School Days

Paul Weatherwax[1] and Charles B. Heiser, Jr.
Department of Biology, Indiana University
Bloomington, Indiana 47405

Little Red Schoolhouse

It was not actually red at all, but a dull slate-grey. In other respects, however, it fitted very well the image of the one-room school building which dominated the system of elementary education in rural Indiana from early days down through the first quarter of the current century. Even today (mid-1967) a community in Monroe County mourns the passing of the last one-room school in the State.

My first contact with formal education came in the fall of 1896, when I was eight years old. We had moved to the farm north of Worthington in the spring of 1893. My older sister had had a few years of school, the latest being at old Point Commerce, near Worthington, where she was able to attend for a short time by staying with Grandfather and Grandmother Newsom. But for my younger sister and me there was nothing available within any reasonable walking distance. Such a thing as a school bus was unheard of in those days, and the winter condition of the mud roads would have made any such transportation impractical.

An important plank in the platform of a recently elected township trustee (Emory Haxton) was the promise to try to provide a school for our neighborbhood. The procedure for getting action was for those interested to present a formal petition to the trustee and his advisory board. My father carried the petition, and the response from those eligible to sign it was practically unanimous.

There was some controversy about where the building was to be located, but a site was finally agreed upon near the center of the area to be served. Being half a mile from any public highway, and reached only by way of a muddy lane, this location was not entirely satisfactory to anybody, but it was recognized as a practical compromise.

Construction was slow in getting started, and when the time came for the opening of school in early October, the building was not yet completed. So classes were conducted for the first week or two to the accompaniment of the finishing touches of carpentry.

Since this building was to be the focus of my educational activities for the next seven years, and I was later to teach for two years in similar surroundings, a brief description of the physical facilities is in order.

The building, a replica of a hundred others in southern Indiana, was of substantial frame construction about 24 to 30 feet wide and probably 48 feet long. The entrance, at the middle of one end, opened into what we called the "cloakroom." This served as a catch-all for winter coats, umbrellas, overshoes, water bucket, brooms, coal bucket,

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[1]The botanist Paul Weatherwax (1888-1976) was born in Indiana and long associated with Indiana University and the Indiana Academy of Science. The first two parts of his autobiography dealing with his early years and the old homestead were published in the Proc. Ind. Acad. 91:429-439. 1982. The present account covers the years from 1896 to 1918. Ecologists should find of particular interest the "environmental impact" studies being done in 1913.

fire shovel and tongs, and whatever else was considered inappropriate in the school room. The partition separating the cloakroom from the schoolroom proper extended only part-way to the ceiling, and two open doorways opened from the one room into the other. On cold winter days, when ventilation was reduced to the minimum, a never-to-be-forgotten mixture of odors of food and wet garments emanated from the cloakroom.

Lighting for the schoolroom came from six windows, three on the east side and three on the west. There were no window shades, but wooden shutters which could best be operated from the outside protected the windows. On bright sunny days we often found excuse for brief trips outside to open or close the shutters in conformity with the movement of the sun.

In the classroom the students faced north, and I have often had occasion to thank this arrangement for giving me a built-in sense of orientation in reading maps. The chalkboard, which was simply a section of the plastered wall painted black, extended across the front of the room and down to the first window on each side. With repeated use and many erasings, its surface took on a high polish which produced a troublesome glare when seen from certain angles. It could also give off a piercing shriek when the crayon was held at the proper angle, and we soon learned the trick of innocently injecting this diversion into the humdrum of daily activities.

During the winter months, heat was provided by a large coal-burning stove at the rear of the room, and in very cold weather some students were always too warm while others were too cold. Even those who were in the most favorable locations were usually too hot on one side and too cold on the other. Since the room was usually crowded, there was not much opportunity to move to a more comfortable seat. Moreover, it was generally understood that no one moved from his seat while classes were in session. There was no provision for artificial lighting on dark winter days, and the only air conditioning was accomplished by opening the windows.

The teacher's desk and chair on a rostrum about eight inches high at the front of the room gave a good view of what was going on in the room and provided a position of prestige sometimes much needed by a teacher scarcely older than some of the pupils.

Our library consisted at first of an unabridged dictionary, a four-volume set of encyclopedias, and a few other books brought from another school which had recently been closed. Each year a few volumes were supposed to be added from a list recommended by the State Department of Education. There was no other consistent plan for building up a library.

Drinking water was kept in a tin bucket in the cloakroom, and a single tin cup was the only facility for distribution. From the embryonic propaganda then current, we knew that this arrangement was not sanitary, but it was not until several years later that conditions were improved. A few of the more fastidious had their own private drinking cups, and some occasionally brought their own bottles of water, but most of us preferred not to go to that much trouble. Why did we not at least use paper cups? No one had ever heard of such things.

The water came from a spring at the foot of a hill some 300 yards away, and I do not recall that anyone ever questioned its purity. If it came from a spring, it simply had to be good. We had a tin wash pan and one towel, but water was too precious to be used for washing hands except in extreme emergencies.

The privilege of going to the spring for a bucket of water was usually reserved as a reward for good deportment or exceptional academic achievement. Some of us

cherished that privilege because it gave us an opportunity to wash our hands and drink all we wanted under better sanitary conditions. I recall that, although we drank from the full bucket and then emptied it and filled it again before taking it to the school, we sometimes had a guilty conscience and secretly discussed the ethics of such action; but we decided that it was no worse than for all to drink from the common cup.

There was a coal house for the winter fuel supply and an attached shed to shelter the horse when the teacher drove to school as some did. Rounding out the picture of the physical plant was the little outbuilding which served the purpose of the modern rest room. Since the economic situation provided only one of these, by tacit consent it was awarded to the girls. An adjacent patch of woodland with thick underbrush provided similar accommodations for the boys.

The curriculum, although I never heard of the word until many years later, was centered in a firm core of the three R's, with a fringe of peripheral subjects. Since the 25 or 30 pupils were often distributed among five or six, or as many as eight, grades, some ingenuity was required to fit all the recitations into the six-hour day. This was done by combining classes in some subjects, such as reading and spelling, by having two or three classes in arithmetic work problems simultaneously at the blackboard, and by alternating subjects on different days in the week. The daily programs were usually written on some out-of-the-way corner of the blackboard.

School convened, or "took-up," at 8:30 in the morning and "let out" at 4:00 in the afternoon, with an hour off at noon and a 15-minute recess near the middle of each half-day session. There was a strongly prevalent idea that subjects requiring much concentration, such as arithmetic and grammar, should be scheduled for the early hours of the day, when minds were supposed to be rested and active, and other subjects relegated to later hours. The day often closed with a free-for-all spelling match, in which all were engaged in one way or another.

The course in reading began with what we called the a-b-c's, that is, with recognition of the letters and learning to repeat them in alphabetical order. I do not recall that any teacher that we had placed any stress on repeating the alphabet backwards, an exercise which had been common in earlier days.

From "learning our letters" we went directly to the recognition of short, simple words illustrating basic phonic combinations and leading as soon as possible to reading simple sentences. We skipped completely the practice of earlier years when weary hours were spent on the sounds of meaningless combinations of letters. These early lessons in reading employed a Primer, a First Reader, and often a chart.

From the second year upward we used a graded series of readers, one for each year. These contained such classics as Grimm's fairy tales, Aesop's fables, Hans Christian Andersen's stories, and many others, often adapted to the age group for which the reader was intended. For the higher grades, sketches from the classics were used with little or no adaptation. These included poems of Longfellow, Whittier, Lowell, and others, selections from the Bible, great orations, scenes from Shakespeare, paragraphs from history, etc.

Although this was a few years later than the McGuffey era, much influence of the latter remained. Through all the readings there ran a strong thread of morality and patriotism and an emphasis on precise and beautiful expression. They left no room for doubt about what was right and what was wrong and pictured America and its institutions as the greatest and best on earth. The poetry, with its attention to rhyme, rhythm, and noble thought, engendered a love for beautiful expression which was to pay handsome dividends for our generation through the following years.

Good writing and oral expression were usually stressed. These accomplishments were as important in geography, history, or physiology as in the course in formal English.

Basic to writing, of course, was good penmanship. As an exercise conducive to clear, legible writing, we had regular sessions with a copybook. At the top of each page in this book was a sentence or series of words illustrating the movements necessary for mastering the various letter forms, and on the ten or a dozen lines below we copied these examples as well as we could. The teacher usually circulated around the room, watching for incorrect positions, wrong finger and arm movements, or other types of carelessness. At each exercise we wrote only three or four lines, the emphasis being on quality. Since the writing period often came just before recess, and the writing was done under the stress of anticipation of the playground activities, each line was often worse than the preceding one. This degradation where improvement was expected was further promoted by our tendency to copy the preceding line that we had written instead of the model at the top of the page. In spite of these shortcomings of the method, an examination of the copybook when it was finished showed improvement.

The style of penmanship used during my earlier school years was known as Spencerian. It was a clear, easily legible script, entirely devoid of the ornamental flourishes of some earlier styles. Unfortunately, the style was changed from time to time, and most of us ended up with a hybrid style sometimes lacking in both legibility and beauty.

Correct expression, oral or written, was taught by example and by reference to principles of grammar. We were told what was right and *why* it was right. The course in grammar defined the parts of speech and showed how words are fitted together to form sentences. A most useful technique for accomplishing the latter was sentence analysis, now almost a lost art as far as elementary education is concerned. We learned how to find the subject of a sentence and the verb which made it a sentence and then to hang the various modifiers around these essentials. If some part did not fit, we had to find out why and what to do about it. Years later, in a teachers' institute, I heard an educator thoroughly damn this method, his argument being that it was a destructive process when it should be a constructive one. As I listened, I meditated on how some of his grammatical crudities could have been polished out by a proficiency in sentence analysis. I have since learned also that one of the best ways of learning how to build a house or a machine or a dissertation is to take apart one that has been built by a genius.

Our systematic study of arithmetic began in about the third grade. Before that we had learned to recognize the figures and had dealt with some simple computations involving small numbers. Our first more serious approach to the subject consisted of exercises in reading and writing numbers, sometimes up into the decillions or farther. Then we took up in turn the various pocesses of addition, subtraction, multiplication, and division, staying with each until we could master numbers of any size.

In those exercises in subtraction in which it was necessary to "borrow" from the next column to the left, I discovered an interesting principle which has been the object of much meditation in later years. At school we were taught that when we "borrowed" from the next column at the left, we indicated the loan by decreasing by one the number from which we borrowed. At first, we were even permitted to indicate the loan by crossing out the one number and writing the smaller one above it. Later we were required to do the whole thing mentally. When we sought help on such problems at home, we encountered a different method. When something was borrowed, it had to be paid back, and the place to pay it back was in the proper column of the subtrahend. Any modern reader who fails to see what we are talking

about may see the difference between the two methods by examining two ways of subtracting 28 from 45. The new way can be shown thus: $\begin{array}{r} {}^{3}\not{4}\,{}^{1}5 \\ 2\ 8 \\ \hline 1\ 7 \end{array}$ But the old way is this: $\begin{array}{r} 4\,{}^{1}5 \\ {}^{3}2\ 8 \\ \hline 1\ 7 \end{array}$ Both methods gave the same correct result, but they operated on different principles, one mathematical and the other, shall we say, moral. Later, when place values had been explained, the better pupils were able to untangle the differences, but I am sure that there were many who never did understand what it was all about.

Multiplication and division bogged down for a year or two while we learned the multiplication tables. Here, again, some never completely made the grade.

Our next step was into the realm of common fractions, and we put them through the same paces—addition, subtraction, multiplication, and division—with hardly ever any explanation of why we did things as we did. I recall what an eye-opener it was when I discovered the meaning of the rule for division: "invert the divisor and then multiply."

Having disposed of common fractions, we were ready for decimal fractions, but why *decimal*? I remember that, as I listened to other classes reciting, one daring teacher introduced decimals away back with the reading and writing of numbers, explaining that this was simply a way of extending notation to the right of the decimal point. He went even farther to clear up the mystery of place values and to point out that we might have had some other system—the duodecimal, for example—if we had had some other number than ten fingers and toes. This was 50 or 60 years before anyone had ever heard of the "new mathematics" or of a computer.

Up to this point the numbers with which we dealt were largely abstract—merely numbers, not numbers of anything. For most pupils the studies were extremely boresome. But this was a conventional method of teaching, and woe to the pupil who expressed any dissatisfaction with it. The method had a counterpart in the teaching of music, where the learner spent endless hours in finger exercises before he was permitted to play even a simple tune.

Somewhere at about the fifth grade the numbers began to take on a more concrete form, and we met the percentage systems of computation, simple problems of business and banking, the tables of weights and measures and of the principal monetary systems, and simple problems based on geometry. Since the concrete problems encountered in these areas involved analysis and understanding, they presented a welcome series of puzzles for the better students and a baffling stumbling block for those with less imagination—sometimes even for the teacher.

I recall one teacher's frustration with this problem: How many square inches of tin would be required to make a quart cup 4 inches in diameter, no allowance being made for seams or for a handle? This teacher said the problem simply could not be solved unless we could find somewhere a quart cup 4 inches in diameter and measure its height. When one more resourceful pupil ventured to say that the problem could be solved with the information given, he was firmly "put in his place" because the teacher knew best. No one ever found a cup of proper dimensions, and for all but the one pupil the problem remained unsolved.

Geography, history, and human physiology were largely exercises in memorizing facts and spitting them back in recitations or on examinations. With a little time to think about it I can still name all the bones in the human body and the capitals of all the states and of all the more important nations in existence at that time and give

the dates of the administrations of all the presidents, but we were woefully short on insight into the relationships among all these facts. Although we were surrounded by woods and fields full of interesting and significant things, the best we could do with them was to pool our ignorance in making lists of birds, trees, and flowers on occasional Friday afternoons.

One of my regrets in later years, when I taught in a graded city school, was to see how much I had missed in having had no formal instruction in art or music. True, each day's program began with an "opening exercise" in which we often sang songs, but this could scarcely be dignified as an approach to music. In physiology we copied pictures from the textbook, and we sometimes made maps in geography and history. A few teachers scheduled periods in which we made drawings of leaves, flowers, animals, or other objects, but to other teachers, drawing pictures was little short of sinful. No matter how well a pupil had prepared his lessons, drawing pictures was a waste of time and a distraction.

Having one teacher who was especially prejudiced about this type of sin, we made the mistake of telling her that the teacher of the year before had had us draw maps in geography and history and we had found the exercise helpful and interesting. So, to teach us a lesson, we were told one afternoon to study the map of Europe carefully for 15 minutes. Then we were told to close our books and draw a map of Germany from memory. The result, of course, was a miserable failure, and that ended the matter of map drawing. On top of all this we were given a peculiar lesson in pedagogic morality: it would not be "fair" to draw a map with the book open before us; that would be "copying"—a kind of dishonesty.

In the seven years that I spent in the one-room country school we had seven different teachers. Rotation was the rule in those days, the theory being that it prevented the build-up of personal animosities and prejudices in the neighborhood. There was also a political angle to the arrangement. Some teachers were much more in demand than others, and some schools were much more desirable than others. The township trustee, who made the assignments, also had his problem, and he sometimes placed a teacher here or there with an eye to the distribution of votes. The other side of the coin—that what a teacher had learned in a year about the community and the individual pupils was good pedagogic capital which could well be put to use in subsequent years—was outweighed by the other considerations.

Since most of these seven have now gone to whatever reward there is for departed school teachers, it is probably safe to say that there were few real scholars among them. Some had graduated from high school, but none from college. A few had attended the State Normal school for a term or so. A high school diploma was not then necessary for admission.

Licenses to teach were granted almost wholly on the basis of a written one-day examination over the common school subjects, with a few questions on the most general principles of pedagogy. Grades in spelling and penmanship were based on the evidence of the paper as a whole. If the paper was graded in the office of the County Superintendent of Schools, the license could ordinarily be used only in that county. But, for a small fee, a dollar or so, the paper could be sent to the State Superintendent for grading, and the license was good anywhere in the State. There was a common opinion, probably sound in most cases, that the State office was a little tougher than the county, and less influenced by personal or political considerations.

A license might be granted for six months or a year, or longer for an experienced teacher, its duration being determined by the grades made on the examination. After the first year of teaching, a "success" grade, given by the County Superintendent on

the basis of a brief visit while school was in session—or often based wholly on hearsay—entered into the computation.

The examinations were such that a bright eighth-grade graduate could get a passing mark, and many did so. It was not uncommon for an intelligent youngster fifteen or sixteen years old to be teaching in a school where some of the boys were two or three years older and a foot taller.

For those who were afraid of the examinations or needed refresher courses for their advancement, there grew up a system of county normal schools, privately conducted by older teachers and lasting for a month or so in the summer. A summer institute, conducted officially by the county superintendent and lasting about a week, was designed for the same purpose and for orientation.

This kind of preparation for teaching in the grade schools—a reasonably good mastery of the common school subject matter, with a little attention to methods of teaching—was, in general, rather highly approved by teachers and school patrons. For many of them, high school dealt with useless frills. Who cared about the value of x or the conjugation of *amo*? So strong was this feeling that many who had finished the eighth grade and had no prospects of a job went back and took the eighth grade again.

This limited background of teachers sometimes led to interesting problems. Sharp disagreements often arose over matters of syntax or sentence analysis. Sometimes no one could manipulate certain problems in arithmetic so as to arrive at the answer given in the back of the book. One of the most daring things was to catch the teacher in a mistake or to ask what was the sense of studying such things.

Some typical reactions of teachers to such dilemmas provided a far better measure of competence that any of the other tests that they had passed. Someimes it was a violent explosion which put Johnny in his place without resolving the issue. At other times, it was a stern rebuke for him who dared to question the teacher's knowledge or the values of the system. Sometimes—often enough to keep hope and the spirit of honest inquiry alive—the teacher admitted the fault and humbly set about to try to find the truth about the matter. To this end, a visit with some older teacher often got results. Today a few minutes on the telephone would clear up such difficulties, but telephones did not arrive in our neighborhood until about 1904. As a final recourse, the monthly township teachers' institute served as a clearing house for many such difficulties.

In these teacher-pupil tests of wits, the bright pupil who had much time for idleness often had a certain advantage. He had seen the same problems threshed out, sometimes under direction of a more competent teacher, a time or two before as he had listened to recitations in classes a grade or two ahead of him in previous years. An occasional bright pupil who saw the principle clearly might not be averse to setting a trap for a bewildered teacher by innocently posing the trigger question in an apparently harmless form.

In spite of their limited general preparation for the teaching profession and these occasional specific shortcomings, these country school teachers at the turn of the century gave a pretty good account of themselves. As a rule, they were honest and conscientious, and they had a high sense of responsibility. They were usually good disciplinarians, if at times at bit harsh and arbitrary, and the discipline which they imposed not only maintained an orderly environment for learning processes but it engendered a sense of responsibility in the students. And in this capacity, the teacher usually had good support in the homes. The old rule, if you get a lickin' at school, you'll get another

one when you get home, was not always applied literally, but it always stood as an effective threat. I am not sure that the word *permissiveness* had even made its way into the dictionary at that time. I remember a few teachers who were criticised—some even being forced out of the profession—for being too lax, but none for being too strict.

In those days of no television, no radio, no movies, no PTA, and few if any telephones, the country school was the center of much neighborhood social activity. School patrons, teachers from other schools, and others with more tenuous connections frequently dropped in for afternoon visits. These guests were sometimes asked to speak to the school, and some did, occasionally much to the embarrassment of their own offspring and the teacher.

Before the Christmas vacation, and often in connection with other holidays, programs of music, declamations, dialogs, etc., were presented, and many patrons attended. A particularly significant meeting of this kind occurred each year on the last day of school. Preparation for this program began two or three weeks before the end of the term, and parents of the pupils and others who might be interested were invited. Classes were held as usual in the forenoon, and the special closing exercises were supposed to begin in the early afternoon, just after the noon recess. But shortly before noon the guests would begin to arrive with picnic baskets and other accoutrements of a neighborhood dinner. (Dinner always came at noon and supper in the evening; the word *lunch* was rarely heard.) Preparations for this dinner (always spoken of as a big dinner) were made more or less in secret, and the teacher was supposed to be suprised—and sometimes truly was—but more often than not, the news had leaked out in advance, and some skillful feigning of surprise was in order. After the dinner, the children's program was usually supplemented with speeches of approbation by leading school patrons and (often tearful) response by the teacher. A spelling or ciphering match was often added to complete the day's festivities.

The count of attendance and lavishness of the feast—especially the number of cakes brought in—were often noted as indications of community evaluation of the popularity of the teacher for that year. However, as I rate some of the teaches through the mists of threescore years, I find very little significant correlation between the magnitude of the celebration and the effectiveness of the pedagogic accomplishment.

Another enterprise making use of the country school facilities was the neighborhood literary society—more often known simply as the *literary*. I recall two or three short-lived endeavors of this kind at our school. The meetings were held on winter evenings, and the participants were mostly the younger adults of the community—some having no connection with the school. The group was organized with officers and committees, and a semblance of parlimentary procedure was observed, strange liberties sometimes being taken with the rules of order. Programs varied with the interests and talents represented—group singing, declamations, orations, debates, etc. Some of the debates were red-hot arguments about prohibition, woman suffrage, the relative evils of liquor and war, and current political happenings.

One interesting ingredient of the program was the neighborhood newspaper, in which innocent items of news were interspersed with sly personal jibes and veiled hints of scandal. I remember one newspaper of this kind which brought the literary to an abrupt termination for that season. A sporty high-flier of the community had overextended his credit to the point where his creditors closed in on him and took most of his chattels, including his horses. The literary newspaper told how its reporter had found our hero out back of the barn trying to work out some method of providing motive power for the family buggy by harnessing the turkey gobbler. The resulting

uproar brought the meeting to an end, and no attempt was made to revive the activity for that year.

Successful completion of the eight-year curriculum in the one-room school was marked by the passing of an examination set by the state board of education and conducted by the county superintendent of schools. This examination was the cause of considerable stress on the part of both the teacher and the eligible students. Success in passing it was a mark in favor of the teacher, and it admitted the student to high school. The test was usually given two or three times in the spring of each year, and if a passing grade was not made at the first attempt, the student had another chance or two. Some never did make the grade.

Four years after passing out of the eighth grade I had completed high school at Worthington and was ready to begin a career of teaching in a country school. This was in 1907. In fact, I had passed the county examination and received a one-year license a few months before finishing high school.

For my first year of teaching I was assigned to the McClarren school, in the north part of Jefferson Township, Greene County, a short distance south of the Oak Grove Methodist Church, which has since been destroyed.

My beginning salary was $42.00 per month, plus an additional day's pay if I attended the monthly all-day township teachers' institute. I secured board and room at the home of a relative about half a mile from the school. I think I paid about two or three dollars for five days each week, usually going home on week-ends.

I was reasonably well prepared in the subject matter to be taught, better, in fact than most teachers in such schools, many of whom had never seen the inside of a high school. But I was woefully deficient in methods of teaching and maintaining discipline. When confronted with problems in those areas, the best that I could do was to recall what my teachers had done under similar circumstances and plot my course in the light of their successes or failures. Such experiences, plus a little knowledge of psychology, are, of course, the very materials from which education methods are constructed, but I had had only a limited exposure to them. We muddled through fairly well, and I was later gratified to learn that the students had made reasonable progress during the year.

My second year of teaching was in a similar school at Point Commerce, the remnants of an old town on a hill above Worthington. My salary was a little better, probably something like $50.00 per month, and my year of experience enabled me to do a better job of teaching than I had done the first year.

One of my main regrets about that year was my failure to tap a rich source of information about the old town itself. Point Commerce had been founded in the early years of the nineteenth century on the hill above the junction of Eel and White rivers, a point from which flatboats started on their way toward New Orleans. It was also the head of steamboat navigation on White River—hence Point Commerce. Many older persons then living (1908-9) could remember the flatboat days and could have given me a wealth of first-hand interesting information if I had only had the foresight to take advantage of the opportunity.

The old one-room neighborhood school has been much maligned by some modern educators, but what would they have offered as a substitute? Consolidation to provide larger and better organized schools was simply out of the question. The roads were frequently hub-deep with mud in the winter, and the only conveyances available were slow, horse-drawn vehicles. Even if the roads had been better consolidated schools would have been impractical.

Students in those days usually received a good grounding in reading, writing, spelling, and the simpler aspects of grammar and arithmetic, with a fairly good introduction to geography and history. The rigid discipline bred a strong sense of responsibility and respect for authority. The days of "no lickin', no larnin'" were not yet a thing of the past, and a few teachers were still using that method of persuasion, but not so much to induce learning in the academic area as to maintain proper deportment. The later success of a reasonable proportion of those who took their first steps up the educational ladder there indicates that these schools were far from a total failure.

A concomitant value of the school was its unifying influence in the neighborhood. The school was a focus of interest in many ways besides being the center of the educational process, with a value which has been largely lost through extensive consolidations and long-distance transportation of school children for whatever purposes.

An unusually gifted teacher in those days might become an oracle of neighborhood information, answering difficult questions of fact, settling controversies, and especially solving mathematical problems. Those familiar with Whittier's *Snow Bound* may recall that one of the characters temporarily imprisoned in the farmhouse was the local school teacher, and it was rumored that his supreme accomplishment was his ability "to gauge," in other words, to determine the capacity of a container of specified dimensions. In Indiana this often meant finding the capacity of a wagon bed or corn crib in bushels of ear corn. The motive was often as much to catch the teacher off guard as to get an answer to the practical problem, and the teacher who could solve the problem usually commanded respect. If he had the presence of mind to ask whether the problem was to be answered in terms of the 27- or 28-inch gauge, his place in the community was made.

Another favorite problem to test a new teacher was to ask him to determine the number of acres in a triangular tract of certain dimensions. If it happened to be a right triangle and was recognized as such, many teachers could solve the problem without too much difficulty, but the formula for triangles in general was sure to stump all but the best.

The old country schools are gone, and some of the buildings still stand as empty ruins. Others have been demolished or converted to other uses, but nostalgic memories of them still linger with a few members of the older generation who spent some happy years in them. They were imperfect, of course, as most such institutions are, but they filled a definite need at a time when nothing better was possible.

First Steps in College and in Botany

My first contacts with college and with botany were, in some ways, taken by way of a side door. In those days all that was required for a teacher's license was a passing grade on a state examination, and many of us taught school for a year or so to get enough money to go to college instead of first going to college to qualify for teaching. My savings from my first year of teaching had been used for a surgical operation on my foot, and it was not until the end of a second year, in 1909, that I could consider college. While attending the county teachers' institute at Bloomfield in the summer of 1908 I had heard that Wabash College awarded a number of scholarships on the basis of a competitive examination, and in the fall of that year I went to Crawfordsville, took the examination, and received one of the scholarships.

At the end of my second year of teaching, in April of 1909, I enrolled at Wabash for the spring term. Since some of the courses, including botany, which I had no intention of taking, ran through the full year of three terms, they were not open to those entering in the spring. I had no difficulty, however, in arranging a program in English com-

position, history, trigonometry, and Latin. This was satisfactory because I was looking forward to becoming a teacher of high school Latin and mathematics.

The instruction in all these courses was good—except possibly in mathematics, where the aged professor spent many of the warm spring days in taking treatment for his rheumatism on the golf course—and I soon learned that the current idea that college was much more difficult than high school was largely a myth.

To occupy some of my spare time and make a little extra money I signed up with the Y.M.C.A. for odd jobs about town. It turned out that most of these were on the grounds of the old Lew Wallace home and in his library. I still have a vivid recollection of mopping the library floor, dusting the original manuscript of *The Fair God*, and untangling the fishing tackle once used by the distinguished author. I remember also a clash with the son Henry Wallace, who was directing the operation and who tried to tell me how to do my part of the work. It was a miracle that I was not fired.

Of course I could not know it then, but this work at the Wallace home was to impart a special enrichment to a contact some 35 years later with some of the Wallace memorabilia in the Palace of the Governors at Santa Fe, New Mexico. It also gave special meaning to the announcement about 1961 that the complete manuscript of *Ben Hur* had found a resting place in the Lilly rare book library at Indiana University.

In the summer of 1910, after teaching for a school year in the high school at Owensburg, I enrolled in a course in Latin and one in elementary Greek at DePauw University, still aiming at a career of teaching the classics. The instruction, given by assistants, was satisfactory but not exceptional, but I did have opportunity for a brief acquaintance with Professor Post, who was widely known as a teacher of Latin.

As a by-product of this sojourn in Greencastle I learned of a vacancy in the principalship of one of the city elementary schools. I applied for the position, but it was awarded to someone else. There was to be another chapter to this story.

I spent the short school year of 1910-1911 as principal of the school at Freedom and teacher of most of the high school offerings. In many ways this was the least satisfactory of all my experiences as a teacher. *Freedom* was a good name for the town, but *License* would have been better. In the school, and to a certain extent in the town, there was a spirit of rowdyism and little interest in orderly behavior and things intellectual, and the teachers received little support from the township trustee, who was too ignorant of school management to exercise the authority that he assumed, and whose son was one of the meanest boys in school. In justice to all it must be said that there were some good, well meaning students in the school and some substantial parents. The successful careers of some of the students in later years is a testimonial as to the personal qualities of some of the families rather than anything that the school did for the students.

The school year at Freedom was cut to six months because of a lack of funds, and in the middle of March I was free to consider what the future had to offer. I had no intention of returning to Freedom for another year even if invited, which was decidedly not indicated. Louis Johnson, a fellow teacher in the township, who had attended Indiana University for a term or two, and was planning to enroll for the spring term, suggested that I also enroll and that we room together. So I began my first term in the university in the spring of 1911.

My first impression of the university was good. It was still small—not yet 2,000 students—and so organized that any perceptive student could easily see where he stood. The relatively free system of selecting courses and planning programs appealed to the

mature, serious student. In later years I have heard some students and faculty members refer to it disparagingly as a "cafeteria system," but there is nothing wrong with a cafeteria if you know food values.

I selected a program of English, Latin, French, and mathematics—a total of 20 credit hours, which was five more than the normal load. My first problem was to convince a skeptical committee that I could handle the extra load, and my second was to crash the gate into a very special course in Latin. The entire atmosphere of the university appealed to me, and I had the feeling which, for some reason, I had never had at Wabash or DePauw, that I was getting somewhere.

My limited funds were exhausted by the end of the term in June, and, although the following summer term looked inviting, I saw no way of continuing. At home a month or so later I received a letter from Greencastle offering me the position for which I had applied a year earlier. I accepted, and, in view of this change of fortune, borrowed enough money to enable me to return to the university for the second half of the summer term.

The course offerings for this short session were limited, and some of them were "doubled" so that a five-hour course could be completed in half the ordinary time. I arranged for one such course—I think it was in English—and, knowing that I would sooner or later have to work in some of the sciences, I shut my eyes and enrolled in a course in botany.

From a theoretical standpoint, the circumstances under which I embarked on my first course in botany were most inauspicious. The elementary course at that time was organized on the basis of an evolutionary sequence; that is, it began with the algae and worked up through the main plant groups to the flowering plants. The part of the course in which I was now enrolled covered the liverworts, mosses, ferns, and gymnosperms. The first laboratory exercises dealt with *Marchantia* and some of the other liverworts, none of which I had ever seen, and it mentioned such abstruse entities as sporophyte and gametophyte. The mosses, which came next, were a little more tangible since I had seen them and had even wondered about the meaning of the little structures which I was now to designate as sporophytes; and as we proceeded toward the pine tree the concept of the alternation of generations, including the changes in chromosome numbers, began to make sense. As I recall, however, the word *meiosis* was never used, and I believe it was not mentioned in Mottier's laboratory manual. I was later to learn that, for some reason, probably based on some one of his ancient feuds with other biologists, he rarely, if ever, used the term *meiosis*, preferring to speak of it as the *reducing*, or *reduction, division*.

This awkward introduction to the science which was to occupy so much of my time and interest henceforth had one important redeeming feature; I had an excellent teacher. Henry F. A. Meier, who was later to serve for many years as professor of botany in Syracuse University, was a graduate student during the regular year and had been placed in charge of this short course during the summer session. Having spent several years as a teacher of biology in a high school in Evansville, he had developed good methods of presenting the subject, and he threw in many interesting points of ecological or anatomical significance around the main theme of a series of life histories. In spite of the strange new terminology and some startling new ideas, I found that much of the course consisted of an organization and refinement of some things that I already knew and the correction of some erroneous ideas that I had formed when observing things without the help of a competent teacher.

Another attractive feature of this first course in botany was the premium that it placed on drawing pictures, an exercise that had been discouraged, if not actually

forbidden, in my elementary school days and ignored in high school. I am referring not to art in the sense that a drawing expresses feeling and aims at beauty, but to the simple technique of drawing a picture to tell something a better way than it can be told in words.

One drawing which I made during this course, and which won high praise from Meier and was passed around and shown to other members of the botanical teaching staff, was a three-dimensional representation of a block of pine wood. The laboratory directions had called for separate drawings of transverse, radial, and tangential sections to show the main histological features, and I had put the three together in one drawing. That picture, with some additions and refinements, has since served as an illustration in at least three textbooks and has been imitated in others.

Whatever else may be said about this introductory course in botany, it changed my whole outlook on college goals and led to other courses in as rapid a succession as possible.

After teaching a school year at Greencastle I was back at the university for the summer session of 1912. As I rounded out the year of elementary botany, took a course in plant physiology, and filled in with a few courses from other areas, I saw the credits accumulating to the point where there was hope of graduation some day. I was also sold on the idea of changing my main objective to a career in botany.

Back at Greencastle that fall, I had hardly more than started the year of teaching when I received from Mottier a letter offering an attractive opportunity. The State Board of Health was planning a sanitary survey of the lower part of the White River Valley, to begin at Martinsville and continue to the mouth of the river, and they had invited Purdue and Indiana universities each to appoint one or two students to join the survey party and possibly to receive university credit for the summer's work. I was recommended for one of these appointments, but it was strongly suggested that I resign my teaching position and enroll in the university for the spring term (1913) to prepare myself to do some botanical work in connection with the survey. I was also offered a teaching assistantship for the following year (1913-14) with a stipend of $250.

The problem now was to secure a release at the middle of the year from my appointment at Greencastle. When I laid the proposition before the superintendent of schools, he was willing to release me if someone could be found to take my place. This was accomplished in a few days, and I was thus able to resign the positon without prejudice. However, when some of our neighbors and relatives heard that, to embark on what looked to them like a very nebulous prospect, I was giving up a position that paid $95 per month, they said they had always suspected that there was something wrong with my judgment and now they were sure of it.

Enrollment for the spring term was delayed for me by the flood of 1913, which blocked many railroads and prevented travel for several days. When I was finally able to get to Bloomington, I was agreeably surprised to find that many other students had had the same difficulty and enrollment had been delayed for a few days. So I was still on time.

The plan which we had formulated for the summer's work on the river was for me to make an extensive collection of flowering plants along the river and investigate the reestablishment of the algal flora which had been scoured out during the spring flood. To prepare for this I took a course on local flora and one on algae during the spring term.

I joined the survey party at Martinsville in June. A houseboat which had been

used on the Wabash River the preceding summer and had later been brought up White River, was to be our laboratory and living quarters for the summer.

Jay Craven and Jack Diggs, both from the State Board of Health, were in charge of the project, and one or the other of them was with us most of the summer. There were two appointees from Purdue, Estes Magoon and another man whose name I have forgotten. Magoon, a student of sanitary engineering, later spent many years in similar work with the Rockefeller Foundation in Latin America. I last saw him in Mexico City in 1956. State Water Chemist, H. E. Barnard, spent a few days with us, and his negro houseboy, Mentlow Ward was with us all summer as chief cook and bottle washer.

In those days, raw sewage from Indianapolis, Martinsville, Spencer, Washington, and a few other towns along the river found its way, often directly, into the river. Some work had already been done on the problem at Indianapolis, and our purpose was to make analyses for colon bacteria, chlorine, dissolved oxygen, nitrites, nitrates, etc. and the rates at which indicators of pollution disappeared downstream after receiving the effluent from each locality. We also made analyses of well waters in each town along the way. One result of the studies was an increased pressure on each locality, especially Indianapolis, to install adequate facilities for sewage disposal.

I would here urge ecologists—some of whom when reveling in an emotional jag, talk as if environment and pollution were concepts invented only yesterday—to note that such problems were recognized and being seriously investigated long ago.

We also had other problems incidental to our main work. Our houseboat was a clumsy craft, inadequately powered by a gasoline engine and rear paddlewheel. Several times we were temporarily grounded on sandbars or hooked on fallen trees in the stream. One snag punctured our hull so that repairs had to be made quickly to prevent sinking. We lived in bathing suits much of the time and never knew when we were going to be called on to jump into the river and help out in some emergency. Near Washington, where the Baltimore and Ohio railroad bridge had been washed out by the spring flood, we were held up for several days by a temporary bridge supported by piling so closely spaced that we could not get through. Finally, two wrecking cranes on the railroad picked our boat up and lifted it over the bridge. In spite of these difficulties, we had no serious accidents of any kind. Near Spencer we did aid in the recovery of the body of a local boy who had drowned while swimming.

There were many diversionary activities along the way—swimming parties, pitching horseshoes on sandbars, picnics with groups whom some of us knew in some of the towns, etc. Near Worthington I took some members of the group to see the famous sycamore tree, said to be the largest of its kind in the United States. This was just a few years before the tree was broken down in a storm.

Back at the university again in the fall of 1913 I spent some time in working over my collections made on the river expedition and then buckled down to work toward the bachelor's degree, which I completed at the end of the summer of 1914. I completed the requirements for a master's degree in 1915, and for the doctorate in 1918.

During my first year as assistant in botany, in 1913-14, I did mainly flunky work around the department—helping to take care of the library and greenhouse, collecting plant materials for class use, and occasionally helping out in a laboratory when the regular assistant could not be there. The following year I served as a regular laboratory assistant in elementary botany and had full charge of a small class in the summer session. At the beginning of the next year, 1915-16, I was appointed to the faculty as instructor in botany and had full charge of one small class in elementary botany.

One little interlude is worth mentioning. In the fall of 1914, I was asked to fill in for a month as teacher of Latin and history in the high school at Lyons. Because of differences in schedule I was able to do this without missing any time at the university, and the $105 that I received was a welcome windfall. As a by-product I made a number of new acquaintances and was later to meet children of some of these as students in the university. I recall what a pleasure it was 30 years later to meet on the backbone of the Andes in Ecuador a lady in missionary work who had been a student in the sixth or seventh grade at Lyons when I taught there.