

Journal of RANGE MANAGEMENT

Edith Schwartz Clements

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ANYONE who chooses Dr. Edith S. Clements as a subject to write about has so much material to select from that it is difficult to narrow the events of her career into a brief sketch.

Mrs. Clements was born in Albany, New York, but spent her childhood and youth in Omaha, Nebraska. She graduated from the Omaha High School, spent her first year of college at the University of Minnesota, and finished her education at the University of Nebraska. Here she specialized in Germanic languages, receiving a Fellowship in German on graduation. She was elected to Phi Beta Kappa and Sigma Xi, and after her marriage to Dr. Frederic E. Clements, then an instructor in Botany, studied for a Doctor's degree in Ecology and Geology. Shortly after Mrs. Clements received her Ph.D., Dr. Frederic was called to the Headship in the Department of Botany at the University of Minnesota, and later both Doctors Clements carried on ecological research sponsored by the Carnegie Institution of Washington.

This association has been appraised by Dr. B. C. Tharp, botanist in the University of Texas, as follows: "I cannot refrain from including brief mention of the teamwork that was responsible for the prodigious quantity and excellence of Dr. F. E. Clements' work. The team-mate was, of course, Mrs. Clements—

herself a competent Ph.D., botanist, artist, a loyal, efficient, sympathetic partner and a devoted wife. Never to my knowledge have two people been so continuously together over so sustained a period of time. Both Bessey-trained, they were thoroughly congenial professionally as well as temperamentally. Both vigorous workers, they had the advantage of constant counsel and advice, each of the other—a potent scientific partnership."

Mrs. Clements ascribes part of this happy combination to the fact that she liked to do things with her hands, whereas



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her associate excelled in mental qualities. Proofs of this latter are not lacking in Dr. Frederic E. Clements' career that developed experimental ecology and its application to practical problems in forestry, farming, grazing, conservation, etc., together with an unusual number of noteworthy publications on these and related subjects.

On her part, besides being an adequate housekeeper, homemaker and dietitian, Mrs. Clements revealed herself as a competent stenographer and typist, auto mechanic, chauffeur, photographer and illustrator. Among these her own preferences are for illustrating and driving the car. The original plan for motoring was to share the driving with Dr. Frederic, but it early became apparent that he preferred looking at the vegetation rather than the highway, with the result that the automobile occasionally left the road and landed in the ditch alongside. Greatly to the satisfaction of both Doctors, Dr. Edith took over entirely thereafter, and can point to a record of over six hundred thousand miles of safe driving.

As for Mrs. Clements' career in art, she early showed a passion for her color-box and paintbrush, with the result that the pictures in her story-books became studies in water color, even though a strait-laced aunt protested that it was "wicked" for a child of eight to paint on the Sabbath Day. Her mother was more lenient, fortunately, and Edith managed to escape her aunt's vigilant eye by crawling beneath the table or sewing machine, to carry on out of sight. A later interest was centered in pencil copies of pictures. The high school years were too busy for art, but Mrs. Clements admits that she was accustomed to relieve the tedium of history lectures in the University by ornamenting her note book pages with illustrations.

As for formal instruction in art, Mrs. Clements had comparatively little besides studies of still life in an art course in Minnesota University. Teachers of painting preferred representing a flower, for instance, with a few washes of color and viewing it from a distance. They could not understand why one should wish to paint each petal and stamen or other parts in detail, with the result that Mrs. Clements had to work out her own technique with water colors by trial and error. It is this combination of scientific knowledge of plant structure and skill in representation that has made Mrs. Clements' illustrations unique, especially in the delineation of wildflowers, and has resulted in the publication of several popular books with full page color illustrations.

The first of these, "Rocky Mountain Flowers," resulted from Dr. Frederic's conviction that technical keys for classifying species would benefit greatly by adequate illustrations in natural size and accurate coloring (2). This book is also rich in pen and ink drawings of details, and is in demand even though published thirty years ago. An edition of the color plates accompanied by simple descriptions, followed and is popular among visitors to the Rocky Mountain resorts.

The opportunities for travel by automobile back and forth across the country, afforded by association with the Carnegie Institution of Washington, resulted in Mrs. Clements being able to paint on the spot many of the most common and beautiful wildflowers of the West.

On the advice of a colleague in the Institution, these paintings were submitted to the editor of the National Geographic Magazine, and accepted for publication accompanied by a simple descriptive text (11). The National Geographic Society generously presented the

color plates to Dr. and Mrs. Clements who wrote a more adequate text and the resulting publication, "Flowers of Coast and Sierra," is now in its third printing (5). These successes led to a commission for Mrs. Clements to paint a similar series of illustrations for a book on "Desert Wildflowers" to be published by the Santa Barbara Museum of Natural History, but the Director's untimely death leaves these paintings in the archives of the Museum. However, another set of illustrations for the Midwest Flowers was accepted by the National Geographic Society and appeared in the August number of 1939, accompanied by a text by Dr. Frederic Clements (12). Mrs. Clements revised the text in 1946 and another wildflower book representing midwest and eastern flowers is now available (6). This has been found especially useful by nature lovers, students, and others in Nebraska, Kansas, Missouri and Texas. This will doubtless be the last such publication since color photography is taking the place of much of the "art" of the past, and Mrs. Clements' final contribution will be found in several color plates and a large number of her photographs which illustrate her publication of "Adaptation and Origin in the Plant World," by Clements, Martin and Long (8).

Publications with Edith S. Clements, as author, collaborator, illustrator, or editor:

- (1) *The Relation of Leaf Structure to Physical Factors*. Thesis for Doctor's Degree, 1904; published by the American Microscopical Society under a grant from the Spencer-Tolles Fund. 102 pages; 9 full page plates of pen and ink drawings. (None available)
- (2) *Rocky Mountain Flowers*, Frederic E. Clements and Edith S. Clements. Published by the H. W. Wilson Company

1914 and several later editions. 390 pages. 26 full page illustrations in color by E. S. Clements. (Still in print).

- (3) *Flowers of Mountain and Plain*. By Edith S. Clements, author and illustrator. Published by the H. W. Wilson Company, 1915 and several succeeding editions (Still in print). 79 pages, 26 color plates.
- (4) *Flower Families and Ancestors*. Frederic E. and Edith S. Clements. Published by the H. W. Wilson Company, 1928. 156 pages. 64 illustrations by Edith S. Clements in pen and ink.
- (5) *Flowers of Coast and Sierra*. By Edith S. Clements, author and illustrator. Published by the H. W. Wilson Company, 1928, with succeeding editions. 226 pages. 32 full color plates (Still in print).
- (6) *Flowers of Prairie and Woodland*. By Edith S. Clements, author and illustrator. Published by the H. W. Wilson Company, 1947. 83 pages. 24 full page color plates (Still available).
- (7) *Genera of Fungi*. By Frederic Clements and C. L. Shear, published by the H. W. Wilson Company, 1931. Illustrated by Edith S. Clements with 58 full-page plates in half-tone. 496 pages. (Out of print).
- (8) *Experimental Pollination*. By Frederic E. Clements and F. L. Long, published by the Carnegie Institution of Washington. 1923. 271 pages. 17 full-page illustrations by Edith S. Clements in half-tone.
- (9) *Dynamics of Vegetation*. By Frederic E. Clements. Published by the H. W. Wilson Company, 1949. 296 pages, illustrated with 70 photographs by Edith S. Clements (Still available).
- (10) *Adaptation and Origin in the Plant World*. By Clements, Martin and Long. Published by Chronica Botanica, 1950. 332 pages. Illustrated by photographs and drawings by Edith S. Clements and 2 color plates.
- (11) *Wildflowers of the West*. By Edith S. Clements. 55 pages of text and 32 full-page color plates. National Geographic Magazine, May 1927. (Magazine article).
- (12) *Floral Garlands of Prairie, Plain and Woodland*. By Edith S. Clements. 46 pages of text and 24 full-page color plates. National Geographic Magazine, August 1939. (Magazine article).