H. B. Parks, San Antonio, *secretary and treasurer*. S. W. Bilsing was continued as the representative to the American Association Council and given the authority to represent the Texas organization at the next annual meeting.

Following the business meeting, three papers were given by members who were unable to attend on the first day. The best of these was a paper by O. M. Ball, supplementing his recent publication "The Eocene Plants of Texas." This paper was illustrated by lantern slides showing newly discovered and described specimens. One of them was a beautiful leaf recently found in a quarry in East Texas and has been named Warneri after S. R. Warner, of Sam Houston State Teachers College, who collected the specimen. S. R. Warner is a member of the academy and was in the audience and heard for the first time of the importance of his discovery and the fact that the plant was named for him.

H. B. PARKS,
Secretary

THE OKLAHOMA ACADEMY OF SCIENCE

THE twenty-first annual meeting of the Oklahoma Academy of Science was held on November 25 and 26 at the University of Oklahoma, Norman. The meetings were divided into four sections and the number of papers presented in each section was as follows: Biology, 37; geology, 19; physical sciences, 22; social sciences, 29, making a total of 107.

The president's annual address was presented following the luncheon on Friday by Dr. Herbert Patterson, of the Oklahoma Agricultural and Mechanical College. The title of this address was "A Challenge to the Social Sciences." One hundred and fifty members and guests of the academy attended the annual banquet on Friday evening and Dr. Andrew Ellicott Douglass, professor of astronomy at the University of Arizona, gave an illustrated lecture entitled "Dating Prehistoric Ruins of the Southwest." Dr. W. B. Bizzell also gave a talk on "The Spirit of Adventure in Research." Dr. Douglass gave a second address at the general meeting of the academy on Saturday morning on the subject of "The Sun Spot's Cycle and the Cyclogram Method of Cycle Study."

One hundred and ninety members were registered and about 275 people attended the meetings.

The following officers were elected for 1933:

President, F. E. Knowles, Enid, Oklahoma.
Vice-president, Section A (Biology), Ralph D. Bird, University of Oklahoma, Norman, Oklahoma.
Vice-president, Section B (Geology), C. W. Tomlinson, Ardmore, Oklahoma.
Vice-president, Section C (Physical Sciences), Wm. V. N. Garretson, Stillwater, Oklahoma.
Vice-president, Section D (Social Science), O. D. Duncan, Stillwater, Oklahoma.
Assistant Secretary-Treasurer, Duane Roller, Norman, Oklahoma.

HORACE J. HARPER,
Secretary-Treasurer

STILLWATER, OKLAHOMA

SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN APPARATUS FOR DETERMINING THE ABSORPTION OF CARBON DIOXIDE BY LEAVES UNDER NATURAL CONDITIONS

THE equipment described below was designed primarily for studies involving a large number of determinations of the photosynthetic activity of apple leaves under field conditions. The chief features are, first, a simple CO_2 absorption unit which can be made up of standard glassware and which is efficient, even though the air passes through the liquid at a rapid rate, and secondly, a light-weight, closely fitting leaf chamber made of cellophane, which is easily attached and held in place without cumbersome supports. The apparatus is essentially a simplification of that described by S. Kostytschew, K. Bazyrina and W. Tschesnokov,[1] and by Schandrel,[2] but involves less elaborate technique, so that a large number of determinations can be carried out at one time. An electric current is required to operate the pump.

The absorption unit is a modification of the Reiset tower used by Brown and Escombe[3] and consists of a glass tube, about 60 cm long and 3 cm in diameter, which is supported in an upright position. A glass Gooch crucible, with fused-in fritted glass disks, is attached to the lower end of the tower by means of thin-walled rubber tubing and serves to break the gas stream into minute bubbles. The size of the pores in the disks used was 100–120 microns, but finer grades of porosity down to 20–30 microns are available. The small end of the crucible is fitted with a rubber stopper, through which extends a short piece of glass tubing. A standard mercury filter with fused-in fritted glass plate may be used as a gas distributor instead of the Gooch crucible, but it is more expensive.

The upper end of the absorption tower is connected

[1] S. Kostytschew, K. Bazyrina and W. Tschesnokov, *Planta*, 5: 696–724, 1928.

[2] Hugo Schandrel, *Wiss. Archiv. für Landw. Abt. A Pflanzenbau*, 3: 529–560, 1930.

[3] H. T. Brown and F. Escombe, *Proc. Royal Soc.*, London, B 76: 29–111, 1905.