Due to the lack of physical features close by, it was a struggle for me to pinpoint my location on the aerial photographs, but by the second month I was able to judge distances on the landscape and relate these to the aerial photographs with normal speed. By the 3rd month of the detail, I was mapping at the rate of three, one quarter sections per day. Even with the aid of a three-wheel ATV, I found I couldn’t waste any time in order to map the required acreage goal.

In summary, I must say that I enjoyed the fine hospitality of the people in northern Minnesota and commend their good attitude, even with the low prices that the farmers receive for their grain. The experience was also culturally interesting and educational, as I was able to learn of the similarities and differences between rural Pennsylvania and rural Minnesota.

Toward the Science of Soil Survey

Fred J. Young

“Soil mapping is a technical art.” This lead sentence of Chapter 7 in the Soil Survey Manual is a familiar phrase to soil scientists directly involved in the soil survey program, and one which aptly describes the incongruous blend of science and intuition with which we pursue our craft. Most field soil scientists would agree; the hard-boiled techniques of systematic scientific methodology are simply not adequate when it comes down to the bottom line, i.e., reasonably accurate soil lines on the map in a reasonable (and at times, unreasonable) amount of time.

Consider the process of field mapping. We are attempting to quantify, via lines on a map, the spatial distribution of soil bodies based on conceptual genetic models. Sounds like science, right? Certainly, we make a number of careful, objective observations of the soils. But as we become familiar with an area, and as the production pressures increase, our mapping becomes increasingly intuitive in nature. We get the “feel” for the terrain. We learn to recognize the subtle, even subliminal, clues to the landscape; the flaccid droop of moisture-stressed vegetation on shallow soils; the characteristic canopy textures and species changes associated with wet areas; the slight undulance of old, healed slumps on a clayey slope; the characteristic hue of andesite outcropping on a slope shoulder. There are probably dozens, even hundreds of such accessory features that we observe, often partially obscured by distance, detritus, and so forth, which we associate with specific series or map units. From these bits of evidence we piece together our more rigorous observations into an accurate map. The exact placement of lines, the smoothness and flow of delineations on the map, results from a similar synthesis of quantified data and intuitive, artistic skills.

I remember dazzling a consultant with an intricate soil map of an area that no sane individual would walk through. The inevitable question came, how did I do it? This set me up for my “years-of-experience” rap, in which I extoll the qualities necessary in an individual to produce such a fine piece of work in such inhospitable terrain. In fact, there is probably nobody else on the planet who could have made that map at that time. Another soil scientist could have come

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