

### AN EXPERIMENT IN ITINERANT EDUCATION

It has been my task and privilege during the school year of 1927-28 to conduct a unique, and, in the opinion of those best situated to observe it, a very successful experiment in education.

In November, 1926, the board of trustees of McPherson College, Kansas, granted the writer a traveling professorship, at the same time authorizing him to select a student group of not to exceed fourteen and to organize them for a year of camping and trekking, while pursuing courses in natural science as follows: field geology, field zoology and field botany. Credit was to be allowed not to exceed eighteen semester hours, which were to be apportioned among the above-named courses according to the judgment of the instructor at the close of the year's work. The instructor was given a free hand in organizing and arranging all the details relating to mode of travel, plans of work, itinerary, etc.

It was decided that camping should be the mode of living, since this would enable us more easily to reach out-of-the-way places where often our best work could be done. This manner of living also brought the cost of the undertaking within the reach of the average student.

Thirteen students were enrolled from those applying—nine single men, two young ladies and a man and wife. These were grouped into three companies, each company equipping itself with car, tent and the other essentials of camp life—the selection being limited and supervised in accordance with the previous experiences of my own family, when in 1924 we undertook and carried out a field excursion of a similar nature without students.

The young married couple and the two young ladies made one company, four young men a second company, the remaining five men a company and my own family of five a fourth company. Our cars and equipment were similar. All traveled in Pontiac coaches, each equipped with a capacious trunk on the rear and a combined cupboard and clothes closet on the left running board.

On August 19, 1927, the company of students gathered at Palmer Lake, Colorado, where the writer was closing the Rocky Mountain Summer School, an extension of McPherson College;

and on August 22 our caravan of four cars began its nine months' trek, starting for Yellowstone National Park. Two weeks in Yellowstone were spent in the study of the geology of the park, its wild animals, the rare trumpeter swan and numerous plants.

From Yellowstone we traveled southward through the scenic Jackson Hole Country (which we trust will some day be added to the Yellowstone Park) and to the bird-inhabited marshes about Great Salt Lake, where, as guests of the Duckville Gun Club, we found abundant opportunity for the study of shore and marsh birds of many species. Visits to the University of Utah, the various museums and other notable features of the Mormon capital were all crowded into our brief stay at Salt Lake, after which we journeyed to Provo, where we visited Brigham Young University. From this point we proceeded to the study of certain geological features, among which were the ancient shore-lines of Lake Bonneville and the Tympanoogos National Monument.

We now proceeded to Cedar City, whence we turned up Cedar Canyon to the top of the range, pausing at Cedar Breaks and Bryce Canyon, two of the most perfect examples of erosional geology to be found anywhere on the continent.

From Bryce Canyon we passed southward through Kanab to the Kaibab Forest and through it to the Grand Canyon. The Kaibab Forest furnished us abundant opportunity for study of animal life, particularly the rare and unique white-tailed squirrel—probably the most remarkable zoogeographical phenomenon in North America.

Pipe Springs National Monument was the next stop and thence we went to Zion National Park, where again we were in the midst of not only one of the beauty spots of the southwest, but were surrounded on every hand by geological phenomena of the first magnitude.

Proceeding southwestward, we visited Dixie College at St. George, Utah; Eldorado Canyon, and the Piute Indians, as well as certain prehistoric ruins near Las Vegas, Nevada, and thence passed westward through the Mohave desert to southern California.

The forests of Sequoia National Park and Yosemite Valley, various museums, a half dozen colleges and universities, Mount Wilson Obser-

vatory, the beach at low tide, Catalina Submarine Gardens, the sea-lion rookeries, Los Angeles High School, Los Angeles City Library, Scripps Institution of Biological Research, a little fossil digging and a few theaters consumed six weeks of time in California, and we turned eastward from San Diego on November 15.

The Imperial Valley with its Salton Sea and tropical fruits industry, the sand desert of eastern California, the unique irrigation project at Yuma and an occasional fossil hunt broke the monotony of our trip to Arizona's capital.

From Phoenix we passed north through Prescott and over the Mingues Mountains to Jerome, whence, after visiting the great United Verde copper mine and smelter, we journeyed to Cornville Post Office, where we went into camp for a two-weeks' siege of fossil hunting and the excavation of certain large fossil footprints for the University of Arizona Museum. While here we also visited the famous Verde salt mine, which is noted for the abundant remains left by the aboriginal salt diggers, and the famous cliff dwelling known as Montezuma's Castle. Thence across the range to the Salt River Valley, stopping at the great Roosevelt Dam and at the Tonto Cliff Dwellings on our way to Globe and Miami—other great centers of the copper industry. After studying the various processes used in mining and smelting here, we topped the ridge to the westward and came to Superior, where is located the young but thriving Boyce Thompson Institute for Research on Desert Plants. We were received most cordially by Dr. Crider and his staff and were made to feel at home in the lovely camp site which had been provided for us. The nearly three thousand species of desert vegetation here under control proved a valuable asset to us in our endeavor to become somewhat acquainted with desert flora. The scenery here is grand and the institute gardens abound in bird life, rendering our stay very pleasant. The subsequent reminiscences of the events of those days convince us that some things stuck to us besides the thorns of the "jumping cactus."

We next visited the University of Arizona at Tucson, and were impressed by the exceptionally strong school of mining and engineering and the school of archeology, as well as the other departments of this thriving western university. We also visited several other points of scientific interest thereabouts. Our next stop was at Bisbee, then Douglas, from where some of the

party entered Mexico *via* Naco, and proceeded as far as Cananea.

It was now approaching the holiday season and we headed for El Paso, where we were to spend Christmas. Christmas was pleasantly spent in the noted Camp Grande, where a Yule party long to be remembered was enjoyed by all.

From El Paso we went to the wonder of wonders, Carlsbad Cavern. This great cavern, which was first made known to the American public in 1924, is one of the choicest scenic gems of America. It is one of the largest and unquestionably the most gorgeously ornamented cavern ever discovered. One of the subterranean passages is occupied by swarms of bats which, together with the consequent accumulation of guano, forms an interesting biological and geological study. We visited not only the bat-inhabited portion of this great underworld, but took the seven-mile scenic tramp through this most beautiful of the world's caverns.

At Valentine, Texas, we turned aside to spend a few days on a frontier Texas cattle ranch some fifty miles from civilization. This visit gave us all a taste of the much misunderstood ranch life of the "wild west" as well as a taste of venison. The geologic aspects of this section are also uniquely interesting. And now with short stops at Alpine for the West Texas Teachers College and at the border cities of Laredo and Nuevo Laredo, we proceeded to Brownsville, which boasts of being the most southerly city in the United States. In our field excursions from this point we were privileged to study the most tropical bird population to be found within our national boundaries. It was also in south Texas that we paid a visit to the last known individuals of that handsome but almost extinct race—the whooping crane. Here also we hunted and captured the armadillo and sought out the haunts of the only truly wild pig species on the continent, namely, the peccary.

We now rounded the gulf, pausing frequently to enlarge our notes on forest trees, and brought up on the Florida Keys, where tropical vegetation and tropical animal life on sea and on land became our environment. A good low tide facilitated our work on animal life here during our two-day stay. We returned to the mainland, crossed the Everglades on the new Tamiami Trail to the Big Cypress Swamp, into which we moved our camp for a week's sojourn. Here on the shore of the beautiful little "Deep Lake" we pitched our camp and became familiar with the ways of the water turkey (*Anhinga anhinga*),

the black vulture (*Catharista urubu*), the fork-tailed kite (*Elanoides forficatus*), the barred owl (*Strix varia alleni*), the wood-ibis (*Mycteria americana*), as well as many smaller birds and the alligator (*Alligator mississippiensis*), cottonmouth moccasin (*Agkistrodon piscivorus*) and the southern fox squirrel (*Sciurus niger*). Much time was spent here in a vain search for the ill-fated ivory-billed woodpecker.

We now resumed our course to the Gulf Coast, again crossed the peninsula *via* Sebring, and thence northward along the eastern coast of Florida, visiting certain game refuges on our way. We looked about the historic St. Augustine and from Jacksonville made our way inland to Waycross, Georgia, and prepared to enter the Okefenokee Swamp, where we were to continue our search for the ivory-bill, and meanwhile to get a view of the vegetation and animal life of the greatest swamp in the United States.

By two strenuous days of driving through lowland trails we made our way to Jones' Island, where we camped on the border of Billie's Lake. By boat and on foot we penetrated into the heart of the swamp a distance of eight miles, and spent a night and a day amidst the impressive silence of the swamp jungle, which silence was occasionally broken by the bellowing of huge "gators" or the "rat-tat-tat" of the great pileated woodpecker. Though our search failed to discover the ill-fated ivory-bill, it could by no means be described as fruitless. It is generally agreed by the members of the party that this swamp experience was one of the most instructive weeks of the entire school year.

We now repaired to Waycross, whence, after a few days for laundry, baths, letter writing, car repairs and other items of rehabilitation, we proceeded to Atlanta, Georgia, arriving on March 15.

At this point our program of work was materially modified. Our field work ceased, and henceforth our entire efforts were to be directed to the study of institutions. Colleges, universities, museums, libraries, research establishments, historic points and industrial plants were now to be the subjects of our studies. Since the students were to receive but eighteen semester hours for a long year's work, great freedom was permitted in the choice of institutions so long as they were of a worthy nature, even though in no direct way related to subjects in which credit was being allowed. During the eight

weeks following we visited the most important educational centers of the east, apportioning the greater part of our time to the cities of Washington, New York, Boston, Richmond and Philadelphia, with briefer stays at a score of other historic spots. Two weeks were spent in the city of Washington, where all the most important bureaus and departments received attention, and much time was spent in the Smithsonian Institution. Students were assigned work occupying about half their time and the remainder was spent according to the taste of each. Following is the program of one student during our two-weeks' stay:

March 31: A. M., in the Capitol. P. M., Congressional Library and National Museum. Evening, Lincoln Memorial.

April 1 (Sunday): A. M., in Potomac Park with the cherry blossoms. P. M., National Museum. Evening, Congressional Library.

April 2: A. M., Congressional Library, National Museum. P. M., National Museum, Congressional Library. Evening, a show.

April 3: Entire day at National Museum.

April 4: A. M., National Museum. P. M., Congressional Library.

April 5: A. M., completed assignment in museum. P. M., studied mineral collection.

April 6: Day at the zoo. Evening, Congressional Library.

April 7: A. M., Old Smithsonian Building. P. M., Bureau of Standards.

April 8: A. M., Pan-American Building and White House. P. M., Museum.

April 9: A. M., National Academy of Sciences. P. M., Museum. Evening, Congressional Library.

April 10: A. M., Mt. Vernon and Arlington Cemetery. P. M., Museum.

April 11: A. M., P. M., and evening, attending meeting of American Mammalogists.

April 12: More meetings of American Mammalogists. P. M., left for Gettysburg.

Notes were kept by each student in a notebook especially designed for the trip. A special blank form was filled out for each bird studied, another for each plant and a third form for animals other than birds. No formal classes were held, but frequent campfire discussions were a part of the program of work.

The keeping of diaries was encouraged, and most of the students did this throughout the entire nine months. Collections of specimens in geology and other lines were made by most of the students and shipped to their homes from

various points. In the case of one student the collection reached several thousand specimens.

A small library, consisting of taxonomic works on botany and zoology and a few general works on geology and birds, was carried by each car.

The health of the group was far superior to that enjoyed by the same people when in residence. No serious illness of any kind was encountered, and colds were much less common than is customary under ordinary living conditions.

The expense to each student, including equipment, food, clothing, travel, entertainment, tuition and books was on the average about six hundred dollars. However, it should be remarked that the tuition charged was about one hundred dollars less than would ordinarily be charged, the instructor on this occasion depending upon other sources for a part of his income.

In closing this very brief account, the writer feels constrained to make a few suggestions relative to the possibilities and the desirability of this type of educational enterprise. Providing a suitable group can be selected, I have no hesitancy in stating that very much more useful information can be gathered during a year of supervised travel than is furnished by a year in residence in college. Various students of our group gave as their estimate that they had learned "several times as much" and "many times as much" as they had ever learned in a year in college.

It is, of course, very important that the group be selected with a full appreciation of the nature of the undertaking. A group who were not congenial or who could not cheerfully meet difficulties and hardships would certainly make success in such a program impossible. Following are some qualifications which proved of outstanding worth in making our year on wheels successful: Good health, good character, interest in the subjects studied, optimism, willingness to endure hardships, a spirit of cooperation, a spirit of toleration, courtesy, willingness to work, a sense of humor.

Having selected a suitable group, the means of travel and the mode of living must be determined upon. While there are various methods to be considered, it is the writer's opinion that camping promises the largest returns to the

members of the party. It is also less expensive. As I look back upon the year's experiences, I am made to feel that some of the greatest contributions to the lives of the students came through camping.

The coeducational aspect of our group has been the subject of much inquiry on the part of educators. I wish to say that while this did not constitute a serious problem with us, I can see how the selection of a different group might do so. It is a matter which must depend largely upon the leader and his selection of students. On the whole, I should say it were safer to restrict the membership to one sex or the other.

Courses in natural history are by their very nature well adapted for such a trek. The idea of combining field studies with museum observations and library researches is well-nigh ideal. However, I see no reason why history and sociology could not be handled with equal facility. Historic spots furnish the most impressive surroundings in which to present effectively various related historical events. And surely the numerous visits to various sociological units and types forms a better subject for study than do books written upon these subjects.

On my own suggestion our college decided (before the course was begun) to allow only eighteen hours of credit for the thirty-six weeks of work. I am fully convinced, however, that a full year's credit is earned and is more fully justified than is the case when the same students are in residence.

The leader of such a group must be a person thoroughly schooled in the art of laboring under handicaps. He should be entirely at home in camp life and above all should be one who is not enslaved to the text-book or lecture method of teaching. Adaptability must be one of his strong fortes. His training must of necessity be broader than is generally required of a teacher in college in order to provide a sufficiently wide range of study for the students. Yet he must be well enough informed to feel at home with the research method in each field undertaken. For his efforts he will feel repaid by the equivalent of two or three years spent in a university.

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