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- Cover:** Rhododendrons in bloom along the Blue Ridge Parkway in North Carolina, host state for SCSA's 41st annual meeting, August 3-6, in Winston-Salem. Photo courtesy of North Carolina Travel and Tourism Division.

The Soil Conservation Society of America is dedicated to promoting the science and art of good land use, with emphasis on conservation of soil, water, air, and related natural resources, including all forms of beneficial plant and animal life. To this end, SCSA seeks through the *Journal of Soil and Water Conservation* and other programs to educate people so that mankind can use and enjoy natural resources forever.

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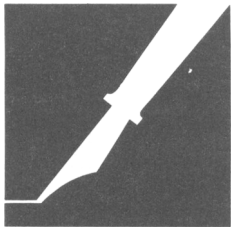
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PEN POINTS

Making progress!

I have been a member of SCSA for over 10 years. After reading the first several *JSWCs* when I became a new member, I would put it aside because the technical papers were seldom of much value to the work I am involved with. However, the last few issues have been most beneficial.

Since the change in format to include more features and place the research reports at the rear of the *JSWC*, the *JSWC* has become much more useful and readable for me. I commend your good work.

Daniel O. Parker
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Bennett would be miffed

For lack of local regulations, soil conservation programs fail to meet either the test of economy or permanency. Why should it be otherwise for soil conservation? All other successful resource protection programs have their principles framed in law. This is what Hugh Hammond Bennett knew and attempted.

However, SCS [Soil Conservation Service] Chief Wilson Scaling says soil conservation should succeed or fail on trust alone (*JSWC*, September-November 1985, p. 399). This approach, he says, flows directly from Bennett's philosophy of how soil conservation should work. The context for Mr. Scaling's interpretation superficially bears on keeping SCS out of a regulatory roll (a strawman issue); a later comment reveals his philosophy is one of blanket opposition to any agency having regulatory authority.

Local regulations, or even the threat of reinstating the conditions of the Standard Law of 1937, would be a powerful disincentive to play bidding games with the Conservation Reserve. These games sing the siren call of the commodity programs and illuminate the blatant sacrifice fragile lands must play in the annual price support program. The games endanger the very life of CR. Without counter persuasion of a regulatory kind a great and timely program lies helpless to predators. Apparently, unless Con-

gress objects to grand larceny, the public will need to award treble damages as the price for grass and trees on lands only suited to grass and trees. Such is the dilemma of trying to march in one shoe.

So what does the nation's top soil conservation administrator say about this dilemma: "Above all, SCS recognizes that most agriculture land in this nation belongs to individuals." (I will insert here that corporations are also "individuals" in the eyes of USDA programs). "These people have the right to manage their land in the way they know best." There it is! In Mr. Scaling's book, ignorance and greed are still legitimate excuses for ruining the land. Actually, not even a blue-blooded exploiter would flaunt such an anticonservation remark in 1985, much less in a roomful of conservationists and without fear of contradiction to boot. His remark could be shrugged off with, "Well, appointees will be appointees." Just the same, what if our young, history-free conservation professionals actually accept that Mr. Scaling's philosophy flows with fidelity from Hugh Bennett? Are we to condone this historical piracy?

Going back to those formative years, what was Bennett's philosophy toward land use regulations? First, he just may have coined the term himself; second, at the very least, he and his contemporaries took it for granted that regulations had to be. To deal in cures without dealing in lawful prevention (the Extension Service notwithstanding) was tantamount to practicing conservation without public consciousness or personal ethic. A contemporary, Colonel W. B. Greeley, said in 1938 about the distainful job of imposing regulations on private land practices: "It may be necessary as a last resort to check what may be called the irreducible minimum among private owners that need it." Another, Aldo Leopold, was to say more pointedly in 1947, "You have had the authority (District Law) for a decade and still not one rule has been adopted."

Consider the Congress' mandate to the newly formed SCS; consider Secretary Henry Wallace's notice to the governors in 1937; and consider SCS pamphlet MP29, 1947. Regulation, of course, was a controversial issue then as now but the above acts were at least acts of hope,

not subversion. Are we to believe that Bennett, the movement's founder, stood opposed to Congress, his contemporaries, and Secretary Wallace on the issue of local regulations? Now, I don't mean to infer that the postwar SCS was any longer optimistic or counting on local regulations to support soil conservation; however, while still under Hugh's leadership, the agency was not about to openly oppose local regulations as it surely has under later chiefs.

The founders of the soil conservation movement were immersed, as we are today, in a farm depression. However, they were not stalled by it. The difference today is we wait for our political party to somehow make profits better. We would just as soon not start making conservation sacrifices until profits get a lot better—like a return to 1979. When in our history have high farm profits accelerated soil conservation? It's no coincidence, nor is it ill timing, that brings CR in these hard times. These are the very times that rediscover how soil conservation should work. In that regard I would say to Mr. Scaling, "You are dead wrong about letting all individuals manage the way they know best, because their best is just too damned bad." I say that confident of more farmer support than Mr. Scaling can imagine.

Dale E. Marsh
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In defense of the USLE

Hart (*JSWC* 39: 330-334) tested the accuracy of the USLE [universal soil loss equation] for predicting soil loss on bare and tilled, bare and untilled, and vegetated sagebrush plots in Utah. Testing was conducted using a rainfall simulator. The major conclusions of these experiments were:

1. The USLE greatly overestimated measured soil loss, particularly on dry soils.

2. This overestimation, especially on steep slopes, was due partly to the USLE's slope value.

As noted in the article, the unvegetated plots were characterized by "bare surface conditions." Therefore, the cover-management factor (C) was assigned extremely high values (.65-.70)

using the methods of Wischmeier and Smith (Agr. Handbk. No. 537) and smaller values of .35-.45 by a second method, following Dissmeyer and Foster (JWSC 36: 235-240).

Hart also reported the results of this experiment in 1982 (USDA, Agr. Res. Serv., ARM-W-26, pp. 101-105). In this earlier report, it was noted that on crusted plots (same as the bare and untilled plots of the 1984 report) "surface rock cover, about 1-inch diameter or less, occupies 15% on gentle slope and 32% on steeper plot." Hart did not consider rock cover in his calculations of the C value in either the 1982 or 1984 report. Rock cover, however, is effective in reducing soil loss. Simanton, et al. (Soil Sci. Soc. Am., Special Publ. 13, pp. 65-72, 1984) reported that erosion rates from simulated plots containing rock fragments were found to decrease exponentially with increasing percent rock cover.

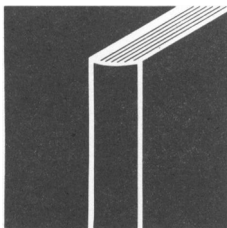
Given that rock cover is effective in reducing soil erosion, the C values used by Hart (op. cit.) should have been less than those reported. Using table 10 of Wischmeier and Smith (op. cit.), a C value of .29 is derived for the gentle slope plot and .19 for the steep slope plot. Using the new C values, predicted soil losses are 0.8 t/ha (0.1 t/ha measured), 6.7 (10.8 measured), 3.1 (11.5 measured), and 16.5 (29.1 measured). None of these estimates is a great overestimate. In fact, only one is a slight overestimate, contrary to the conclusions of Hart. Because the new soil loss predictions do not produce gross overestimates, there is no evidence to support the conclusion that the slope value results in overestimation on steep slopes. Further research may produce even more accurate values of C for differing amounts of rock cover. For example, Jennings and Jarrett (Trans. ASAE, 28: 1,466-1,470) found that rock is effective in erosion

control, but not as effective as the kinds of groundcover that absorb moisture. Therefore, the values of C noted above (.29 and .19) should probably be slightly higher, yielding even better estimates of soil erosion.

Perhaps, appropriately used, "...the USLE is a useful tool in the toolbox of analytical methods for guiding rangeland management" [Renard and Foster, Rangelands 7(3): 118-122].

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"Pen Points" is a forum for comment on published material or land and water management issues in general. Readers are invited to express their views in a letter to the editor. Letters are judged on clarity and pertinence. Long letters may be shortened.—Editor



BOOKS, ETC.

Altered Harvest: Agriculture, Genetics, and the Fate of the World's Food Supply. By Jack Doyle. 502 pp., refs., app., index, 1985. Viking Press, New York, N.Y. 10010. \$25.00.

Author Jack Doyle describes *Altered Harvest* as the "story about the economic race to own the biological and genetic ingredients behind agriculture; a story about political and economic change in the making; a story about who will wield the new genetic ingredients of food power in billion-dollar world markets."

Unlike such critics as Jeremy Rifkin, who challenges the whole notion of genesplicing on moral grounds, Doyle accepts as virtually inevitable the day when "all of agriculture and much of food manufacturing will be shaped by genetic technologies, ...", an era when "food will begin in the laboratory rather than the farmer's field." Indeed, he points out that at present 70 percent of all the farm ingredients now used in agriculture come from the nonfarm sector of the economy.

Rifkin, in his 1983 book *Algeny*, questioned whether or not humankind has the right to "play God" by tinkering with life at its most basic genetic level. On the other hand, Doyle assumes that because mankind now has the power to intervene at that level, we inevitably will. Moreover, to Doyle, who serves as director of the Agricultural Resources Project at Washington, D.C.'s Environmental Policy Institute, agricultural biotechnology presents "a window of opportunity" for societies everywhere, if properly directed.

Although he devotes a chapter of the book to the possible ecological risks and to the deeper ethical questions surrounding biotechnology, the real issues for Doyle are political and economic: "How will the raw power in the food production process now made possible with genetic engineering be used and who will use it?"

In this regard, *Altered Harvest* does an excellent job of outlining the history of biotech, from Mendel's peas of 1860 to the bovine growth hormone and frost-protecting microbes of today. Along the way Doyle draws a clear picture of how agricultural economic power increasingly has become concentrated in fewer and fewer hands and what effect this concentration has had on farmers, the food they produce, and the environment in which they produce it. Taken as a whole, it is a disturbing picture with ramifications for the not-too-

distant future that are nothing less than frightening.

Doyle devotes a couple of chapters to tracing the development of hybrids, pointing out the dark side of the "green revolution" that hybrids engendered here and abroad—less diversification on farms and overproduction of major commodities, increased soil degradation from erosion and chemical misuse, reduction of the seed gene-pool diversity and increased susceptibility to wide-spread outbreaks of disease, bigger farms, and fewer farmers. He worries too that the increased dominance of biotechnology will amplify these problems.

But what worries Doyle the most, especially since the landmark 1980 Supreme Court decision that allowed man-made microbes to be patented, is the coupling of genetic power with corporate power. The tremendous opportunity for profit such an advantage offers in large measure explains why major pharmaceutical and petrochemical companies have rushed to buy up seed companies, along with the private labs that have been on the cutting edge of genetic engineering.

Doyle concludes that for farmers and consumers this coupling of genetic power with corporate power "means an ever greater physical and technological separation from the sources of food and food production; greater distancing from the economic entities which own and produce the ingredients of food production. More foreboding perhaps...is that the political process and government will protect the exclusive access to biotechnology and the economic position of the companies using it."

Doyle maintains that in the long run the trend toward centralization in food production, which biotechnology is abetting, will mean greater vulnerability in the food system. "More of the technological 'pieces' essential to food production will be in fewer corporate hands."

What is particularly worrisome from a soil and water conservation perspective is that Doyle does not believe biotechnology is likely to reduce the number and amount of chemicals released into the environment. "Rather, more sophisticated kinds of biochemistry—like plant growth regulators or pesticide-compatible microbes—will be developed to work in conjunction with existing products and specific crop varieties."

Doyle further worries that the com-

panies heavily invested in agrichemicals and biotechnology, such as Du Pont, Monsanto, and American Cyanamid, will produce chemical and microbial products aided by genetic engineering faster than the governmental agencies designed to protect the environment will be able to deal effectively with them.

To make matters worse, the country's universities and public research institutions are right in the middle of the heated rush for a biotech-based agriculture, he points out, because that's where the big money for research is. He examines the effect that corporate research dollars are having on university research, and charges that the public's best interest is not being served by the close relationship between corporations and colleges.

Doyle ends the book with a call for a renewed spirit of public involvement in this most crucial of environmental and social issues. The responsibility for the safe and democratic use of biotechnology, he says, falls squarely on the shoulders of the public. Farmers, consumers, and environmentalists "must fight harder than ever before at the federal, state, and local level for new laws, regulations, and public accountability across a broad range of policy areas that impinge on agriculture, the patent system, and science funding."

If there is an obvious shortcoming in this important book, it is that Doyle did not take on the most fundamental of issues regarding genetic engineering: Is it morally right to alter creation at its most basic level?

Rifkin and other critics maintain that every species has an inherent right to have its own gene pool remain inviolate from contamination. They assert that recombining DNA for mankind's utilitarian purposes, no matter how noble those purposes might seem, is fundamentally wrong because it crosses what they consider to be a sacred boundary. Rifkin maintains the crossing of that boundary separates biotechnology from less sophisticated attempts to improve nature, such as domestication and hybridization.

Doyle obviously chose not to deal in any detail with this most fundamental of issues. Yet it may be that the litany of fearsome prospects his book so carefully details result from the fact that the whole field of biotechnology is morally flawed at its very roots.—RON KROESE, *Land Stewardship Project, St. Paul, Minnesota.*