laughed. Buddhist robes are worn to show how humble one is, she explained, not to show off that one has had access to the most expensive spice in the world.

In Tibet, robes were usually dyed with turmeric, which was cheap and the color of the simple earth. And in Thailand the monks’ robes are often colored

with the heart of the jackfruit, and once a year—in November—is the official Day of Dyeing, when they go down to the river in the early morning with their fruits and their pots, and they color their robes again. Nowadays, of course, many robes are synthetically dyed, but even among the natural ones none is colored with saffron. I was going to have to look elsewhere to find this essentially sensual yellow. And it made sense to go straight to the harvest.

Not to the Kashmir one, I decided, even though the Kashmiri people claim (probably wrongly) that it is the place where saffron was born. After years of civil crisis, the industry there was in shreds, and producing less than a ton a year. But saffron crocuses are grown in many places. The most famous is Spain, home of the paella, but they can also be found in Iran, Macedonia, France and Morocco, with bijou crops in New Zealand, Tasmania and North Wales among other places.[14] I played with the notion of visiting Macedonia, Alexander the Great's birthplace, after discovering there was a town called Krokos, named after the saffron flower. Then I thought of Iran—after all, the Persians were famous for their yellow rice—and called up my nearest Iranian embassy, which was in Canberra. "No problem," they said, telling me to send my passport down for a visa. I'm British, I added as an afterthought. "Very problem," was the cheerful reply.

So instead I went to La Mancha, the center of Spanish saffron production, at the peak of the harvest, the end of October. Surely there I would find my genuine yellow dye, I thought. But as I drove around on my first morning, eyes on high alert to spot anything brightly colored through the early mist, I realized that not only was I quite incapable of finding a saffron field without help, but that the Spanish saffron industry was in deep trouble. It wasn't that I didn't know what to look for: I did. I knew the astonishing fact that this perfectly yellow dye spice comes from a perfectly purple flower. With this crucial piece of information I thought even the most botanically inept saffron-seeker could spot a field in full bloom. But I couldn't.

I had a book with me—John Humphries's *The Essential Saffron Companion*, which was certainly essential, and full of wonderful recipes, but also, although only eight years old, quite out of date. In 1993 Humphries had spent several days in this rural area south of Madrid during the harvest. He had not only found a "mantle of purple; a sea of saffron," draped and washed over the Spanish

landscape, he had also been introduced to contemporary cave-dwellers living just a few hundred meters from his hotel in the small town of Manzanares, and had vividly described how they ventured out at dawn to gather their harvest, bringing it back to their caves to be dried. Humphries had drawn an irresistibly romantic picture of a tradition that had evidently hardly changed in a thousand years. Manzanares, then, was going to be my first stop: I couldn't wait to see the caves.

It was about eight o'clock, and it had just got light, when I arrived at the place Humphries had described. But however carefully I examined the surrounding fields and the fields surrounding those, I couldn't even find a purple petal. Let alone purple mantles or black-clad troglodytes. Disconsolate after my predawn start, I stopped at a café for espresso and advice. "No one grows saffron round Manzanares anymore," the *barristo* told me kindly. "There's no money in it."

I consoled myself with the fact that I wasn't the first one to go hunting for saffron and not find it, and I'm sure I won't be the last. In the mid-nineteenth century, for example, the eccentric Reverend William Herbert left his flock at Manchester Cathedral where he was dean, and set off around Europe in search of crocuses. He tried to find the birthplace of *Crocus sativus*—which he had tried to grow in his Yorkshire garden, although in thirty years he had seen it bloom only three times. In Greece and Italy he too had looked for purple mantles. But instead he just found a few bulbs. "I suspect that the birthplace of C. sativus has been long converted into vineyards," he concluded sadly.[15]

There is something magical about the saffron crocus. One evening the sun goes down on a bare field, then as if from nowhere the flower appears overnight, blooms for a morning, and then by the end of the day it has gone. The saffron business can be like its own flowers: here this morning, gone this afternoon, all at the whim of the market and the weather. Neither I nor the good Reverend Herbert should have been surprised that the European crop had shifted fields—the experience of English saffron, unlikely as it sounds today as a concept, should have told us how this industry is subject to tremendous shifts of fortune.

SAFFRON WALDEN

It was a medieval pilgrim, the myth goes, who brought saffron to Essex. He apparently risked his life to get it out of the Holy Land and back to Chipping Walden's chalky soil, and he rather cleverly carried it in his hat. It is more likely, of course, if this chap existed at all, that he picked up the saffron corms—as the shallot-like bulbs are called—in a field in northern Greece on the long walk home, but a story is always so much more dramatic if there is a death penalty involved. Hats and pilgrims or no hats and pilgrims, it would actually have been extraordinary if saffron corms had not arrived in Britain by the Middle Ages, so great was the interest in spices of all kinds.

It was a curious time for cooks: the more pepper with the entrées, the richer the hosts showed themselves to be. Most people did not have the money even to taste these spices—at that time they were very rare and very expensive (partly because they came mostly from remote islands in Southeast Asia and partly because Venetian merchants held the monopoly so could inflate the prices[16]), and yet chefs in the big houses were busy inventing recipes with a kind of frenzy for exotica. Cloves, nutmeg and cinnamon from the distant Indies were all thrown in in eye-watering quantities—if advertising campaigns had been invented by then we could imagine the slogans: "Taste the bounty . . . prepare partridges with pinches of paradise." And "safroun" was, in its various spelling incarnations, one of the most popular ingredients. In 1380 Chaucer wrote about the doughty knight Sir Thopas whose "heer, his berd was lyk saffroun"—his hair and beard were the color of saffron.

Apart from in recipes, the chief use of saffron in the medieval period was in manuscripts, as a cheap alternative to gold leaf. A poor medieval artist[17] wanting to imitate gold on his Bible manuscript would have put a few dozen threads into a little dish, covered it with beaten egg-white or "glair," and allowed it to infuse. I tried it once: overnight it had congealed and become the color of blood oranges. On paper the paint was luminous: not so much like gold but rather as if, with the help of the saffron, the separated egg-white had successfully reclaimed its yolk. Saffron was rarely used on its own—it was not thought to last very long and indeed six months later my own home experiments have already lost some of their luminescence—but from the Middle Ages artists have often mixed it with other pigments to make bright shades of green. It has never been very popular as a dye—although U.S. saffron consultant Ellen Szita reports that in Sardinia the women used it to color their aprons until the middle of the

twentieth century—and its main use today is in cooking: as a color, and an intoxicating scent.

Perhaps saffron lost a little of its exotic cachet once it started being grown in Britain, but it was still lucrative, and by the sixteenth century Chipping Walden changed its name officially to Saffron Walden. Perhaps this decision was a celebration of the fact that Walden was now one of the richest towns in the county, thanks to the yellow spice. Or perhaps it was a clever move by the town's councillors to stake Walden's claim as the Capital of Saffron once they saw how many of the surrounding villages had started copycat cropping. They also changed the coat of arms to the official and deliberately joky design of three crocuses surrounded by four walls and a portcullis—Saffron Walled-In.[18]

But the town's fortunes waxed and waned, as those of saffron towns tend to do. In 1540 demand plummeted as European wars meant that the imported spice was cheaper. Then in 1571 there was a crisis when farmers found they had overcropped and their crocuses were limp shadows of what they should have been. Observing them, the Reverend William Harrison wished "to God" that his countrymen "had been heretofore more careful of this commodity. Then would it no doubt have proved more beneficial to our island than cloth or wool."[19] In 1681 demand sank to new depths and a Thomas Baskerville noticed in despair how "saffron heads are now grown so cheap that you may now in these parts buy a bushel of them for 1 shilling and 6 pence."

There were good years too: 1556 saw a wonderful harvest when some of the "crokers" or saffron farmers were heard crowing that "God did shite saffron," and 1665 was a particularly good year for the burgers of Walden, with the price soaring to more than four pounds a pound (from just over two pounds a pound a

few years before) when the story went round that saffron was an excellent remedy for the plague.

But sadly for saffron the wanings were ultimately more frequent than the waxings, until in 1720, when King George I made a formal visit to the nearby great house of Audley End, there was no home-grown saffron from the town to give him. I can imagine the private consternation as the family had to quietly send out for supplies to Bishop's Stortford a few kilometers away.[20] They would have tried to keep it secret, but how could they when everyone knew that Walden had grown no crocuses for years? The residents of the now falsely named saffron town were never allowed to forget the humiliation. But by 1790 there was no saffron being grown in Bishop's Stortford or anywhere else. *Crocus sativus* had almost completely disappeared from England.

IN WHICH I FIND JESUS

Hoping that *Crocus sativus* had not almost completely disappeared from Spain, I ordered another coffee. The *barristo* had consulted with some local men, who were hidden in the early morning smoke farther down the bar. "Try Menbrillo down the road," they advised, and one of them drew a little diagram of what looked like a lollipop in my notebook. I followed his directions (looking out carefully for saffron fields on the way), and when I had mastered the local circular system, Menbrillo turned out to be a village about four kilometers away. Twice I stopped and asked in my best Spanish for the "*campos de azafrán* " and was answered only by shaking heads and friendly shrugs. But then one old couple, both dressed in the dark clothes of rural Spain, started pointing and giving rapid directions. I must have looked blank because suddenly the man was sitting in the front seat, directing me into reverse. His name was Jesús Bellón, he told me, and I smiled to think that it would be Jesus who would lead me to saffron. We drove on bumpy unmade tracks into the countryside, and he told me —in a lovely mixture of languages, including German and French as well as rural Spanish—that he had spent his life as a professional harvester. In the old days he had gone anywhere there was work— Italy, Germany, the South of France—picking olives, melons and, later in the season, grapes for wine. "And sunbathing," he joked, doing a delightful mime of himself as a holidaymaker in a

bikini. “In Saint Tropez.”

We were still laughing when he indicated we had arrived. And there, glowing in the early sunshine, was my first field of *Crocus sativus* . The field was small and enclosed by fencing—reinforcing the sense that this was a valuable crop—and to my joy it was packed with the purple flowers I was looking for. We opened the gate and went in. I bent down and picked the crocus nearest to me, with Jesús pointing out the thin crimson stigmas that were the pure saffron.

The petals were an intoxicating color, fluttering on the edge of blue and purple. In the morning dew they glistened and shone, but what struck me most was their fragility. None of the books had mentioned this, and I had imagined something more robust. After a few seconds in my hand the bits I had touched were bruised—after being pressed in my Spanish pocket dictionary for more than a year the whole flower is now almost diaphanous. “It’s like the wedding gown of a prostitute,” a Spaniard once said, and I don’t disagree. There is something not quite innocent about this bright flower that flaunts its genitals—three red female stigmas and three yellow male stamens, exploding from the center—with such showy pride. But it wears its vulnerability on its sleeve as well: the stigmas have their own sad secret, although I wasn’t to learn that until later. But also, saffron is so delicate. If it doesn’t get the right tender loving care from both humans and the elements then it fades like those sixteenth-century flowers in Saffron Walden when the farmers stopped looking after them. I put one stigma in my mouth. It tasted bitter and was wetly crunchy like a single stem of fresh cress. From that point on, not only was I smitten by this extraordinary spice but also my tongue (I didn’t realize until later) was totally yellow.

The field belonged to Vicente Morago Carrero and his wife, Teleforo. Their forebears on both sides had been growing crocuses for generations, and they had insisted on continuing the practice even though it had gradually become less lucrative. For harvest week they had enlisted their engineer sons José and Manuel, who were twenty-five and thirty, to help out at home. When we arrived, Vicente and the boys were bent double, nimbly filling straw baskets with flowers. They looked as if they had been doing this all their lives, and they probably had—it’s normal to start helping out the family at around the age of eight. The straw baskets were pretty, but they were also necessary: saffron is a fussy flower. It doesn’t like nylon or plastic.

The field was 80 meters long and 30 wide. Which is not impressive in terms of purple cloaks on the Spanish landscape, even though it is pretty when you are in it and very hard work when you are picking it. Jesús commented, making the sons and me blush, that they were both looking for a nice wife. I soon showed myself to be an unsuitable girl, however—just ten minutes of crocus plucking and my back was protesting.[21] Teleforo joined us, and I asked her whether she was going to the Saffron Festival at Consuegra, 40 kilometers away. “No time,” she said, “we have so much to do here.” The paradox of saffron farming is that everything has to be done in a hurry (if you don’t pick the flowers by noon you have missed their potency, and they bloom only once), and yet it is such a painstaking process that nothing can be rushed.

I gave Jesús a lift back to the village. He gallantly kissed me on both cheeks, as if this were a reward for his assistance. Then he wished me luck on my return journey. “Be careful. In Madrid they’ll slit your throat for a few pesetas,” he warned, with a shiver-inducing mime of banditry. “I’m worried about those boys,” he continued in the same breath. Bandits? I asked, incredulously. “No, they are so old and not married yet,” he said. “Actually the whole *pueblo* is worried.”

That night I stayed in Consuegra. When I had asked at the Spanish consulate in Hong Kong about Consuegra the reply was “Where?,” and when I got there I understood why. The town has only two claims to fame: a picturesque regiment of white windmills on the hills behind and the Rosa del Azafrán Festival every October. Consuegra is not a wealthy place, nor is it a pretentious one. In fact, as I looked around the door of a promising-looking bar in the main plaza and instead found Formica and video violence, I longed for just a little pretension. Half of the town is flat and full of garages and cheap furniture shops. The other half winds medievally up the hill toward the thirteen windmills, each of which has been given a name from Miguel Cervantes’s seventeenth-century novel *Don Quixote*. In the book, the Don is a man who lives in the Renaissance but desperately wants to be a romantic medieval knight. Everyone, especially Cervantes, laughs at him for his desire to maintain the old ways of chivalry when times have so patently changed. The famous windmills incident, in which the Don attacks the mills thinking (or hoping) they are giants, is about holding onto old ideas, even when the evidence says you are wrong. And there are many people in Consuegra who fear that although saffron is a wonderfully historical

thing which looks pretty on the landscape and nice on rice, keeping the harvest going in these days of modernization is simply a kind of tilting at windmills. “Saffron is dead,” said one man bitterly, while I was standing at my hotel bar. “I don’t know why we have this festival.”

By historical rights, the first Saffron Festival should have taken place more than a millennium ago, or perhaps even two. There are two theories about saffron’s presence in La Mancha. One is that it was introduced by the Arabs in the eighth century. But then there is another story, which I like better, which suggests saffron has been in Consuegra since the time of the Romans. In the town’s tiny museum there is a terracotta incense burner from Roman times. It is etched with full-moon fertility symbols, and apparently women used to burn saffron in it and then breathe it in to make them conceive boys. Saffron mythology is as fragile as the plant itself: there are other stories to the effect that drinking a big dose of saffron would lead to an abortion and that an even larger dose could kill.

The Saffron Festival is easier to date than the saffron. It was an invention by a tourist delegation from nearby Toledo in 1962, when they decided their hinterland needed more visitors. Nowadays several thousand people arrive in town for the last weekend in October to watch the competitions and processions and to fill the restaurants with smoke and laughter. This new festival gives families the excuse to get together once a year in the same way that the saffron harvest used to do in the old days. It also probably ensures that some families at least keep a field of crocuses going.

The next morning I met José Angel Ramón, an engineer in his early thirties. He was the first in his family not to grow crocuses. When he was a child his home would be full of visitors helping his mother pick out the red stigmas, and drying them on wood fires until the room was full of an earthy scent. “I remember lots of young women talking, and all the music. There would be parties until midnight.” But that stopped about ten years ago. “It didn’t make sense anymore.” What had happened? “Economics,” he said. Consuegra is a poor town, but it isn’t poor enough. He introduced me to a group of international saffron exporters and we were driven two kilometers outside town to a field owned by the Lozano family, Consuegra’s biggest producers, with seven fields. Apart from the ugly financial sums, what is the biggest problem for saffron growers today? I asked Señor Lozano. “Mice,” he said. They adore the sweet

corms. And the cats can't catch them because the mice of Consuegra are faster than the felines. Which seemed comic until I learned that they have a far from funny death: farmers kill the mice by smoking them out with red chillies, the "natural way." It sounded like an unnatural way to go.

"The thing is," said one buyer from Switzerland, "La Mancha might be one of the centers of European production but Europe isn't where saffron is at right now." And where is it at? "It's all happening in Iran," he said, and then paused for effect. "In Iran the fields are as big as Holland." The rest of us were silent as we absorbed the concept. I looked over at the range of lowlying mountains to the west of Consuegra, shimmering mauve in the distance, and imagined the whole area, from my feet to those peaks, covered in a Persian carpet of flowers. It was a turning point. I had to get to Iran, I thought.

But for the moment I was in Consuegra, tilting at windmills, and down in the plaza an hour later the competitors were getting ready for the regional finals of the saffron stripping competition. How many pigments can a petal-plucker pluck if a petal plucker plucks in a competition? I went all the way from Hong Kong to central Spain to find out . . . and I still don't know. There were thirteen women and one man, all sitting along one side of a white table. In front of each of them was a bag with a hundred flower heads, and a plastic plate on which stones were laid out. I thought there was something significant about the arrangement, but someone pointed out gently that the wind was gusty and nobody wanted to chase the plates around the plaza. A little quiet was called for, and then at a signal they all started to pluck. They had to pick out only the red stigmas. Any stamens in the final bunch scored negative points.

I should have liked to have reported the tension, the cheering, the different villages rooting for their own neighbors in raucous Spanish style, the excited megaphone commentary about how the man from Tembleque was pulling himself up from last position (which, to be fair, he was never in). Or about how the Consuegra champion had been training for months by plucking burrs out of cotton wool or pine needles out of honey. But I can't. This is not an event with great potential for TV rights. Everything happened in near-total silence except for the racking cough of a grandmother to my right and the screams of a bored infant to my left. It was all very calm and, for a competition, almost disturbingly laid-back. The fingers were not exactly flying, more like scurrying or fumbling. But what the exercise made clear was why saffron is so expensive. Every thread

you use has required somebody's concentrated attention. Each has been touched by a person, not by a machine. There have been attempts to mechanize this bit of the saffron process but it doesn't work: crocuses are too fragile and the tug at the center of each flower is just a little too hard to calibrate.

On one side of the table were the unwanted flowers: beautiful but rubbish. People have tried to find uses for them through the centuries, but crocus petals don't seem to contain enough of anything useful, and they are simply thrown away. In Saffron Walden they were at one time a real liability. In 1575 a royal decree prohibited crokers—saffron farmers—from "throwing of saffron flowers and other rubbish into the river in time of flood." The punishment was two days and nights in the stocks.

The fingers of the Consuegra competitors picked until there was nothing more to pick. The winner was Gabina García from Los Yebenes, closely followed by María Carmen Romero from Madridejos. They looked pleased, but not triumphant. It wasn't that kind of competition. I have a silly watch—it has a blue digital dial and can only be read if you press a big button. Children love it. But at critical unforeseeable moments, like open-air saffron plucking competitions, it is a liability, as its numbers do not show up in bright sunlight. So I approached the organizers, asking for official times. But the man just shrugged. He said, simply, "The first is first," and explained how nobody bothered with stopwatches. So for the record, the Spanish October 2000 best time is one hundred sets of stigmas in about eight minutes. Or maybe ten minutes. Approximately.

PERSIAN YELLOW

In the twelve months following my visit to Consuegra I travelled the world looking for color stories, and by October I should have finished my research. But I could not stop thinking about fields of purple stretching to a Persian horizon, and ignoring my looming deadline I applied for an Iranian visa again. However, it was the same week as the terrorist attack on the World Trade Center in New York, and Tehran turned down an entire batch of applications from Britain. Mine was in it. I tried again two weeks later, and got my visa. Then the Americans and British started bombing Afghanistan, and the northwest of Iran was suddenly off

the list of recommended holiday destinations.

I began to hear wildly conflicting rumors. Some people said that Iran's saffron center of Mashhad was safe; others that it was closed to foreigners because it was so close to the Afghan border. The British Foreign Office had issued a travel warning and even the United Nations had stopped its staff going into some parts of the province. I wasn't sure what to do, so I contacted a saffron exporter in Mashhad. There's a problem, he replied immediately. Briefly I imagined refugee tents covering the fields of flowers, or armed Iranian militia keeping out saffron searchers, especially those with cameras and questions. Can't you come a week later? he continued. The harvest is late this year. I could not delay, and sent a reply saying I hoped there might be at least a couple of crocuses poking their noses out of the sandy soil. "The fields are full of flowers," he confirmed quickly. "But in a fortnight they will be even more wonderful."

Three days later I had not only arrived in Iran, but was on an overnight train travelling the thousand kilometers from Tehran to Mashhad. The set dinner was a promise of saffron things to come: boneless chicken kebabs nesting in a bowl of deeply yellow buttery rice. Of course it was saffron, one of my travel companions confirmed. "When an Iranian goes on a journey it is traditional to give them saffron rice. It's like saying: 'We give you our best; go with our blessing.' "

Before we went to sleep I walked the length of the train, looking for signs that my fellow travellers were on pilgrimage. Mashhad is the holiest city in Iran. It is where Emam Reza, whom the Shiite Muslims believe to have been the eighth leader of the Islamic faith, was murdered with poisoned pomegranate juice. Just as Muslims can call themselves "haji" after visiting Mecca, so they can call themselves "mashti" after praying at the Holy Shrine in Mashhad. I didn't necessarily find pilgrims, though certainly most women were wearing the full chador, next to which my own little black scarf and coat combination looked positively decadent. But what I did find was Persian classical music in the dining carriage. "Are you Mussulman?" whispered the man next to me. "On *ziyarah*?" I knew that meant pilgrimage, so grinned and whispered that I wasn't. "And you? On *ziyarah*?" I asked him politely in return. But my Persian accent must have been bad, because he promptly offered me a cigarette. Other people in the carriage tut-ted and told us crossly that we couldn't smoke in there. My protests that I had meant to say "pilgrimage" were in vain.

THE LAUGHING SPICE

Before I ever saw a saffron field in Iran, or got close to finding the answer to my questions—about whether they were purple mantles and whether they were as big as Holland—I was given two contrasting images to play with. The first was from a film director, and was—in the metaphor of Don Quixote—the medieval image. The second was from a businessman, and it was the full, modern story. I am still not sure which was more intriguing.

In 1992 Ebrahim Mukhtari made a documentary called *Saffron*, about a month in the life of the villagers of Bajestan, 500 kilometers south of Mashhad. What had touched him most about saffron, he said—when I met him in Tehran—was the fragility of the process: the delicacy of placing the corms into that rugged land, the way they open for one day only, and the brittleness of the little dried threads. Ebrahim had not realized it then, but when he filmed in Bajestan he was capturing one of the last old-style harvests. “That is the village I was in,” he said suddenly, pointing to a framed picture on the wall behind me. I had thought, without looking carefully, that it was a Victorian orientalist painting in the style of someone like Lawrence Alma-Tadema: a romantic scene of women weaving in a courtyard, framed by the laden branches of a pomegranate tree. It was actually a framed photograph. That idyllic scene was a real one, and the villagers in the picture were still alive and probably weaving.

My second foretaste of Iranian saffron came from a man who could be called the Sultan of Saffron. Ali Shariati is the general manager of Novin Saffron, the biggest saffron company in the world. It sells 25 tons a year, more than five times the total production of Spain. To get to his office we walked past a truck full of white sacks. A man stood on top of the pile, throwing down the bales to his companions, who would pass them through a doorway. There was a wonderful bounce to the process: those sacks were light. The truck carried about 50 kilos: the dried stigmas of eight million crocuses, each of which had been picked by hand that morning. And this was a small haul: we were still early in the harvest.

It was about seven times that amount which caused a short war in Switzerland

six centuries ago. The nobles were trying to assert ancient claims to take land and power from the commoners, and one day in 1374 the businesspeople of Basle decided they were having none of it. They sent saboteurs to the hunts, and put a guerrilla force in the woods to attack the nobles. The aristocrats retaliated by hijacking the merchants' most valuable trade item: 800 pounds of saffron, freshly arrived from Greece.[22] The Saffron War lasted for more than three months, with the spice held hostage in a castle; I like to imagine the mythical Chipping Walden pilgrim walking past the rumpus one day on his way home and casually doffing his hat.

As I waited, the assistant manager, Ana Alimardani, played "Mellow Yellow" on her computer, with the singer Donovan crooning that he was "just mad about saffron." It was hard to stop humming it. What had I expected? I had read the legends of Darius's men wearing saffron uniforms to fight Alexander the Great, and I had also known about how once a year Zoroastrian priests in Persia used to write special prayers with saffron ink on papyrus, and then nail them onto houses and near farms to ward off pests, and bad spirits. [23] So after finding both the picturesque and the rural in Spain I had expected the same in Iran, but more so. But that is the extraordinary thing: in Spain the saffron harvest has died out because it is traditional. In Iran it has revived because it is modern. In the past ten years Iran's production has soared from 30 tons a year to 170. Spain's has gone from 40 to 5.

We were served saffron tea. It was like drinking liquid rubies: sweet, pure and a very deep red, and yet at the top it had a thin oily layer of gold. "Be careful," I was told jokingly as the drinks arrived, "or you will laugh too much." There is a wonderful warning by Culpepper, in his 1649 *Complete Herbal*, to the effect that someone consuming too much saffron might die of immoderate laughter, and indeed this herb is something of a natural Prozac. In 1728 the Twickenham gardener Batty Langley published the *New Principles of Gardening*, in which—as well as strict instructions as to the correct way to plant the corms three inches deep and three inches apart—he lists the benefits. "Too much Saffron being taken prevents Sleep, but when taken with Moderation, tis good for the Head, revives the Spirits, expels Drowsiness and makes the Heart merry," he claimed. Seventeen centuries before, Pliny had even suggested hair of the crocus as a remedy for when the heart has been too merry. Mix it in wine, he said, and it is a wonderful hangover cure. I put my little finger into the dregs of my glass and

drew wiggly lines on my notebook. A few months later they are still deep sun yellow, although if I had left them in the light they would certainly have faded.

When Ali Shariati arrived, I felt the need for a calculator, there was such a multitude of zeros in his statistics. But here are some of the best big numbers: 170,000 flowers make one kilo of saffron, which means that Iran's annual production involves (and we both started scribbling quickly on pieces of paper) twenty-eight billion flowers. How can one imagine twenty-eight billion flowers except in the context that if they were laid petal to petal they would wrap the earth twenty times, or that linked in a chain they would reach to the moon and back with even a little bit to spare at the end? Or that in Iran at harvest time, half a million people are involved with picking them? The best big numbers for the Shariatis are that each of those kilos can be sold for around U.S.$700. But here is where a great saffron myth lies: by the kilo it is indeed the most expensive spice in the world, and yet it is not expensive to use. Saffron is so potent that in recipes it is measured in pinches, not grams. A gram should last most cooks several months and many paellas.

However, the other great saffron myth is not so easily debunked: I had my own anecdote of being ripped off in Kashmir, and it seems that stories like this are as old as saffron itself. The Reverend William Harrison, back in the sixteenth century, observed that unscrupulous dealers would add butter to the saffron to increase the weight (although, he said, you can test it by holding the stigmas by the fire and assessing how greasy they feel). In Iran the problem is that some merchants add artificial red dye—which effectively means the useless yellow stamens can be lumped in easily with the stigmas. "Yes, it's a problem," agreed Ali. "But I want to show you something." And he took me downstairs to a laboratory, where every new batch was being given a thin-layer chromatography test. A chemist dropped a splotch of saffron dye onto metal paper, and allowed a solvent to run through it. Pure saffron leaves yellow marks like cigarette burns on the paper; additives tend to come up in an adventurous range of pinks and oranges.

I looked through the sample sheet. Now that suppliers know they will probably be caught, fewer than one in a hundred samples turn out to be adulterated. But batch A7 6125 had come in a couple of days before, and had tested bright pink. There was a tick beside it, which meant the supplier would be in trouble. I had asked the chemist earlier what the hardest part of her job was

and she had laughingly said it was “quite easy, in fact.” But now she reminded me of that question. “This is the hardest part,” she said. “The chance of getting it wrong.” If she makes a mistake and wrongly identifies a batch as adulterated, then she could harm someone’s livelihood. The damage is, of course, limited—the worst thing is that the merchants will lose their biggest client. In saffron’s rather murky past the punishments for faking have been more severe: for example, a man called Jobst Finderlers was once burned in Nuremberg on a bonfire of his own fake saffron.

In another part of the warehouse was a long room, with thirty women working quietly at a table, separating stigmas from stamens. This was the second sorting and perhaps partly explained why my jar of Iranian saffron is purer and redder than the Spanish—more hands have touched it to make sure it is pure. Saffron is a big seller in the Arab states. “They eat it for strength, particularly during Ramadan,” Ali said. The traditional month of fasting between sunrise and sunset demands some serious high-energy eating at nightfall. “Sometimes they put ten or even twenty grams of saffron in a big samovar, and add sugar and hot water. I can’t drink it and they laugh at me and say I am the King of Saffron and yet I’m not even strong enough to drink it.” Actually, he continued, “Arabs say that saffron is good for . . .” and he paused a little awkwardly. “Sex?” I asked, forgetting to be Islamically demure. “Er, yes,” he said.

The theory that saffron is an aphrodisiac dates from thousands of years ago: the hetaerae courtesans of ancient Greece used to strew it around their bedchambers; Cleopatra apparently used to bathe in saffron before inviting a man to her divan, believing that it would stimulate the appropriate bits. History does not relate what the men thought of the color of her skin afterward, but it does relate the recipe, which is approximately 10 grams of saffron per warm love-bath. During a particularly orgiastic Roman feast, satirized by Nero’s entertainment director Gaius Petronius in his outrageous book *Satyrikon*, the guests had scarcely stopped laughing at the rude table decorations when the dessert arrived, and to their snorts of suggestive delight, “all the cakes and all the fruits, when touched ever so slightly, began to squirt out saffron.” But this most sexy of spices, made with a flower’s reproductive organs, and smelling of a Greek prostitute’s boudoir, has a curious secret. It is sterile. Those red spikes make all the boasts but they don’t actually work. The saffron crocus has to be planted by hand from corms.

PURPLE MANTLES

Ali's fields were not yet ready, but there were plenty of flowers at a town called Torbat, 150 kilometers south of Mashhad, he said. So with the help of a young chemistry graduate called Mohammed-Reza, I arranged to go there the next morning. And as we drove through a desert scattered with jagged hills, I wondered what I would see. Would it be Ebrahim's vision or would it be Ali's? Ancient or modern? It turned out, of course, that it was both.

We got to Torbat soon after six o'clock and turned off the market street into an area with high cream-colored walls and closed doors. We stopped at one and a young man opened it—he was expecting us—and behind him stood his wife, with her head covered. Mohammed-Reza might be one of her husband's oldest friends but he wasn't family, and family was strict. Mahsoud and his wife Nazanin were first cousins, Nazanin explained in excellent English as we breakfasted on flat bread and cheese and halva. They had been promised to each other early, and had inherited farmland from Mahsoud's late father: it was a way of two strands of the saffron family being joined together. We piled into Mahsoud's Peugeot and headed out into the countryside. It was dotted with high-walled enclosures that looked like cemeteries, but which Mahsoud assured me were saffron fields. His own crop would not be ready for another week, but instead he would take me to the field of a local farmer, Gholam Reza Eteghardi. Would it be a mantle, I kept wondering, or a handkerchief?

It was—in my purple square accessory reckoning—a small paper tissue. But what was wonderful was how many other purple tissues it was surrounded by. These fields were smaller than those in Spain: perhaps 25 meters by 10. But there were hundreds of them, stretching out to the distance, the mauve flatness of the scene broken up by almond trees—the farmers' other crop. If it was a mantle, it was a patchwork one. But with Mahsoud's help I did some calculations. All the Iranian crocus fields, if laid out together, are not as big as Holland, but they must be about the same size as Amsterdam, and I was not disappointed.

We drank tea and ate pomegranates, and I talked to some of the crocus pickers. Mehri Niknam was thirty. She had been a hired laborer for just five or six years, but she knew the business well. It was important in her village and

she'd been picking crocuses for the neighbors since she was a child. She used saffron in the kitchen, "like everyone else—for making *shalazar*." This is one of Iran's truly democratic dishes—a rice pudding made with sugar, rose water, almonds and, of course, saffron. It is made in every kitchen in the country, whether the family is rich or poor.

I looked around: I had waited so long to be there. There were the purple fields and the women in scarves that I had imagined, but there also was Mahsoud, standing up in the field hunched over his mobile phone. The Spaniards had that mixture of modernity and tradition too, of course, but for me, oddly, the difference between the two approaches was encapsulated in the way that they dealt with mice. Do you use chillies? I asked, remembering what I had heard in Spain, and drawing a little picture in my notebook just for clarification. "Oh no," Mahsoud said. "We stop up the hole of the mouse and then fill it with motorcycle smoke. It is very efficient."

We sped back to Mashhad that afternoon through the low mountains, past villages that were the same uniform beige as the surrounding desert. And there, at a place on the road where we could not safely stop, I saw just for a few seconds the actuality of my romantic vision of ancient Persian saffron. Three women were crouching in a violet field; behind them, in a timeless scene, were two boys racing gray donkeys toward a mud-brick village as the sun disappeared behind hills. The flowers they were picking would not give the best spice—it was late in the day—but they could not afford to waste their precious cash crop by waiting until the following dawn.

NOTES

PREFACE

Baker, *The Dalai Lama's Secret Temple*, p. 175.

Nassau, *The Physics and Chemistry of Color, The Fifteen Causes of Color*.

Peacocks' tails and butterflies and mother-of-pearl all derive their iridescence through physical causes. They don't contain pigment, but instead their colors come from their uneven surfaces, covered in tiny grooves which refract and split up the light rays.

Newton published *Opticks* in 1704. He explained in the preface that he had delayed the printing: "To avoid being engaged in Disputes about these matters."

INTRODUCTION

Cennino learned from the Florentine artist Agnolo Gaddi, who learned from his father, Taddeo Gaddi. Taddeo was the son of Gaddo Gaddi and also worked closely with Giotto di Bondone. Giotto is considered by many to be the founder of the Renaissance Italian art tradition. He took the skills his master Cimabue learned from Greek icon painters, and shook them up with radical ideas about how to mix colors and tell stories in paintings. We know very little about Cennino himself, except that he was born in the 1350s, that by 1398 he was working on a commission in Padua, that some of his paintings can be found in San Gimignano in Tuscany, and that his *Handbook* was probably written in the 1390s.

II Libro dell'Arte was first printed in Italy in 1821; it was first translated into English in 1844 by Mary Merrifield, into French in 1858 and into German in 1871. All the quotations used in this book are from Thompson's

1933 translation, published as *The Craftsman's Handbook*.

Merrifield, *Medieval and Renaissance Treatises on the Arts of Painting*, p. xlvii.

. Cadmium red hue is a petroleum-based pigment: it is the same color as cadmium red, but it contains no cadmium. According to Winsor & Newton cadmium hue is brighter, cheaper and more transparent; cadmium red is more opaque, more expensive and has better covering power. It is less orange.

Journal of the Society of Arts, 23 April 1880, pp. 485–99.

Holman Hunt was partly right to attribute the problem to ignorance, but as color chemist Maximilian Toch explained in 1911, another problem for nineteenth-century artists was that the atmosphere of big cities was now contaminated with acid gases, from the burning of coal on a large scale. Toch, *Materials for Permanent Painting*, p. 7.

I am indebted to Bomford et al., *Art in the Making: Impressionism* , and the Tate Gallery, *Paint and Painting*, for this section on colormen.

Cennino recommends artists wanting to create the effect of a velvet fabric to do the drapery with pigment mixed with egg yolk, but then to use a miniver brush to depict the cut threads, in a pigment mixed with oil.

In his *Materials for the History of Oil Painting*, Charles Eastlake quotes Aetius as describing both linseed and walnut oils. "It has a use besides a medicinal use, being applied by gilders or encaustic painters, for it dries, and preserves gildings and encaustic paints for a long time." And Maximilian Toch refers to records from the time of thirteenth-century King Edward I (possibly for the King's own Painted Chamber) which included orders for several gallons of oil, as well as paint, gold and varnish. Toch, op. cit., p. 15.

Pablo Picasso's relationship with color dealer Sennelier (whose wood-lined shop at 3 Quai Voltaire in Paris must be one of the most atmospheric places to buy art supplies in the world) led to the invention of oil pastels in the 1940s. Ordinary pastels—powdered pigments mixed into a paste or "pastel"

with just enough resin or gum to bind them— had been popular in France since the early eighteenth century (and a craze by 1780). But they crumbled easily; the new oil pastels were more robust and could be used on a wide range of different surfaces.

Callow, *Vincent van Gogh, A life*, p. 199.

At the beginning of his career van Gogh was strongly influenced by a comment made by Théophile Gautier that the peasants in paintings by Jean-François Millet seemed to be painted by the earth they were sowing. Van Gogh sought a similar meaning in the brown materials he chose for his most famous peasant painting, *The Potato Eat rs*, now in the Van Gogh Museum in Amsterdam. Dorn, "The Arles Period," in *Van Gogh Face to Face*, p. 145.

Shackleford, "Van Gogh in Paris," in *Van Gogh Face to Face*, p. 96.

Van Gogh realized that good-quality paint was vital. And when (in the few months in 1889 between cutting off his ear and admitting himself to a mental hospital) he was inspired by the freshness of springtime in Provence, he wrote a letter to his brother Theo, urging him to purchase paints in Paris and send them without delay. "The flowering time is over so soon and you know how this kind of subject delights everybody," he wrote.

Personal interview. Michael Skalka, National Gallery of Art, Washington, D.C.

The "second-best bed" was the one that a sixteenth-century married couple used. Their "best bed" was the one reserved for guests. Shakespeare made the expression famous because he left the "second-best bed" to his wife Anne in his will. Historians are divided about whether this was an unloving legacy, or whether on the contrary it may have been a sexy one, with him wanting to honor their nights spent together. The one in the Birthplace is not the original.

Morris, *The Lesser Arts of Life*, an address delivered before the Society for the Protection of Ancient Buildings, London, 1882.

In the seventh century, St. John of Damascus said: "I worship the creator of

In the seventh century, St. John of Damascus said: "I worship the creator of matter who became matter for my sake, and who willed to take his abode in matter; who worked out my salvation through matter."

OCHRE

Clark, *Looking at Pictures*, p. 15.

Thompson, *The Materials of Medieval Painting*, p. 98.

Thom, *Becoming Brave: The Path to Native American Manhood*, p. 43.

Marshall, *The Red Ochre People*, p. 41.

Sagona, *Bruising the Red Earth*, p. 133.

Papunya Tula: Genesis and Genius, Art Gallery of New South Wales, August-–November 2000. This was the first major retrospective of the Central Desert Art Movement since it began in the 1970s, and was held as part of the Sydney 2000 Olympics.

I am indebted to McBryde, "Goods from another country," Sagona, *Bruising the Red Earth* and Jones, "Red Ochre Expeditions," in Papers Presented to the South Australian Museum, for this section on ochre expeditions.

Peterson and Lampert, "A Central Australian Ochre Mine," in *Records of the Australian Museum*, vol. 37, p. 1–9.

Similar ceremonial trading patterns existed all over the continent. Ronald and Catherine Berndt described how in north-east Arnhemland in the early twentieth century the Gunwinggu people of Oenpelli traded spears with people to the east; nets with the people from the northern coast; European goods and bamboo spears with those to the southwest; and two varieties of red ochre with those to the south, near the Katherine River. Berndt and Berndt, *The World of the First Australians*, p. 131.

Jones, op. cit., p. 10.

Masey, *Port Augusta Dispatch and Flinders Advertiser*, June 9, 1882.

Quoted in Jones, op. cit., p. 12.

One story of acrylic paints suggests part of the early development of this medium may have happened in Australia. The Australian artist Ainslie Roberts was apparently allergic to both turpentine and linseed oil, so his friend Sidney Nolan suggested he try PVA glue, which he did. This was later to develop into acrylic paints, an important breakthrough in the story of house and artists' paints. Hulley, *Ainslie Roberts and the Dreamtime* , p. 81.

Morphy, *Aboriginal Art*, p. 164.

This version is adapted from the story of Kirkin in Smith, *Myths and leg nds of the Australian Aborigines*.

The *South China Morning Post*, January 13, 2001, quotes Noel Nannup, Aboriginal chief executive in the West Australian government's Aboriginal Heritage Unit, saying that if the Dreaming trails were not walked for a while, they would hibernate. In order to walk them again, they had to be awoken by stones that were sensitive to the earth's magnetic field, causing the pathways to reveal themselves. A lightning storm was considered the best condition in which to "feel" the trails, he said.

The Tiwi kinship names translate to the rule that the only cousin you can marry is your father's sister's child—all other first cousins are taboo.

One nineteenth-century missionary to the Tiwi islands apparently tried to ban traditional funeral rituals, but as he travelled across from Bathurst Island to Melville to protest about a funeral, he fell out of his boat. It was proof, the Tiwi people decided, that their Ancestors were worth paying attention to.

Hulley, *The Rainbow Serpent*, pp. 21–2.

Harley, *Artists' Pigments c. 1600–1835*, p. 120.

Diabetes and kidney failure are two of the worst health problems for older Aboriginal people in Australia today.

According to Chaloupka there are three main white pigment Dreaming sites in the north-west plateau: Gundjilhdjil near the Kanarra shelter; Wamanui in the land of the Mandjarrwalwal; and—the most prized of all—Majjarngalgun, along the Gamadeer river near Maburinj.

Bardon, *Papunya Tula: Art of the Western Desert*, p. 45.

Neidje, *Australia's Kakadu Man*, p. 48.

BLACK AND BROWN

Vasari, *Lives of the Most Eminent Painters, Sculptors and Artists* , part II, p. 121.

Bomford, Kirby, Leighton and Roy, *Impressionism*, pp. 169 and 71.

Julian Bell, *What Is Painting?*, p. 11.

Bahn, *The Cambridge Illustrated History of Prehistoric Art*, p. 144.

ibid., p. 109.

Chauvet, Deschamps and Hillaire, *Chauvet Cave, the Discovery of the World's Oldest Paintings*, p. 57.

Bahn, op. cit., p. ix.

The Coate family grows about 1.5 million willow stems a year on 85 acres. Half are burned into charcoal, the rest are used for baskets, picnic hampers and (for old times' sake) a few traditional lobster pots.

For this section on graphite I am indebted to Petroski, *The Pencil*; Dave Bridge, "Wad"; Carvalho, *Forty Centuries of Ink*; and information from the Keswick Pencil Museum.

The den of the graphite thieves was the George Hotel in Keswick. The pub is still there: you can sit by the fire on an old panelled settle marked 1737—as I did, to thaw out—and imagine the smugglers plotting how to get their stolen haul to Flanders while the King's red-coated soldiers tried to catch them red- (or black-) handed. The George is a good bar for such subversion:

it has three exits apart from the front door. One exit passes through a Jacobean doorway into the kitchens, and there are two different doors through which to escape from the stable-yard at the back.

The United States started its own pencil industry in 1821 when Henry David Thoreau's brother-in-law Charles Dunbar found a graphite deposit in New England. The Germans had a small graphite industry from at least the early eighteenth century—a church register at Stein near Nuremberg mentions a marriage between two "black-lead pencil makers" in 1726—but they did not introduce Conté's French process until 1816, when a Royal Lead Pencil Manufactory was established in Bavaria.

CIBA Review, 1963 (I).

These fountain-pen inks are made with dark petrochemical dyes— which do not provide a true black. Instead they work by adding "opposite" colors as a disguise. So dark aniline green is matched with a red, and dark aniline purple is matched with a yellow. This gives the appearance of being black, but the trick is revealed when you drop the "black" ink onto wet blotting paper and see it separating into its constituent colors.

The artist was also known as Hsia Kuei; notes for this painting are from the National Palace Museum.

Hebborn, *The Art Forger's Handbook*, p. 22.

Carvalho, op. cit.

There is another curious ingredient in almost every ink made today, an ingredient which is rarely advertised, but which, like the oxidizing chemicals in registrars' ink, is also present for legal reasons. Every year a different tracer is put into commercial ink batches. It is a tool for forensic experts to determine when the ink was made. A document dated 1998 would be rather suspicious if the signature was written in ink that was manufactured in 2002.

Edmonds, *The History and Practice of 18th century Dyeing*.

Schama, *Rembrandt's Eyes*, p. 216.

The most controversial black paint—to our modern thinking, at least—was probably ivory black. It is hard to verify how much of the pigment was actually sourced from elephant tusks and how much from ordinary animal bones.

When social anthropologists Brent Berlin and Paul Kay were researching color terminology in different cultures (in a controversial 1969 study that has nevertheless been quoted in almost every work on color ever since), they found that every human society distinguished between light and dark, but that there were some (they named one in Papua New Guinea and one in Australia) who did not appear to have words for any of what we call "colors" at all. They then found a curious consistency. Those languages with just three colors inevitably had black, white and red; the fourth and fifth colors to be added were green and yellow in either order, and the sixth color would always be blue. But not until then, according to their report, would there ever be any linguistic acknowledgment of brown, which was inevitably seventh—even in those agricultural societies where one might imagine the colors of the earth were more significant than those of the sky.

http://www.tintometer.com/history.htm

Charles Darwin wrote about his interest in seeing cuttlefish at Quasil Island —not only the way they "darted tail first, with the rapidity of an arrow, from one side of the pool to the other, at the same time discolouring the water with a dark chestnut-brown ink," but also their chameleon-like ability to change their color. In deep water they became brownish purple, he noted, but in the shallows they became yellowish green—or rather "French gray, with numerous minute spots of bright yellow." Darwin, *Beagle Diary*, p. 31.

Hunt, *Journal of the Society of Arts*, 23 April 1880, pp. 485–99. Maximilian Toch was also rude about Reynolds's carelessness. "During three years of his career, he painted on an average one portrait every three days. He was just as careless at times in his imitative style as he was in the selection of his pigments, for many of his clients refused to accept the pictures because they did not resemble the sitter." Toch, *Materials for Permanent Painting*,

p. 188.

Cumming, *Art*, p. 228.

Bomford, Kirby, Leighton and Roy, op. cit., p. 33.

Salmon, *The New London Dispensatory*, 1691.

WHITE

Kemp, *Leonardo on Painting*, p. 71.

For information on this painting I consulted Dorment and MacDonald, *James McNeill Whistler*; Bendix, *Diabolical Designs; paintings, interiors and exhibitions of James McNeill Whistler*; Taylor, *James McNeill Whistler* ; and Joyce Townsend, senior conservation scientist at Tate Britain.

Merrifield, *Medieval and Renaissance Treatises on the Arts of Painting*, p. cli, and Albus, *The Art of Arts*, p. 294.

Johannes Vermeer: *Young Woman at a Virginal*. Information from Langmuir, *National Gallery Companion Guide*.

The Dutch call this paint *scheel* (scale) white; the English often call it flake white.

Winsor & Newton, *Product Information: Health & Safety Leaflet*, 1996.

The cartoon is reproduced in Angeloglou, *A History of Makeup* .

Downer, *Geisha*, p. 95.

Glaser, *Poison, the history, constitution, uses and abuses of poisonous substances*.

Petit, *The Manufacture and Comparative Merits of White Lead and Zinc White Paints*.

Joyce Townsend. Private correspondence.

The Chinese alchemical writer Ko Hung wrote in A.D. 320 that ignorant people could not believe that red lead and lead white were products of the transformation of lead, just as they could not believe that a mule was born of a donkey and a horse. Fitzhugh, “Red Lead and Minium,” p. 111.

Ironically, according to British colorman George Field lead white is more likely to be affected by sulphur when it is not exposed to light, so cave paintings are particularly vulnerable. Field, *Chromatography*, p. 99.

Both red lead and white lead have changed color in the Dunhuang caves. Gettens describes how red lead will turn chocolate brown in color, especially when exposed to light. Out of doors it may also turn pink or white because of the formation of (white) lead sulphate. Gettens and Stout, *Painting Materials: a short encyclopaedia*, p. 153. Conservators at the British Museum describe how lead white becomes black when it reacts with hydrogen sulphide, an air pollutant. The black can be removed by treating it with a solution of hydrogen peroxide in ether. (www.thebritishmuseum.ac.uk/conservation/ cleaning3.htm)

On May 30, 1925 Chinese and Indian police under British command fired on demonstrators in Shanghai: they killed eleven people and the deaths kindled anti-foreigner sentiments all over China. It was, in a way, the Tiananmen Square massacre of its time, although on that occasion it was the British who had given the command to shoot.

Warner, *The Long Old Road in China*.

Gettens also identified carbon black, kaolin, red ochre, red cinnabar, blue azurite, red lead, indigo, green malachite, a kind of safflower and an organic dye that was probably gamboge. Many were not local. “It is only by far-reaching trade intercourse that these substances can be assembled in any one place or even in any one country today,” Gettens wrote with some excitement.

One of the first X-ray images ever made was of a woman called Berthe Roentgen. In 1895 her husband Wilhelm had just discovered the existence of X rays and to celebrate the occasion he took a picture of his wife’s hand. The radiation passed through her skin but was absorbed by the much more dense bones and her wedding ring, which appear as white blocks

denise bones and her wedding ring, which appear as white blocks.

The x-radiograph of *The Death of Actaeon* is reproduced in Januszczak, *Techniques of th World's Gr at st Painters*, p. 36.

Before the 1920s, paint-makers experimented with a mixture of zinc white and lead white to reduce the toxicity, yet still give good covering power in oil. Between the 1920s (when titanium paint was in commercial production) and the 1970s (when lead white stopped being used on a large scale on buildings) you could find white house paints that included zinc, titanium and lead. Norman Weiss, University of Columbia, New York. Private conversation.

G. K. Chesterton told the story of how he once went out sketching the cliffs of the English Channel. He realized he had used up his most important chalk—the white one. He was just about to return to town, cursing, when he began to laugh, because below him were tons of white chalk. He only had to pull up a bit of grass and cut out what he needed for his art. Hebborn, *The Art Forger's Handbook*, p. 32.

The other options were whites made of tin and silver. Medieval scribes had used both of these for manuscripts, but they were scarcely worth the metal they were made from—they tended to perform badly in oil, had very little body and blackened in sunlight. Tin and silver whites were rarely used after the printing press arrived in 1456 and were generally abandoned after the seventeenth century.

Winsor & Newton, letter to G. H. Bachhoffner, 1937. Microfiche, New York Public Library.

Kuhn, "Zinc White," p. 170.

In order to turn the blood-like ore into the snow-like oxide the French developed a system of purifying the ore and then oxidizing it. But in 1854—according to legend—the Americans devised a quicker, cheaper method. One night, the story goes, a nightwatchman called Burrows was walking round the factory of the Passaic Chemical Company in Newark, New Jersey, when he noticed that one of the fire flues was leaking. He was not unduly worried and casually stopped up the hole with an old fire grate. It

wasn't heavy enough for his purpose so he took some bits of ore and coal from the zinc refining company next door, piled it on top, and went back to his patrol. A few hours later he was astonished—and probably horrified—to see white clouds of zinc oxide hovering above the grate. He told the story to his bosses; they investigated and the following year they took out a patent on the American "direct" process, which was so much more efficient than the French method that by 1892 all American zinc paint was being made that way. History does not relate whether Mr. Burrows profited from his discovery. New Jersey certainly did: many of the first paint manufacturers in the United States were located near Newark, which benefited from its proximity to the Franklin Mine—a source of many useful minerals for paint—and to the port of New York.

Scholars are divided on whether the White House was white from the beginning. Paint analysis has not been conclusive. It was certainly white by 1814.

Birren, *Color; a survey in words and pictures, from ancient mysticism to modern science*.

Seale, *The President's House: A History*.

It was not only white paint which gave Whistler trouble. Gold and black proved to be even worse. When you stand in front of *Nocturne in Black and Gold: The Falling Rocket* today, it is hard to imagine that this scene of fireworks cascading above a misty Battersea Bridge should have caused pyrotechnics to explode in the British art world. But in 1878 the painting inspired John Ruskin—who once commented that the duty of a critic was "to distinguish the artist's work from the upholsterer's"—to write a scathing review. "I have seen, and heard, much of Cockney impudence before now," he wrote. "But I never expected to hear a coxcomb ask 200 guineas for flinging a pot of paint in the public's face." Whistler took exception and sued, resulting in the notorious "pot of paint" trial.

As Eric Hebborn noted with admiration, masters like Rubens, Velázquez and Rembrandt made their works more luminous by generous use of this heavy white ground. Hebborn, op. cit., p. 94.

Elkins, *What Painting Is*, p. 9.

RED

I am indebted to Townsend, *Turner's Painting Techniques*, for this section on Turner.

Joyce Townsend, Interview.

ibid.

Comanche Language Book, Comanche Language and Cultural Preservation Committee, 1995.

Alum is also, apparently, an effective natural underarm deodorant.

Ciba Review, 1,430.

Aleppo was Muslim from the seventh century, while Izmir was captured from the Byzantines by Tamerlane in 1402; Castile was under Arab control until 1223.

Originally the term "lake" referred to lac, which is a sticky resin exuded by an Asian insect called *Laccifer lacca*, and from which we get the word "lacquer." Now it refers to any pigment made from a dye. Dyes like kermes or cochineal are not strong enough on their own to color wood or canvas, so they need to be made into something that can. Early methods of making carmine lake involved dyeing cloth, boiling it in alkaline solution and adding alum. When it dried out, the color would have attached itself to the metal salt and artists could mix the resulting powdery pigments with oils or egg. Lakes are more translucent than many other paints, so are traditionally used as the top layer—because they allow other colors to show through.

On February 15, 1541 the Venetian artist Lorenzo Lotto recorded in his expenses book that he took 6 ounces of kermes, worth 6 ducats an ounce (total 37 lire, 4 solti), from the Bolognese architect Sebastiano Serlio, "on account of certain credit that I have with him." This was more than thirty times more expensive than employing a nude model for the day (1 lira, 4 solti). Chambers and Pullan, *Venice, A Documentary History*, p. 439.

Rudenko, *Frozen Tombs of Siberia*, p. 62.

Donkin, *Spanish Red: an ethnogeographical study of cochineal and the opuntia cactus*.

Edmonds, *The History and Practice of 18th Century Dyeing*.

There is a small plantation called Tlappanocochli—meaning “color” in Mixtec—in the Oaxaca Valley in central Mexico. I visited it one Sunday when it was closed—but from outside it was evident that this was a cottage industry, and nothing like the scale of the operation I had seen in Chile. It was started recently, as a revival.

Anderson, *Correspondence for the Introduction of Cochineal Insects from America*.

Pliny, *The Natural History*, p. 33.

Gettens observed that natural cinnabar was less likely to darken than artificially created “wet-process” vermilion. Gettens and Stout, *Painting Materials: a short encyclopaedia*, p. 172.

It is this reputation for reliability which, according to Michael Skalka at the National Gallery of Art in Washington, D.C., may explain a small mystery about one particular cinnabar that is not red but green, and which is made of neither mercury nor sulphur. “Green cinnabar” or “zinnobar” is a synthetic mixture of chrome yellow (which is no longer produced) and Prussian blue, sometimes mixed with white. According to Maximilian Toch, when chrome green was first made, one manufacturer called his product cinnabar green, “intending to convey the idea that [it] was as permanent as cinnabar red or native vermilion. The name has stuck to it in the trade.” Toch did not recommend it, supposing that the color had all the defects of both of its ingredients. Toch, *Materials for Permanent Painting*, p. 110.

Egerton, *et al. Turner, The Fighting Téméraire* .

Field, *Chromatography*.

ORANGE

Stradivari often Latinized his own name to Antonius Stradivarius and labelled his violins accordingly.

The Red Violin directed by François Girard, 1998.

Claudio Rampini in *The Strad*, March 1995.

Beare, *Antonio Stradivari, The Cremona Exhibition of 1987*.

During the Spanish Inquisition many *marranos*, or forced converts, were put on trial. If they were found guilty of practicing Judaism in secret they were given the option of confessing. Those who did not confess were burned at the stake; those who did confess were strangled first, before being burned.

Smith, *Safflower*.

Poppy seed oil is made from the seeds of *Papaver somniferum* , the opium poppy, but it does not have the same intoxicating properties as the milky sap of the seed pods. Poppy oil production is a byproduct of the pharmaceutical industry. In most countries it is strictly controlled.

Today tragacanth (named from the Greek word for goat's horn because of its appearance) is used in cosmetics and to give prepared foods like ice cream and pies more body.

Perilla, Chio L'lle Heureuse.

Hackney, Jones and Townsend, *Paint and Purpose*, p. 13.

The original painting is in the Huntington Art Collections in San Marino, California.

Private correspondence, Ian Dejardin, Dulwich Picture Gallery.

In 1217, just two years after the Pope's announcement that Jews should wear patches, King Henry III of England ordered Jews to wear white linen or parchment badges representing the tablets of the Ten Commandments.

Frank Lloyd Wright and the Art of Japan. Japan Society, New York, March 2001.

Gage, *George Field and His Circle*, p. 29.

The French cloth-makers hired some Greeks from Salonica to help them with the recipe. Salonica had been a major center of dyeing and cloth-making since the time of Martinengo: it was a place where Sephardim settled, and established their businesses.

The Death of Nelson, at the Walker Art Gallery in Liverpool.

The Color Museum in Bradford quotes a worker in the early nineteenth century describing the Turkey Red Dyers: “I always remember the water side from Bonhill Bridge to the Craft Mill. It was a seething mass of humanity. People walking four and five across, to and from work. You could smell the Craft when it closed at night, off the workers walking by.”

It is basically madder with a little lemon juice, mixed with alum and left overnight. Conversation with Harald Boehmer, November 2001.

In the thirteenth century the terrifyingly named Teutonic Knights killed anyone who picked up amber without permission.

Reade, *Cremona Violins*.

G nuine r ceipt for making the famous vernis Martin. Paris, 1773, held in the British Library.

Information from the Sibelius Museum website.

Both Newton and Field ascribed colors to musical notes (Dreyfuss, *Symbol Sourcebook: An Authoritative Guide to International Graphic Symbols*). But it is not known whether they were synaesthetic. Indeed, the concept of synaesthesia was not known when they were alive.

YELLOW

Field, *Chromatography*, p. 83.

Baer, “Indian Yellow,” pp. 17–21.

Gega Lama, *Principles of Tibetan Art*.

Captain Sherwill, *Statistics of the District of Behar*, 1845. Held in the British Library.

Brian Lisus. Personal correspondence.

George Field did not believe that the mango theory was true: “It has also been ascribed, in like manner, to the buffalo, or Indian cow, after feeding on mangoes; but the latter statement is incorrect. However produced, it appears to be a urio-phosphate of lime, of a beautiful pure yellow colour, and light powdery texture; of greater body and depth than gamboge, but inferior in these respects to gall-stone.” Field, op. cit., p. 83. Winsor & Newton likewise do not subscribe to the theory that this paint was made from urine that had been evaporated and formed into balls. Instead the museum (at Winsor & Newton’s factory in Harrow) describes it as the earth on which cows fed with mangoes or mango leaves have urinated.

Man Luen Choon is at 27–35 Wing Kut Street, Sheung Wan, Hong Kong.

According to Eric Hebborn, Van Dyck used orpiment with enthusiasm but his secret was to apply it on areas that had been underpainted with other yellows. “It is amazing how a whole area of relatively dull yellow such as yellow ochre can be made brilliant with just a well-placed touch or two of brighter yellow.” Hebborn did not, incidentally, know about the easy availability of orpiment in Chinese shops. He recommended not even trying to forge a painting that contains it: “If you really can’t finish your painting without a bright yellow, damage the area where the orpiment should be and then skillfully retouch the damage with the modern chrome yellow and zinc-or flake-white mixture.” Hebborn, *The Art Forger’s Handbook*, p. 98.

The formula for realgar is AsS while orpiment is As_2S_3. This effectively means that, of the two, realgar contains more arsenic.

By 1758, when Dossie wrote his book *The Handmaid to the Arts* , both orpiment and realgar had been banished completely from artists’ palettes. If

they were used at all it was “to color the matted bottoms of chairs, or other such coarse work.”

Rumphius, *The Ambonese Curiosity Cabinet*.

Winter, “Gamboge,” p. 144.

van Gulik, *The Chinese Maze Murders*.

I am indebted to saffron consultant Ellen Szita, who has helped with this section.

Herbert, *A History of the Species of Crocus*, p. 21.

Milton, *Nathaniel’s Nutmeg*, p. 20.

Thompson, *The Materials of Medieval Painting*.

These jokes or rebuses were common in coats of arms. The city of Oxford, for example, is represented by a picture of an ox crossing a river.

Emmison, *Elizabethan Life: Home, Work and Land*.

www.uttlesford.gov.uk/saffire/history/history.htm

In a good year the field could produce 5 kilos of saffron, although 2000 had not been good.

Willard, *Secrets of Saffron*, pp. 98–101.

The practice of painting houses with red or yellow continues, although today Zoroastrian priests tend to use red paint or ink rather than saffron.

GREEN

The Chinese term is porcelain; Western terminology tends to call it “stoneware.”

Celadon includes those pieces with green glazes that owe their colors to reduced iron oxide, rather than those owing their colors to oxidized copper,

which are much brighter green than true celadon-ware.

A Chinese scholar, Dr. Chen, has suggested that the mythical Chai ware is in fact *mi se*, after Shizong was given this precious imperial ware as a royal gift. In which case the poem would be more important for its mention of the clouds than that of the peeping blue sky.

The earliest greenware was made two thousand years ago, although none of it survives. Then, in the late sixth century, it was reinvented, according to legend, by a civil servant called Ho Chou. He hadn't wanted to make it for its own sake but had been trying to replicate green glass, the recipe for which had been lost two hundred years before. Within forty years the first Tang emperor was commissioning imperial celadon-makers to create bowls that were "thin in body, translucent and brilliant as white jade." The rich Tangs loved it, and soon celadon kilns were opening up all over the country, wherever there was enough wood and good clay.

The color of celadon depends partly on the atmosphere in the kiln: reduction leads to greenware like *mi se*, oxidation leads to brown-ware.

Dawn Rooney. Personal correspondence.

Michael Rogers. Personal correspondence.

Bushell, *Oriental Ceramic Art*. Written by an Englishman who had worked for many years as the British legation's doctor in Peking, and had become fascinated by oriental ceramics.

The chinoiserie style was to last for a further decade or so until the Victorians wanted a change, and decided to revive Gothic, Greek, Pompeian, Egyptian, Byzantine, Baroque and indeed virtually everything *but* East Asian traditions instead.

Thompson, *Napoleon Bonaparte*.

www://grand-illusions.com/napoleon/napol1.htm

Journal of the Society of Arts, 1880.

It is likely that this was Johann Wilhelm Ludwig Thudichum, a

It is likely that this was Johann Wilhelm Ludwig Thudichum, a controversial scientist in Victorian London, who at the time was researching the effect of cholera on the brain.

Michelangelo's *Manchester Madonna* in the National Gallery shows the underpainting of the flesh in *terre verte*, a practice that seems to have been popularized by Giotto and continued spasmodically until Tiepolo in the eighteenth century. Hebborn, *The Art Forger's Handbook* , p. 105.

Sometimes the pinkish pigments have faded from old paintings, leaving the faces a sickly green. Roman and Byzantine artists liked the effect, and their mosaics of people's faces have green stones mixed up with the pink ones, to cool a ruddy complexion. Gage, *Colour and Culture*.

In the nineteenth century the "Iron Tsar," Nicholas I of Russia, had a monopoly on the world's best malachite, which was found in the Urals. In the 1830s his wife Alexandra commissioned a room of green-veneered furniture in the Winter Palace at St. Petersburg, which they called the Malachite Chamber and used as a formal drawing room.

Gettens and Stout, *Painting Materials: a short ncyclopaedia* , p. 170.

Cennino's translator, Daniel Thompson, observed that verdigris in river landscapes by Baldovinetti and Domenico Veneziano must have been green once, but had now turned to a mahogany brown. Thompson, *The Materials of Medieval Painting*.

The theory of the painting being an allegory seemed even more likely after it was discovered that the Arnolfinis didn't actually get married until 1447: reported in BBC2's documentary *Mystery of a Marriage*, November 1999. www.open2.net/renaissance/prog1/script/script1.htm

The hall is lined with fake-grained wood—yellow pine dressed as red mahogany, which would have been fashionable in the 1790s and indeed the 1970s but looked much too faux for the 2000s. Washington would probably have seen it first in Philadelphia, and he evidently loved the fake graining technique, because he also had it in his study.

The picture that probably caught his attention was Plate 51: it gives the

precise proportions for the grand window he eventually chose for his dining room—a Palladian window, so named after the sixteenth-century Italian Andrea Palladio, who first created such a thing in memory of Ancient Rome.

Letters from the collection of the library at Mount Vernon.

Mosca, “Paint Decoration at Mount Vernon,” p. 105.

Later, once she knew what to look for, Dr. Barkeshli not only discovered saffron mixed with verdigris in a real sixteenth-century paintbox, but she found other references. “The verdigris which is made out of yoghurt chars paper,” advised sixteenth-century artist Mir Ali Heravi. “To prevent this, add a small amount of saffron to make the pigment stable.”

Harley, *Artists’ Pigments*.

In Paris in 1845, according to Chris Cooksey, a British scientist who has studied Chinese Green, and who provided much of the information for this section, it cost 224F a kilo, rising to 500F a few years later. In London in 1858 it cost nearly 16 guineas a kilo. Its popularity increased when people realized how exciting it was to have a dye that gave a violet rather than a blue-yellow sheen, and yet which still looked green. It was warmer than the old woad-weld mixture. Dyes in History and Archaeology conference, Amsterdam, November 2001.

BLUE

John is often dressed in red, but rarely in such a vivid orange.

Similar blackening of vermilion paint can be detected in the opaque red sash of the angel in the (also unfinished) *Manchester Madonna*, also held at the National Gallery in London. There is an apocryphal story that *The Entombment* may have been used as a fishmonger’s slab, in which case the salt water from the fish would have speeded the darkening of the vermilion. Private correspondence, National Gallery.

Langmuir, *National Gallery Companion Guide*.

Polo, *The Adventures of Marco Polo, as dictated in prison to a scribe in the year 1298*, chapter 29.

Brewer's Dictionary of Phrase and Fable (Millennium Edition) suggests that the term "blue movie" is "fancifully derived from the custom of Chinese brothels being painted blue externally." However, according to the *Oxford English Dictionary* "blue" has referred to indecent or smutty conversation since at least the early nineteenth century.

In his *Theory of Colour*, Goethe wrote that "there is something contradictory in [blue's] aspect, both stimulating and calming. Just as we wish to pursue a pleasant object that moves away from us we enjoy gazing upon blue—not because it forces itself upon us, but because it draws us after it."

Price from Kremer Pigmente in Germany.

In 1347 an ounce of ultramarine, ordered for the Chapel of San Jacopo in Pistoia Cathedral, cost the equivalent of £4. On the same order form an ounce of azurite cost five shillings and sixpence: one-twelfth of the price. *Italian Painting before 1400, Art in the Making*.

Hirst and Dunkerton, *Making and Meaning: The Young Michelangelo* .

Eric Hebborn said the painting illustrated the care the Old Masters took in their underdrawing—not because they had time to waste; quite the opposite. *The Entombment* shows the stage after the preliminary drawing and before the final layer, which would probably have consisted mostly of oil glazes. Hebborn, *The Art Forger's Handbook*, pp. 105–6.

The Tate, *Paint and Painting, an exhibition and working studio sponsored by Winsor & Newton to celebrate their 150th anniversary*, p. 14.

Gage, *Colour and Culture*.

Gettens and Stout, *Painting Materials: a short encyclopaedia* .

Byron, *The Road to Oxiana*. The author had perhaps not realized that Gowhar Shad was a woman.

The best blues were from the Xvande reign (1426–35), followed closely by the Zhengde (1506–21) and Jiajing (1522–66) reigns, which both produced blue and white with a rich violet blue that was distinctive for its intensity. The worst were the Chenghua (1465–87) and Wanli (1573– 1619) reigns. Boger, *The Dictionary of World Pottery and Porcelain*.

Rashid, *Taliban, the story of the Afghan warlords*, p. 7.

Baker and Henry, *The National Gallery Complete Illustrated Catalogue*, pp. 97–8.

Hebborn, *The Art Forger's Handbook*, p. 106.

Theophilus, *On Divers Arts*, p. 57.

Vitruvius, book VII.

Some accounts suggest the "veil" may actually have been the tunic Mary wore while giving birth.

A study done by a textiles expert in 1927 confirmed that it could have been woven in the first century A.D. It is locked up for 364 days a year, and then every August 15, on the Feast of Our Lady, it is paraded around the town.

INDIGO

Morris, *The Lesser Arts of Life*, an address delivered before the Society for the Protection of Ancient Buildings, London, 1882.

One theory to account for the name of the town of Glastonbury in southwest England is that it was once a woad—or *glaustum*—dyeing center.

Edmonds, *The History of Woad and the Medieval Woad Vat*.

Turner and Scaife, *Bog Bodies, new discoveries and new perspectives* .

Starzecka, *Maori Art and Culture*, p. 40.

Tattoos are also restricted in the United States. According to Pat Fish, in

L.A. County there is a law that all tattooing has to be done with FDA-approved ink. “Which is a problem because there is no FDA-APPROVED ink.”

The Annals of Tacitus, chapter XIV, pp. 29–30.

John Edmonds. Personal correspondence.

Harley, *Artists’ Pigments*, p. 201.

For the section on Eliza Lucas I consulted Morgan, *Wilderness at Dawn*, and Pinckney, *The Letterbook of Eliza Lucas Pinckney* .

Morgan, op. cit., p. 260.

Professor Giacomo Chiari, Dyes in History and Archaeology conference, Amsterdam, November 2001.

Balfour-Paul, *Indigo*. I am indebted to Jenny Balfour-Paul for many of the references in this chapter.

Edmonds, op. cit.

Balfour-Paul, op. cit., p. 125.

Forcey, *The Colors of Casa Cruz*.

ibid.

ROY G BIV is probably the most common rainbow mnemonic among American and British schoolchildren. In Britain the other popular contender is “Richard of York Gave Battle in Vain,” which describes how King Richard lost to the Tudors at the Battle of Bosworth Field, the white rose of the Yorks ceding to the red rose of the Lancastrians (white losing to color). Indian schoolchildren tend to learn it “backwards” as VIBGYOR, while my new personal favorite is “Rats of Yarmouth Go Bathing in Venice,” with its suggestion of subversive gray elements in the midst of a colorful carnival. Sarah Ballard. Personal correspondence.

Since the Middle Ages, English-speakers have named turquoise after the

Since the Middle Ages, English-speakers have named turquoise after the country—Turkey—the stone was said to come from, even though it is more likely to have come from Persia, now Iran.

Levi Strauss wanted to make the strongest possible overalls for the gold miners (who destroyed their clothes very quickly by filling the pockets with stones and, if they were lucky, nuggets), so he imported a blue cloth from the French town of Nîmes (it was called *serge de Nîm s*, hence denim). It was only many years later that the trousers were named "jeans" after the Genoese sailors who transported the cloth. Denim has been colored with aniline dyes since around 1900.

Balfour-Paul, op. cit.

An address delivered in the Indigo Hall, Georgetown, South Carolina, May 4, 1860, on the 105th anniversary of the Winyaw Indigo Society by Plowden C. J. Weston.

While the English swung their indigo loyalties from one continent to another between the seventeenth and nineteenth centuries, the Dutch were fairly consistent in their demand for Javanese blue. Throughout that time local chiefs were forced to grow indigo (as well as pepper and other spices) without receiving much in return. - England briefly took charge of Java between 1811 and 1816 during the Napoleonic Wars, and the Governor, Thomas Stamford Raffles, wrote a book describing his horror at the brutal system of enforced labor. But had he looked at his own country's attitudes to indigo farmers he would have been equally shocked.

Grant, *Rural Life in Bengal*.

Grant was puzzled about what color the indigo liquid was—at first it was dark orange, then light green, then darker green, "so that I am puzzled to tell you what precise colour it really has, for being, like the sea, exposed to the sky . . . the light green, through a variety of beautiful changes, gradually darkens into a Prussian green, and from that—as the beating continues and the colouring matter more perfectly develops itself (the forth having almost entirely subsided) into the intense deep blue of the ocean in stormy weather."

In 1855 aboriginal tribal people in a different part of Bengal rebelled against moneylenders, landowners and the indigo planters in what was called the “Santal Rebellion.” So outside Mulnath the blue harvest was evidently not such a joyful occasion.

A 1795 law stipulated that private entrepreneurs would hold no more than 50 bigahs of land (one bigah is 1,600 square feet and enough to grow eight cakes of indigo, or give eight rupees in profit at 1850s prices). At the time a European would expect to earn about 400 rupees per month.

In 1860 William James was twenty-eight and a magistrate in the indigo-growing area of Nadia. He observed the unfairness of the indigo contracts —which were often forged—and developed an interest in devising a way for people to determine whether an illiterate person had or had not been present at the signing. It inspired him to investigate the possibilities of fingerprinting, and while his recommendations were eventually ignored, this was the first time fingerprints had been seriously offered as legally binding marks. Kling, *The Blue Mutiny*.

ibid. I have used this book extensively in this section on Bengal indigo.

Moorhouse, *Calcutta*, p. 67.

The last commercial indigo in Bengal, before the recent resurgence, was in 1894. But the crop continued to grow, in very small quantities, in Bihar and in other parts of India.

When tended carefully, *Indigo tinctoria* can grow into a bush of up to two meters in height.

Since I visited Bengal I have learned of a scheme to grow indigo in Bangladesh to supply the increasing demand for natural dyes in Europe and America. The Aranya project was started by Ruby Ghuznavi in the 1990s. By 2002 it was cultivating 50 acres of indigo—not only a small but promising legacy of Bengal’s history, but also a hope for indigo’s future on the sub-continent—without forced labor and as a non-polluting alternative to synthetic dyes.

VIOLET

The *Little Rock Gazette*, quoted in Garfield, *Mauve*. I am indebted to *Mauve* and to Travis, *The Rainbow Makers*, for much of this section about Perkin.

The name came from the French description of this color as being like the petals of the mallow plant. Curiously, while the English called it “mauve,” which in the nineteenth century they pronounced “morve,” the French tended to refer to it as “Perkin’s purple.” Both markets were evidently thought to want something exotic and foreign.

Victoria & Albert Museum, *Inventing New Britain: The Victorian Vision*, April–July 2001.

John Sutherland, *Guardian*, August 6, 2001, p. 7.

Varley, *Colour*, p. 218.

Gage, *Colour and Culture*, p. 27.

Jidejian, *Tyre through th Ages*, p. 281.

Lucan, *Civil War*, chapter 10, pp. 115ff.

Pliny, *The Natural History*, 9, 63, p. 137.

For the classical and dyeing references in this chapter I have made extensive use of Edmonds, *The Mystery of Imperial Purple Dye*; Bridgeman, “Purple Dye in Late Antiquity and Byzantium”; and Jidejian, op. cit.

Justinian in the sixth century reinforced a ban on “forbidden silk”— which scholars take to mean that it was dyed with purple—and Constantine in the tenth century was so fond of the color that he was nicknamed Porphyrogenitus, meaning that he had been born “in the purple,” which perhaps referred to the color of the walls of the birthing room of the Byzantine emperors, but certainly signified immense privilege.

Thompson, *The Materials of Medieval Painting*, p. 156.

Sixth-century Christian artists used Tyrian purple for the most precious books. Cheaper documents used cheaper dyes, though, and one type of lichen became so popular for staining books that it is still called “folium,” from the same root as “folio,” meaning leaf of paper.

Pliny, op. cit., 9, 34, p. 126.

A third species, *Thais haemastema*, also gives a good purple dye, but it is found farther west in the Mediterranean, and probably was less important to the Phoenicians.

Quoted in Jidejian, op. cit.

Pliny, op. cit., 9, 62, p. 133.

Edmonds, op. cit., p. 10.

In 1685 a naturalist called William Cole found purple-giving shellfish on the shores of the Bristol Channel and made the observation that if the dye was placed in the sun it changed color. “Next to the first light green will appear a deep green; and in a few minutes this will change into a dull sea green; after which, in a few minutes more, it will alter into a watchet [i.e. blue]; from that in a little time more it will be purplish red; after which, lying an hour or two (supposing the Sun still shining) it will be of a very deep purple red; beyond which the Sun can do no more.” Cole, “Purple Fish,” p. 1278.

Pliny described how the blackness was achieved by dyers using two different types of shellfish: the small buccinum and the larger *Murex brandaris*, or *purpura*. The buccinum gave a crimson-like sheen to the *purpura*, as well as the “severity” which was in fashion. Their recipe involved steeping the wool in a raw, unheated vat of *purpura* extract and then transferring it to a buccine one. Op. cit., 9, 28, pp. 134–5. Pliny, after praising this velvety black effect of antique murex-dyed robes, noted that in his own time people seemed to favor a lighter shade of purple.

Gage, op. cit., p. 25.

Nuttall, “A curious survival in Mexico of the use of the Purpura shellfish

for dyeing," p. 368.

Thompson, "Shellfish Purple: The Use of Purpura Patula Pansa on the Pacific Coast of Mexico," pp. 3–6.

Hibi, *The Colors of Japan*, pp. 60–2.

Numbers (or Bümidbar), 15: 37–38.

Rabbi Soloveitchik, "The Symbolism of Blue and White." In *Man of Faith in the Modern World*. Ed. Abraham Besdin. Israel: Ktav, 1989. Quoted on the P'til Tekhelet website, www.tekhelet.com

Elsner, "The Past and Present of Tekhelet," p. 171.

One of the problems is that the Hebrew word for this color— *tekhelet*—can mean both blue and violet; it was the metaphor of the sea and the sky which led to Jews believing it had been more blue than violet.

Many years later, when Radzyn was destroyed by the Nazis, Herzog was the only person with the recipe, leading to the ironic circumstance that he was responsible for both discrediting and preserving Leiner's process.

A similar paradox can be seen in ancient Jewish sacred manuscripts. If the parchment is calf vellum then it must be made from the skin of an animal that has been killed in a kosher way—through being bled to death. But there appear to be no rules about whether the ink with which it is written should or should not be kosher.

THE END OF THE RAINBOW

The story of the Eskimos having a large number of words for the colors of snow probably started in 1911 when social anthropologist Franz Boas suggested they had four word roots for snow. (Boas, *The Handbook of North American Indians*.) This was picked up in 1940 in an MIT journal that future generations of linguists used freely: "We have the same word for falling snow, snow on the ground, snow packed hard like ice, slushy snow, wind-driven snow, flying snow— whatever the situation may be. To an Eskimo, this all-inclusive word would be almost unthinkable; he would say

that falling snow, slushy snow, and so on, are sensuously and operationally different things to contend with; he uses different words for them and for other kinds of snow." (Whorf, *Language, Thought and Reality*.)

This finding was announced in January 2002. Three months later Johns Hopkins University made a second and slightly embarrassed announcement that the "color of the universe" was not actually turquoise but beige, due to a computer bug. "It's our fault for not taking the color science seriously enough," admitted assistant professor of astronomy Karl Glazebrook who had co-authored the study. He added that the discovery was actually just meant to be an amusing footnote to a large-scale survey of the spectrum of light emitted by 200,000 galaxies, but "the original press story blew up beyond our wildest expectations." It referred to a mathematical calculation of what you would see if you had the universe in a box, and could see all the light at once. The newly calculated color, described more formally as III E Gamma, looks like off-white house paint. However, Glazebrook's favorite tag is "cosmic latte."

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Bottles of powdered pigments. Reproduced courtesy of Winsor & Newton, Harrow. © Winsor & Newton.

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Krishna playing flute to cows, Indian temple (North India). Reproduced courtesy of CIRCA Photo Library / © Martin Palmer.

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Yellow *cuerda seca* tile (1600s). © Victoria and Albert Picture Library.

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Lapis Lazuli for ultramarine paint. Reproduced courtesy of Winsor & Newton, Harrow. ˙© Winsor & Newton.

Window depicting *Notre Dame de la Belle Verriere* in south choir, thirteenth century (stained glass), Chartres Cathedral, Chartres, France. © Bridgeman Art Library.

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