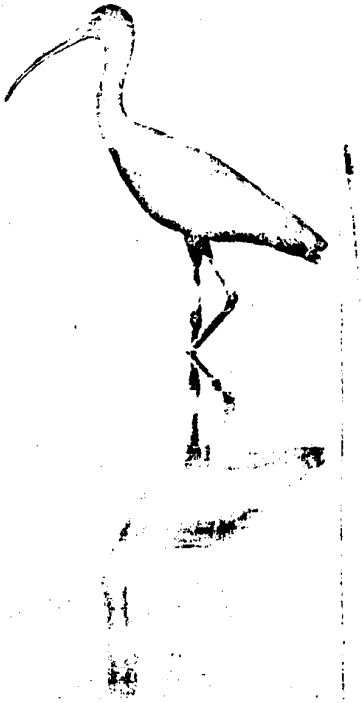
Papa George
you'll recall the press Query from Life a few ago. E. John

# The courts have struck hard against DDT, but can they save



by DON MOSER

The island is flat and low, an earth mound thrown up by the Corps of Engineers' dredgers which work the intracoastal Waterway, hot in the Texas Gulf sun, the property only of the birds. As the biologists on their survey move down the island, the birds go up in sweeping clouds, the egrets puffing away in billows, a hundred spoonbills arching up, the sun shining brilliant pink through their wings. The din is deafening. Big Caspian terns with blood-red beaks swirl overhead and screech with anger, the black-cloaked skimmers rocket by, barking, while their chicks, beak-heavy so they run tipped forward like cars with new rear springs, scurry away over the sand. In the scrub young ibises, long-legged, curve-billed, flap about and it is these that the biologists are watching for. From time to time they pick up a dead ibis fledgling. At the far end of the island there is a rain pool and here a young ibis struggles to run away. The bird's wings drag loosely as if the muscles had been cut. Its legs move spasmodically. The ibis staggers across the mud flat, then collapses.

The bird dies hard. It lies on the ground, muscles twitching. Wings jerk aimlessly. Legs bicycle in the air. Its beak gapes. After a few minutes the ibis arches its neck back, back so far that its head touches the feathers between its wings. It quivers and is then still.

The bird, in its dying, has shown the symptoms of pesticide poisoning.

Let me state my bias. I am a bird watcher, bird lover if you choose, and have been since my childhood, when I prowled the woods and collected birds' eggs with all the fanaticism a 13-year-old can muster. It was a practice that my parents, recognizing my adolescent savagery for what

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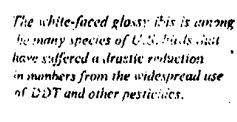
MONS 031712

the ibis and the falcon?

# A lament for some companions of my youth



*The white-faced glossy ibis is among the many species of U.S. birds that have suffered a drastic reduction in numbers from the widespread use of DDT and other pesticides.*

MONS 031713



*Pelicans descend on an island off Corpus Christi, Texas. The fish-eating bird is in serious jeopardy: there were 600 breeding pairs in the Gulf area in 1955; this year only five pairs nested.*

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it was, tried hard to discourage. But the discovery after long search of a cunningly made goldfinch nest with its clutch of pale eggs—or of a killdeer's scrape with a conical egg so huge I wondered how it could have come from the body of such a small creature—transported me to a state of obsession that was hard for anyone to control. I was lost in a world of old British zoological books, pipettes, forceps and embryo scissors. Still, I was not a total savage. I never took more than one egg of any one kind, I would never—unlike my schoolmates—consider plugging a cardinal with my Daisy air rifle, and in my teens I acquired a young sparrow hawk of which I became inordinately fond. It lived in my room and woke me in mornings by pecking my ear. The sparrow hawk—a tiny, trim falcon, actually, a kind of miniperegrine—would have had all it could do to subdue a mouse, but with a friend I made for it a plumed hood, jesses and bells, and all that summer it rode about on my wrist in hooded majesty, while my head spun with loony visions of stalking lonely moors at dawn and flying my brave swift bird at grouse and wild ducks.

## A host of chemicals contaminate the natural scene

It was about the time of the sparrow hawk that I first became aware of that wonder-stuff whose fame spread so widely near the end of World War II—the super-obliterator of malaria, the delousing powder that appeared in newsreels of European refugees—and its name became a part of our schoolboy argot. "DDT!" we would sneer at some enemy. "Drop dead twice!"

Within the past few years it has become increasingly obvious that something drastic and terrible has been happening to our predatory and fish-eating birds, and that a primary cause is the insecticide known formally as dichloro-diphenyl-trichloroethane. The peregrine falcon does not have a single known nest site left east of the Mississippi River. The bald eagle, our national emblem, has declined catastrophically—down 80% in Maine and Florida, and with complete nesting failure around Lake Michigan. The osprey has been decimated. In Louisiana, where the brown pelican was once the state bird, there are now none, and in Texas, which formerly had a population of thousands, there are now only 80. The white-faced glossy ibis population has fallen off in northern Utah, and the rare Bermuda petrel will likely be extinct by 1978.

Today the status of DDT is in constant, and confusing, flux. The use of the chemical in this country has dropped radically over the last decade, in considerable degree because many insects have grown resistant to it, and it has been replaced by other chemicals. A number of states have placed varying degrees of restriction on it, as has the federal government, until today it is used in really large amounts only on cotton.

Most recently, after regulation of pesticides was transferred from the Department of Agriculture to the new Environmental Protection Agency, the U.S. Court of Appeals ordered that agency to cancel the registration of DDT for all purposes. Such a cancellation would be, in effect, a ban, and the court decision represents a major victory for environmentalists; it confirms the right of concerned citizens to participate in decisions formerly made between manufacturers and regulatory agencies. But the court decision is by no means final, for the pesticide industry has various channels of appeal. Until the appeals are exhausted—and the process could take months or even years—DDT formulators may continue business as usual.

Moreover, DDT is still shipped and used abroad in huge amounts. And it is only one of a host of chemicals with which we have contaminated the natural scene—insecticides such as dieldrin and aldrin, weed killers such as 2,4,5-T, and industrial chemicals such as mercury and polychlorinated biphenyls. Decisions about all of these chemicals—and the hardest decisions about DDT—still lie ahead of us.

DDT's impact on man and his planet is of the magnitude of the harnessing of electricity, the invention of the internal combustion engine or the splitting of the atom. Since it first came into widespread use during World War II, it has been a force

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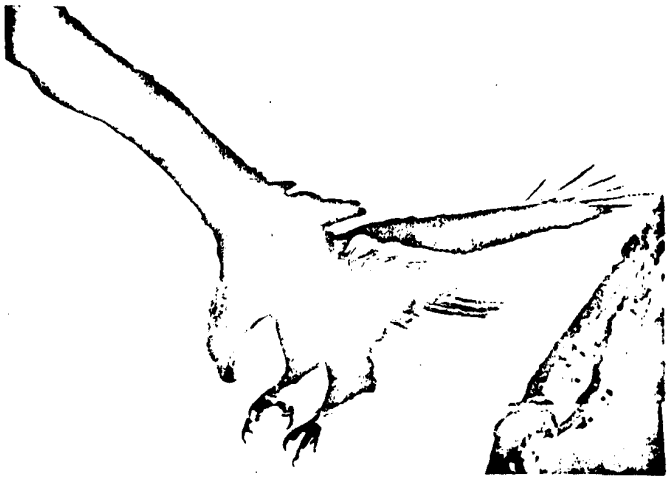
MONS 031714



*The bald eagle (above) has suffered a catastrophic decline over the past 20 years because of a host of environmental menaces, among them the pesticides DDT and dieldrin that have poisoned its food. Other birds, like the insect-eating ibis, are more recent victims. This young ibis chick (right), its system weakened by insecticides, will probably not survive.*



# After all the clamor, no one yet knows the truth about DDT

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for good beyond compare; it has transformed world agriculture, and as a destroyer of vectors of deadly disease it has saved literally millions of lives. But since the publication of Rachel Carson's *Silent Spring* in 1962, DDT has been under continuous attack, accused as a pollutant without peer. It has been reviled not only as destructive to bird life but as an agent that can cause cancer and genetic mutations in man, that dangerously contaminates mother's milk, and that can destroy the oxygen-producing plankton of the oceans.

It presents the classic environmental problem. How do you weigh the good it does against the evil? How do you measure the worth of a bale of cotton against the worth of an eagle? How do you evaluate a life saved today against one perhaps destroyed in some future generation? Or measure a disease eliminated against one ultimately caused?

And DDT also raises the agonizing question we face in our environmental decisions—the problem of determining "the truth." Trying to learn about the chemical, one slogs into a swamp of claims and counterclaims, information and misinformation, where facts are a dime a dozen, and the price of a paperback will buy all you need to prove any point you want to make. There have been some 50,000 publications on DDT. A recent government investigating commission had to review some 5,000 separate documents, and state hearings in Wisconsin resulted in 4,500 pages of testimony, most of it contradictory. One expects the scientists to provide the truth, scientists being dispassionate men who can eliminate prejudice and emotion and tell us what is really going on here. But one learns that at the sticking point, science breaks down, and the scientists are sometimes wrong, frequently biased, and usually incapable of agreeing among themselves. Both the pro- and anti-DDT factions have corps of scientists who function as the heavy artillery in each engagement. Ponderous with academic honors, the scientists rattle their advanced degrees and fire mighty rhetorical broadsides at each other. They are expert in the techniques of persuasion and are just as capable as the rest of us of lording arguments, waving red herrings and ignoring conflicting data. They even call each other names—not long ago a prominent ornithologist called an equally prominent biologist who defended DDT a "scientific prostitute," while in a Washington state hearing last year a Ph.D. in entomology declared that Rachel Carson's *Silent Spring* was a "criminal conspiracy against the people."

There is virtually no statement for or against DDT that cannot be challenged on the facts, no assumption that is unassailable. There are data to prove that DDT causes cancer, and that in one of its forms it can inhibit adrenal cancer; that it lasts for years in the environment, and that under most circumstances it breaks down rather quickly; that it is magnified in the food chain, and that it isn't. Today, as one vocal faction calls for the banning of DDT because of its potential threat to human health, another faction points with alarm to the increasing U.S. rate of encephalitis and a new danger from malaria—both of which have been traditionally controlled by DDT.

A sharp argument rages over whether or not the chemical can be replaced by other control methods. The fact is, it cer-

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MONS 031715

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tainly can be, as can all persistent pesticides. For certain crops scientists have already developed systems of integrated control involving natural predators, [illegible] and minimal amounts of chemicals. But while integrated control is undoubtedly the best answer, it must be worked out on a crop-by-crop, region-by-region basis—and neither the federal government nor anyone else has been willing to support the massive research programs necessary. Until such a program is achieved, replacement chemicals for DDT can be (though not invariably) more costly or more dangerous to use.

Many of the charges leveled against DDT, while plausible, seem speculative and hypothetical. But the case against it as a killer of birds is a strong one. Now: DDT is not, under most circumstances, an acutely toxic substance; it does not, when used responsibly, knock birds dead out of the sky, nor does it affect all birds. It strikes at carnivores, who accumulate DDT from the myriad small creatures that they eat, who in turn have picked it up from the myriad smaller creatures that *they* eat. Because of its persistence, it accumulates in the body fat of birds like falcons or pelicans; and when it reaches high enough concentrations it stimulates production of enzymes which interfere with the reproductive process.

The birds lay eggs with thin shells which collapse beneath the weight of the brooding female. Other eggs simply fail to hatch—Bermuda petrel chicks, for example, have been expiring from the effort of trying to break out of the shell. If the hatching takes place successfully, some of the fledglings are so weak that they die from the normal stresses of the nesting environment. And sometimes the adults themselves begin to act downright deranged, eating their own eggs and young. When such a phenomenon strikes a nesting colony, the results can be swift and disastrous—the white-faced ibis population of northern Utah, for example, has dropped 90% in two years.

The destructive effects of DDT on bird reproduction have been extensively documented in the field, and in controlled studies by the U.S. Bureau of Sports Fisheries and Wildlife. Even so, the evidence is not universally accepted, at least not by chemical manufacturers and their allies, who seize on those studies that show anomalies and qualifications and contradictions. As one biologist put it, "The only proof that will convince these people is a proof that a bird has become extinct because of pesticides. So we'll have to wait for the birds to become extinct before we can prove anything. And it's pretty hard to gather evidence on something extinct."

One has to admit that DDT is not solely responsible for the bird declines; the peregrine, never common, has suffered from encroachment on its habitat, and from egg collectors and falconers, and so even its greatest admirers—me included—have to share in the guilt.

It has also grown difficult to define precisely what poisons are doing what to whom in a world as profusely poisoned as our own. In 1929, we started manufacturing chemicals called polychlorinated biphenyls (PCBs) which came to be used in a wide variety of industrial processes. It was not until 37 years later, in 1966, that scientists discovered that PCBs—of uncertain but worrisome toxicity—had become as widespread in the environment as DDT, and indeed had often been misidentified as DDT in environmental analyses. PCBs, like DDT, are everywhere, in you and in me, with what effects no one knows. "When we analyze a dead eagle," one biologist explained, "we find not only DDT, but dieldrin, mercury, lead, PCB and God knows what all else. His body is full of chemical soup."

**If the eggs do hatch, the chicks are so weak that they soon die**

The U.S. Department of Agriculture—until recently the agen-

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MONS 031716

How to cook for a man

A ruffly blouse and a powdered nose won't quite do it. A man likes to [illegible]

French

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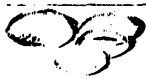

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*Their shells thin and easily crushed because of pesticides in the bird's food chain, these ibis eggs never hatched.*

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cy with the power to ban, or not ban, DDT and other persistent pesticides—while attempting to shift some of the blame for bird declines to polychlorinated biphenyls, admits that DDT shares responsibility. But Agriculture defends the continued use of DDT on the grounds that it is only sensible "when the adverse effects of DDT on limited species of fish and wildlife are juxtaposed to the enormous benefits mankind has derived from the use of DDT."

A not unreasonable position. Man, as it were, cannot live by bird alone. As long as people are hungry and pesticides help to feed them, why all this fuss over a peregrine falcon, a bird *most* people have never seen, and wouldn't recognize if they did?

Why, indeed? Birds are instinct-driven, bereft of individual personality, mote-brained. A seagull is so lacking in common sense it will attempt to hatch a wood block, and young ducks, upon hatching, think anything that quacks is mother. Birds are just one step up the evolutionary ladder from snakes, and many of them have been christened with names embarrassing to utter. How painful to answer a friend who asks what you have seen lately, if what you have seen is a short-billed dowitcher, a pied-billed grebe or a tufted titmouse.

And yet . . . when I was a boy growing up in northern Ohio I was mad for hawks. A friend and I absorbed the literature of falconry, spoke knowingly of eyases and birds of passage, and in those harsh Lake Erie autumns and winters when one might just hope to catch a glimpse of a great peregrine driven down from the north, we tramped the frozen escarpment until our feet were blue and our noses running, set live traps on wind-swept fields, and hoped. We never captured a peregrine, and though our eyes swung magnetically to any swift shape in the skies we never even saw one. I had to make do with the sparrow hawk, and it was 15 years later before I saw a peregrine.

It was in Alaska. A huge shape moved in the sky out over the tundra, a smaller shape curvetting about it. The large bird dropped lower, nearer, and we could see that it was a golden eagle. The smaller was a peregrine, and he was attacking. He went up high, high on those sharp strong wings, rolled, and power-dived. When he struck the eagle he sent it tumbling, feathers flying. The eagle, terrorized, dropped to a small ledge on a cliff face and hunched down. The hawk, a gunmetal-blue adult, dived on him again and again, not hitting him now but rocketing past inches away, curving up again, powering up five hundred feet, diving, a loosed arrow of a bird. He had the eagle hopelessly outclassed. He was having sport. He was a bully. He was magnificent.

I don't know how you measure that against some poor farmer's cotton crop.

All I really have to balance against the economic and even humane necessities of the poisons we put into the world is a recollection of beauty, an intensity of remembered experience.

In the dead of winter, far out over the tidal rips, the flicker of delicate wings, gray and white as the gray and white of wind-whipped water, the Bonaparte's gulls. Frozen dusk at the salt

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MONS 031717

# The poisons lie like bombs in the innards

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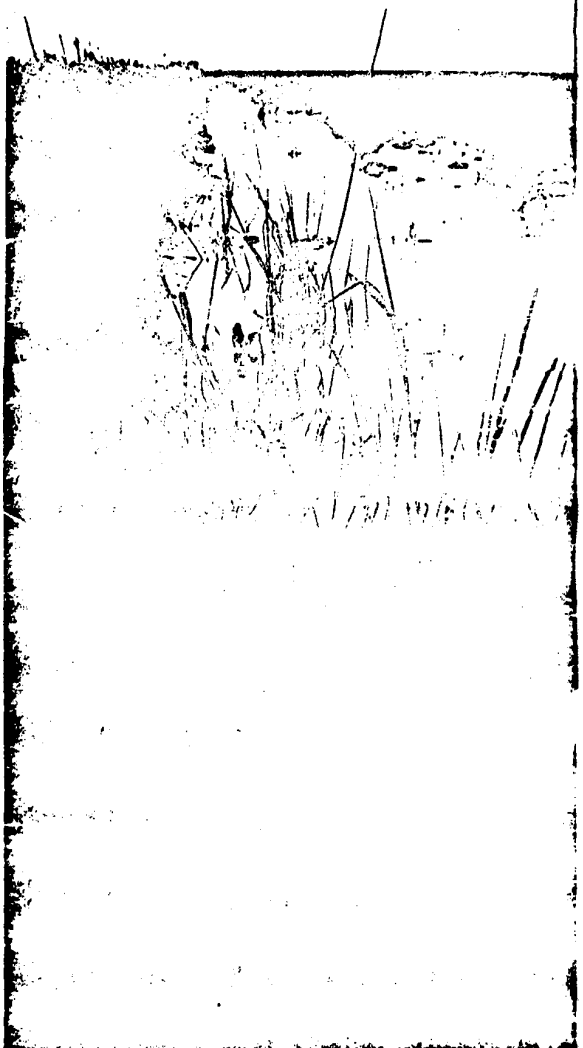
rsh, the snow has begun, hard and stinging, coming flat on wind over the ice and the yellowed spartina, scouring the win- bare uplands, and out of the snow, riding the wind, comes swirl of brown and white, circling down and around and up down, then to the ground. The snow buntings have arrived winter in the warmth of this frozen estuary, and in among n, feeding peaceably over the wind-picked earth, a few of e small wanderers whose name conjures visions of the Arc- nd the Big Cold: the Lapland longspurs. Or: in the hot on of the Gulf, the bay still as oil, high up toward the sun a at shape glides slowly, the frigate bird, the airborne pirate of tropical coasts strayed far from home, a seven-foot span of gs slender and sharp as scimitars, a long fierce beak, pre- ic-looking as some flying reptile.

w the Texas Gulf, watching the ibis die, I recalled the first I had ever seen one. It was a hot day in early spring. Wea- rom tramping we sprawled on the grass in the hot sun and nk cold wine from a Thermos until we were pleasantly woozy sleepy, lay there and looked up at the blue sky, when these extraordinary shapes came over us, high up. Black against sky, legs and long curved bills stretched out fore and aft, kswept wings alternately flapping and gliding, they arrowed y over the estuary, out toward the open ocean, and I watched m till they disappeared in the distance, and wondered where y were going.

What is left at the end is frustration, a feeling of helplessness. birds are disappearing, that much is clear, but nothing else clear. I cannot interpret the scientific data and I no longer e faith in the ability of the scientists to interpret the data. I n't want to be responsible for some tenant farmer being poor- than he is already, or for anyone dying of encephalitis, but I told by one faction that banning persistent pesticides will g about both, and by another faction that it need bring ut neither. It seems to me our technology has moved into a here where we don't *know* what we're doing. If DDT is banned severely curtailed in the United States the problem will not away. DDT will still be used in vast amounts in Mexico, ere many of our birds winter. Other persistent pesticides will ntinue in use, industrial chemicals like mercury and PCBs l continue in use and before long we will discover that some- g now unknown and lethal is already everywhere in the en- ment. Ultimately the sheer momentum of our society re- res its blood sacrifices, its pound of flesh, and I, the bene- ary of that society, am the loser by it.

The fulvous tree ducks are disappearing from the Gulf states ldrin-treated rice seed seems to be the cause. People are ried about the yellow-billed tropic bird and our black duck ulation is very seriously dropping and the cormorants on An- pa Island are having reproductive failure. Not long ago some- climbed to an eagle's nest and found an egg with no shell at just a naked blob enclosed within a membrane. Where those s were going, in the end, is where the peregrines have gone, the poisons lie like bombs in their innards, and I can say noth- but farewell, ibis, pelican and eagle, so long to the black k and petrel, good luck to the pied-billed grebe.•Blackbird, ive. ■



*This tree duck died from a pesticide called aldrin used in a Texas rice paddy.*



MONS 031718