
MADISON

With a Cast of Thousands

Before the show at Madison, Wisconsin was over, 32 persons ranging in occupation from politician, lawyer, and arborist to bureaucrat, medical doctor, and businessman had appeared to testify about DDT. Their knowledge—or lack of it—makes up the hearing transcript, a document that records some 2,500 pages of direct and cross-examination with a few thousand more pages of scientific, unscientific, and pictorial exhibits thrown in for good measure. Culling through that mass of transcript for the following chapters necessitated drastic cuts and deletions and the total omission of the testimony of half of the witnesses. These deletions and omissions reflect no objective value judgments on the quality of a man's work but instead reflect the general theme of this book: that events such as occurred in Madison must be seen in the larger context of the social and scientific climate in which they took place.

For instance, Dr. Robert Rudd wrote what perhaps is the best book ever on the effects of agricultural chemicals, *Pesticides and the Living Landscape*. Although stylistically the book is not as good as Rachel Carson's best-selling *Silent Spring*, many scientists consider Rudd's book to be a better chronicle of the ecological damage caused by pesticides. But Rudd's testimony is ignored, while the testimony of younger scientists like Charles Wurster and Robert Risebrough is detailed. The reason for this is simple. The Wursters have built on the foundation set up by the Rudds. They have fashioned from earlier work, the current attack against DDT.

But, in the tradition of the drama, it will perhaps aid the reader if the chapters which are directly taken from the transcript of the Madison hearings are preceded by a list of all who testified and by a brief synopsis of the main points of their testimony.

Patrick Buckley, a Wisconsin commercial arborist, testified that the arborists need DDT for Dutch elm disease control. However, research should be sponsored to find a substitute for the pesticide. Buckley seemed to feel in advance that DDT would be banned for Dutch elm disease control (which it was during the hearing) and that the arborists were unjustly being made into scapegoats when they used only half of the state's DDT.

Donald Chant, a biological control man from the University of Toronto, talked about the economic threshold as a concept in pest control.

R. Keith Chapman, a University of Wisconsin entomologist, showed slides which purported to prove that DDT gave miraculous results in controlling insects and improving the quality of produce. He opposed a ban on DDT.

Frank Chermis, a professor of poultry science at the University of Wisconsin, tried to cast doubt on the petitioner's thesis that chlorinated hydrocarbons were causing birds to produce thin eggshells by claiming that diseases and even sonic booms could "scare the shell out of birds."

Francis B. Coon was Director of the Wisconsin Alumni Research Foundation (WARF) Laboratories Pesticide Analysis Section. Coon testified that PCBs, plasticizing compounds, and DDT were confused sometimes during WARF laboratory analyses. It was a major surprise to many that Coon would be called in to testify for the DDT industry.

Paul De Bach, a biological control expert from the University of California, showed that DDT could make agricultural pest problems worse.

Isadore A. Fine, a University of Wisconsin economist, spoke about the economic importance of the tourist trade to Wisconsin. He stressed that outdoor recreation was vital to the state, putting some \$600 million a year into Wisconsin's coffers. He did not mention DDT.

E. H. Fisher, the epitome of the squirt-gun entomologist, was Coordinator of Pesticide Use Education at the University of Wisconsin. Known to be one of the University's biggest backers of DDT, he was a violent critic of the pesticide's critics.

Theodore Goodfriend, a professor of medicine and researcher at the University of Wisconsin College of Medicine, was the only medical doctor called to testify for the petitioners.

William Gusey, a wildlife specialist presently with the Shell Chemical Company, talked about how, when he was employed by the federal government, there was much monitoring of pesticides and an awareness of what the effects of DDT were.

Wayland J. Hayes, the DDT industry's resident toxicologist, testified, as usual, to the non-toxicity of DDT. While working for the Public Health Service, Hayes had conducted experiments with humans on the toxicity or lack of toxicity of DDT and had defended the pesticide for years.

Harry W. Hays, head of the Pesticide Registration Division of the Department of Agriculture, told the story of how pesticides are and are not registered.

Joseph Hickey, a University of Wisconsin wildlife ecologist, described his worldwide investigation of the thin eggshell phenomenon and the population crash of the peregrine falcon.

Hugh Iltis, a botanist at the University of Wisconsin, told about the various botanical ecosystems of Wisconsin and how they were all interrelated.

S. Goran Lofroth, the Swedish scientist, came to talk about the world-wide contamination of mothers' milk with DDT residues.

Orie Loucks, a professor of botany at the University of Wisconsin, held a peculiar position at the hearings. He appeared early in the proceedings to define ecology and talk about the water and weather patterns as influences on the Wisconsin ecosystem, then appeared once more on the last day of the hearings to present a grandiose systems analysis model explaining the total impact of DDT on the Wisconsin regional aquatic ecosystem. Loucks' systems testimony was the first use of systems analysis in the courtroom, and according to one person who attended the hearing, "I hope it is the last."

Kenneth J. Macek, a Department of the Interior fisheries biologist, had done research which connected the reproductive failure of trout with environmental levels of DDT.

Louis A. McLean, attorney for the DDT industry during the first half of the Madison hearings, was called to the stand by the petitioners' lawyer Yannacone to establish for the record his long-standing position as intellectual hatchet man for the pesticide industry and to enter into that record his article about the sexual hangups of pesticide critics.

Lewis Mitness, a Wisconsin rural State Assemblyman, was a firm critic of DDT. He countered Patrick Buckley's testimony by saying that DDT was ineffective in Dutch elm disease control, a contention backed with figures comparing Wisconsin cities which had stopped and which had continued using the chemical.

Senator Gaylord Nelson, a staunch environmentalist and Senator from Wisconsin, was an almost obligatory first witness because of his long-time, well-publicized opposition to DDT. At Madison, he gave

an impassioned speech against that pesticide, including within it a synopsis of some of the current scientific data on the subject.

Bailey Pepper, an entomologist from Rutgers University, tried to cast doubts on the feasibility of alternatives to pesticides in the control of insect pests. He cited efforts now in progress to perfect nonchemical alternatives but said that they were not completely successful at the present time. He was against the proposed DDT ban.

Taft A. Pierce, an official of an exterminating company with some 40 offices and 500 employees throughout the Midwest, testified that his agency used DDT primarily to control mice and bats.

Paul E. Porter, a chemist from the Shell Development Company, one of the larger manufacturers of pesticides other than DDT, described how DDT breaks down in the environment.

Robert Risebrough, a Berkeley molecular biologist, ornithologist, and marine ecologist, furnished key evidence about the effects of DDT and its metabolites on birds, especially on their reproduction. A world expert in gas chromatography, he could analytically distinguish between PCBs and DDT.

Samuel Rotrosen, President of Montrose Chemical Company, a large manufacturer of the pesticide DDT, talked about the exports of DDT to underdeveloped countries and how the amounts of DDT being manufactured for use in this country had declined over the last ten years.

Robert L. Rudd, a University of California zoologist specializing in animal populations, testified to the ways DDT can limit the population of a species and how this limitation affects the ecosystems involved.

Alan Steinbach, a neurophysiologist at the Albert Einstein College of Medicine, gave the history of neurophysiology and, with that background established, showed how DDT affects the nervous system at the molecular, biochemical, and physiological levels.

Lucille F. Stickel, Director of the Pesticide Research Section at the Department of the Interior Fish and Wildlife Laboratories, Patuxent, Maryland, had definitely proven the theory that DDT and its metabolites can cause certain birds to lay thinner-shelled eggs.

Robert van den Bosch, the delightful biological control specialist from the University of California at Berkeley, chronicled the history of DDT use and abuse in commercial agriculture and told of effective alternative methods of pest control.

George Wallace, the Michigan State ornithologist and principal critic of DDT during the 1950's, was called as a footnote to history and furnished the field evidence of nervous system damage to birds from DDT.

Richard W. Welch, a pharmacologist from the Burroughs Welcome Laboratories, had been involved in significant research concerning DDT and enzyme induction in rats.

Charles F. Wurster, Jr., the self-styled molecular ecologist from the State University of New York at Stony Brook, in essence outlined the case presented by the petitioners.

So, that is the cast of characters; the following chapters, in relatively brief form, make up the plot.



I

Why Madison?

From an historical perspective why should Madison, Wisconsin in 1968-1969 have been the setting for the first major environmental legal confrontation? What scientific, social, political, and legal factors converged in that university city of 130,000 to produce a dramatic five-month struggle over the most widely used of all pesticides, DDT? Why did the petitioners, the chemical industry, and the government agencies choose Madison as their battleground?

The simplest explanation is the unique Wisconsin law which set up the ground rules for the battle. But that is like saying the existence of a ring and referee are the cause of a championship fight. A massive conflict over DDT had been building up for years. The administrative apparatus which pitted skilled lawyers against each other in a quasi-judicial setting was just one aspect of what happened in Madison. As significant as the legal maneuverings attempting to prove the guilt or innocence of the defendant, DDT, was the context of the battle.

In many ways the hearings mirrored in microcosm the intense social turmoil going on in this country today. At Madison the conflict between those longing to retain the status quo and those demanding change and responsiveness came bursting to the surface, revealing in the process the tactics of change as well as the need for it.

The law which overtly gave rise to the hearings and acted as an umbrella for the convoluted proceedings which followed, was deceptively simple. In Wisconsin, a state agency which enforces a law must hold public hearings if it is petitioned for a ruling as to the applicability of that law to a given existing situation. Under this statute, the Department of Natural Resources was petitioned by the Wisconsin Izaak Walton League and the Citizens Natural Resources Association of Wisconsin to judge whether DDT was a pollutant under Wisconsin Statute 144.01 which defines pollution to include "contaminating or rendering unclean or impure the waters of the state, or making the same injurious to public health, harmful for commercial or recreational use, or deleterious to fish, bird, animal or plant life."

But the hearings went far beyond the waters of Wisconsin and the Wisconsin regional ecosystem to critically and completely examine

what DDT was doing to the earth's biosphere. Maurice Van Susteren, Senior Hearing Examiner for the Department of Natural Resources, realized the significance of the proceedings which he oversaw; he realized that they were not a run-of-the-mill examination of a simple problem and allowed them to become a forum to consider almost every aspect of the pesticide question in great detail. Thus, the enormous amount of information contained in the hearing record undoubtedly will be of great value to ecologists for years to come.

The anti-DDT coalition which formed to support the Citizens Natural Resources Association in its Madison efforts was a mixed bag, for the most part made up of people who had been fighting against the pesticide in their own ways for a number of years. They had followed excitedly legal efforts to get a complete hearing on DDT in Suffolk County, Long Island and in Michigan, efforts which, although legally inconclusive, resulted in curbing DDT use. So, when the coalition discovered the Wisconsin law, and felt they had a natural stage for the big battle, the two men essential to both the Long Island and the Michigan actions, Victor Yannacone, Jr., the Patchogue attorney who first legally challenged the use of DDT and Charles F. Wurster, an assistant professor of biological sciences at the State University of New York at Stony Brook, were invited in to guide their efforts. With the legal machinery already existing, the entire grim picture of the effects of DDT could be presented without worrying about the traditional bugaboos, jurisdiction and standing, that had restricted legal action in the past. A \$10,000 fund-raising drive for the fight began around the state, the scientific data began to be collected and organized in mammoth quantities, and excitement began mounting among those who had been itching to get the DDT industry up against the wall.

Wisconsin, despite that notable exception of the fifties Senator Joe McCarthy, has long been one of the more progressive states in the Union, and leading the state intellectually has been Madison. Since the days of Fighting Bob La Follette's populist political ideas in the 1890's, Wisconsin has harbored many socially involved people including its two current senators, William Proxmire and Gaylord Nelson. As well, the University of Wisconsin is one of the best state universities in the country, and though an irritant to many conservative upstaters, has been a spotlight to many socially aware students, a group more and more prevalent these days. Both the progressive political and progressive educational establishments of Wisconsin came together to help the hearing: the University supplied witnesses, researchers, and helpers for the petitioners; and Senator Nelson supplied his national prestige to the proceedings as the leadoff witness.

Senator Nelson had been concerned about the state of the environment for a long time, even before ecology became a socially chic issue. He had tried vainly in three sessions of the Senate to pass a bill which would have banned the interstate sale of DDT and had

long advocated a rational program for the general control of pesticides, but he hadn't gotten very far in his efforts, even in Wisconsin. Pesticides are intrinsically political in production and application. The Republican governor of the state, Warren Knowles, depended on agricultural support for political power. And whether the urban types who make up the general constituency of conservation organizations accept it or not, rural people do not like city folk butting in, telling them how to run their farming business. To many farmers, attempts to dictate what pesticides they may use on their crops are rank interference by dilettantes—and this is a factor not generally taken into consideration by the ecological establishment when it discusses agriculturally caused pollution. This issue of the needs and wishes of rural vs. urban dwellers was a factor within the hearings. The practical business of controlling agricultural pests was pitted many times against the more abstract issue of bird reproduction and fish hatching success. With this factor considered, it is no wonder that Governor Knowles did not back attempts to ban DDT.

Pesticides have been a major source of controversy since the publication of Rachel Carson's *Silent Spring* in 1962. Though her best-selling book chronicling the damages that pesticides were inflicting on the

The specific question before us is whether the overall benefits of DDT are offset by the damage it does. . . . This is a matter that must be measured in the long range, not the short. I think the evidence is clear that the damage is far bigger than the benefits.
Gaylord Nelson



environment spawned a national furor, congressional investigations, and a multitude of committees, the net result of the outcry was nothing as far as the tightening of pesticide control went.

There were many reasons why the pesticide problem did not begin to get solved at that time. One was the basic reluctance of scientists in the early 1960's to make statements in public for which they could be held professionally accountable. Scientists with anything resembling a social or political conscience were a rarity when *Silent Spring* appeared, and those who did speak out were considered to be some sort of freaks.

One rare outspoken scientist, George Wallace of Michigan State University, almost lost his job when he stated in front of a congressional investigating committee in the late 1950's that DDT was responsible for the widespread robin killoffs on the East Lansing campus. The DDT industry was too powerful a political force to tolerate much criticism from state employees and was capable of inflicting economic damage to its critics. But Wallace, who reappeared at Madison, was simply ahead of his time, and was fully vindicated, like Rachel Carson herself, when the scientific herd caught up with him.

Many scientists who loudly applauded the efforts of the petitioners in Madison had, five years before, been extremely leery of Miss Carson's work. In fact, some establishment-type specialists who became "radical" enough to attack DDT in 1969, had been among the more vociferous critics of *Silent Spring*, claiming that Miss Carson's data was "insufficient." Granted, much of *Silent Spring*, though amazingly prophetic, was not filled with enough "hard facts" and statistics to satisfy scientists who would not testify to their name in court without birth certificate in hand. But data firmly establishing the damage from DDT was amassed during the six years between *Silent Spring* and the Madison hearings.

The evidence which was accumulated by scientists around the world covered every property of DDT from its modes of travel in the biosphere; the subtle ways it affected the eggs of birds; the damage it could cause to fish reproduction; and the way the persistent pesticide affected nerve cells; to its potential for human damage. So much scientific information was assembled that all but the most intellectually insulated squirt gun *entomologists** and chemical industry flack scientists were admitting that the pesticide was causing tremendous damage, if not actually threatening a worldwide catastrophe of a major proportion.

The times and social mood of the country had also changed a great deal during the six-year period between *Silent Spring* and the Madison hearings. Movements for social change, such as civil rights and the

*Definitions of all subsequent italicized terms will appear in the glossary.

vicious internal debate raging over Vietnam, were producing a generation of activist types not satisfied with committees and hearings ending with mere dead-ended reports. They wanted action, and to some the legal approach finally became appealing.

Many academic types were being forced to admit that there was a connection between what went on in the universities and laboratories and what was going on in the world. Hordes of stirred-up students picketing, striking, and taking over buildings had caused the specialists to examine their own positions in the world and had forced them to try to ascertain whether they were part of the problems of the country, at least in their own academic areas, or part of their solutions. This was met by some with great personal regret. Nonetheless, by 1968, it was no longer a blatant sin for academia to become involved with the social issues of the day and, in fact, in many scientific circles the opposite was true. Professors, especially younger ones at some schools, felt obligated to get involved, at least in a cursory way, with what was happening to and in society.

A goodly number of scientific types had been traditionally involved with conservation causes, but the Madison hearings were far more than traditional conservation activities. The difference between old-line conservationists and the coalition which formed against DDT in Wisconsin was extremely significant; the coalition aligned groups which, in the past, had stood miles apart socially and politically.

For the most part conservation as a social force, since its inception in the latter part of the nineteenth century under such American aristocrats as Gifford Pinchot and Theodore Roosevelt, has been an upper- and upper-middle-class phenomenon. These conservationists were interested in saving selected species of animals and selected geographic locales for their own pleasures. They believed they could save choice sections of the biological world solely by their socio-economic positions. The word lobbying was too dirty to be used.

But history proved them wrong. The gentlemanly tradition of conservation bombed out in the face of increasing pressure and increasing pollution from an increasingly technological society. These gentlemen had pursued—and to a large extent still pursue—behind-the-scenes influence strong enough to mobilize sufficient public opinion to accomplish their goals. Yet, since many of the more prominent conservation groups had directorates intimately tied to corporate sources of economic power, such groups could never amount to much of a dynamic force.

The government benignly and wisely granted conservation groups tax-exempt status, but this was like a chastity belt designed to insure political virginity. If the groups got too active in pursuing conservation evildoers, their tax exemption could be lost, because the government that giveth could taketh away.

The first major change, and one that was to affect indirectly conservation's involvement in Madison, occurred in 1966 when the super-

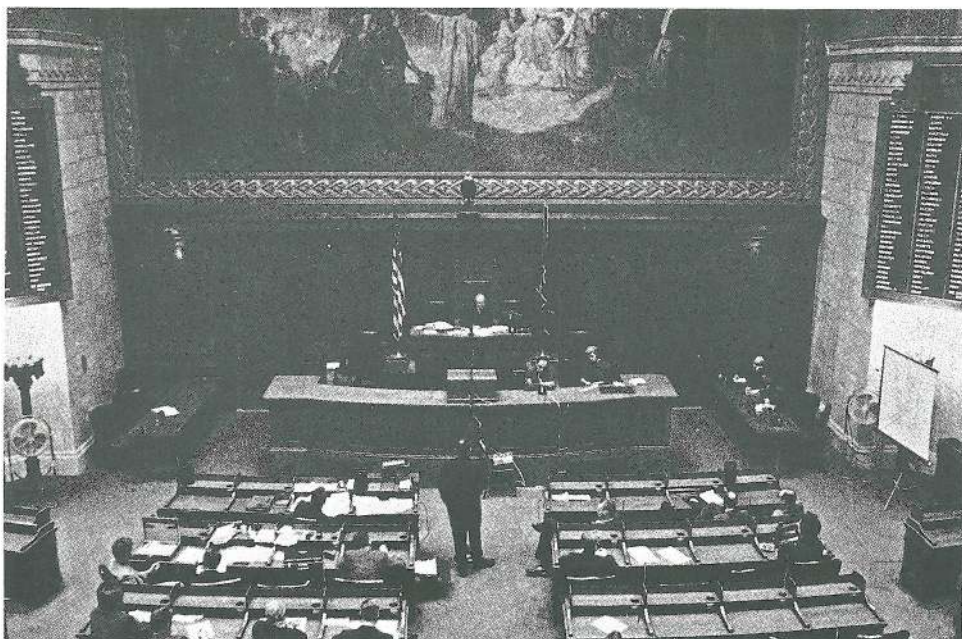
prestigious Sierra Club became embattled with the federal government over a proposed dam which would have flooded part of the Grand Canyon. This dam was backed by Arizona Congressman Morris Udall, whose brother was then, coincidentally, Secretary of the Interior Stewart Udall, a man who had a general and sometimes undeserved public reputation as a conservationist. This battle marked the embryonic beginnings of a change for conservation groups from elitist organizations to something resembling progressive social groups.

The Sierra Club, with a base in San Francisco and a membership of 35,000, began taking out full-page ads in major newspapers to oppose the dam. The Internal Revenue Service, undoubtedly under the prodding of congressmen favoring the boondoggle, threatened to remove the Sierra Club's tax-exempt status on the grounds that the organization was lobbying—a forbidden political activity. Although this threat was serious to a group depending on tax-exempt contributions for its existence, the club took out another full-page ad in the *New York Times*. In essence, the ad said that, even though the Sierra Club would lose its tax-exempt status for continuing to fight the dam, if it refused to accept its moral responsibility it would have no reason to exist.

The club has now been fighting to get back its tax status for a number of years. However, the group's membership has risen to over 60,000 nationally and the organization has become a symbol across the country of aggressive and successful conservation political action. It is hard to argue with success, and the national press coverage the Sierra Club received during its battle with the government, paling that received by even the most sincere anti-litter campaigns, made other conservation groups rather green with envy.

It was easy to see that the times they were a-changing. Aggression was becoming the key word for groups and individuals seeking social change, and revolution was becoming a fashionable cocktail party word. By the late 1960's the whole machinery of government and industry had become fair game for the public; attacks were being mounted from both the political left and right, and grave doubts were being expressed in many quarters about the very functionability of the society. Military spending, the decay of the cities, widespread destruction of the environment, and other basic issues of national survival were making for a very restive public not afraid to question the assumptions of its national institutions.

Perhaps because of this climate, other environmental action groups were being quickly formed. Concurrent with the Sierra Club's growing militancy was the growing activity and prominence of the Long Island based Environmental Defense Fund. Here was a group which caught the ecologically involved public's eye. It didn't mince words. "Sue the bastards," became a flashy phrase to a great many people, and the group began riding a wave of popularity. Here was a group that, at least ostensibly, seemed to get things done in an exciting way.



If Mankind should survive his own poisons—nuclear, chemical, and social—it may be recorded that the light generated in Madison in December of 1968 is responsible.

The Capital Times, December 2, 1968

However, there still was a basic schism between the Sierra Club type groups and the Environmental Defense Fund which could be characterized by one word, "people." The Sierra Club basically concerned itself with conserving and protecting nature for aesthetic reasons, while the Defense Fund used an ecological approach to emphasize the human need for a healthy environment. People were relatively useless to the Sierra Club and other conservation groups except when giving perspective to the height of a stand of redwood trees. The title of one of the club's beautiful pictorial books might be used to symbolize the conservationist approach to the environment, *In Wildness Is the Preservation of the World*. A comparison with "Sue the bastards," and its economic and political implications, makes the difference obvious. However, there were many individuals involved with EDF's law suits who were old guard conservation types, a factor which was to be important in the eventual break-up of the group.*

EDF's approach, under the tutelage of its lawyer Victor Yannacone, was unique. The attorney, who had worked for the NAACP, labor

*See Appendix, pages 213–215.

unions, and others seeking legal redress and social justice on a broad scale, evolved the concept of a fundamental *constitutional* right to a healthy environment, a right rooted in the Ninth Amendment to the Constitution. People were the prime ingredient to Yannacone, not by any stretch of the imagination a conservationist, and the damage being done by the polluters was basically important to him in relationship to the human community. Before Yannacone entered the legal environmental scene, law suits brought by conservation groups sought to recover either personal damages or else sought the relief of real or threatened environmental damage affecting an individual or small group of individuals.

But Yannacone brought the class action to environmental litigation and sued in behalf of all the people being damaged or threatened by environmental despoliation regardless of their financial interest. This idea of his was almost pure Jeffersonian democracy applied to legal environmental practice. People, regardless of their individual station in life, had certain inalienable rights—including the right to a decent environment. Yannacone felt that the Constitution offered ample protection to the people in this area, but only if its tenets could be brought from the realm of theory into the world of practical legal combat. This unique democratic approach to environmental law is Yannacone's contribution to ecology and to law.

Included in all of Yannacone's class action law suits is a phrase which reads (in the case of the Madison action), "This suit is brought individually and on behalf of all those entitled to full benefit, use, and enjoyment of the national natural resource treasure that is the Wisconsin Regional Ecosystem without degradation or diminution in value resulting from the use of the broad spectrum, persistent, chemical biocide DDT, and all those similarly situated, not only of this generation, but of those generations yet unborn."

There are many ways of saying, "All power to the people," and Yannacone developed a legal counterpart to the revolutionary cry to arms favored by the new left.

Under this battle cry, Yannacone brought together to aid in the Citizens Natural Resources Association's unholy crusade against DDT at Madison, if only tentatively and tenuously, sportsmen, bird watchers, and those concerned about the effect that a tainted environment has on the quality of human life. The petitioners in the Madison case made up an awkward—at times, unwieldy—coalition whose members ranged from the new left to the old right with every gradient between. Although ultra-affluent found common cause with poverty stricken students, the internecine political and social struggles which developed in the coalition during the hearings made it sometimes difficult to realize that the common foe was DDT. The amazing thing, according to some who watched the infighting between coalition members, was that the ad hoc group managed to stay together at all during the five-month fray. The bitter back-room maneuverings over tactics,



finances, and demeanor which developed and deepened as the hearings became more involved threatened many times to end the proceedings. Witnesses, each a high-ranking specialist in his own field, often acted as superstars and demanded the kid glove treatment. The lofty attitude of such scientists as Charlie Wurster, Hugh Iltis, and others was such that clashes erupted at times over the most minor points. Then, too, the coalition hierarchy became more and more firmly defined and cliquish as the hearings dragged on and on. And Yannacone, despite efforts of some EDF trustees to curb him, remained indubitably the ringmaster, alternating between soothing and aggravating the frayed tempers and temperaments of the coalition as it dug in for the long bitter fight, which had its roots some 1,000 miles away in Suffolk County, Long Island, where Carol Yannacone, a group of scientists and their "country lawyer" had gathered two years before to stop the spraying of DDT for mosquito control.