SOCIETIES AND MEETINGS

THE KENTUCKY ACADEMY OF SCIENCE

FOR its twenty-fifth annual meeting, which was held on May 13 and 14, the Kentucky Academy of Science enjoyed the hospitality of the Morehead State Teachers College, Morehead, Kentucky. Dr. Fernandus Payne, of Indiana University, was the guest speaker.

The following divisions of the academy participated: Biology; Chemistry; Geology and Geography; Kentucky Section of the Mathematical Association of America; Louisville Astronomical Society; Philosophy and Psychology; Kentucky Section of American Association of Physics Teachers; Social Sciences. Fifty-three papers were read, two papers were read by title, and four were given by demonstration. The Division of Social Sciences held a panel discussion on "Federal Regulation of Hours and Wages," in which six scheduled speakers participated.

A sight-seeing trip into the Cumberland National Forest was conducted and enjoyed by all who went. A scheduled trip to the Carter Caves was canceled because of stormy weather on Saturday, May 14.

Among the resolutions adopted were two of general interest. These were adopted by unanimous vote and are as follows:

1. (*a*) That the Kentucky Academy of Science places itself on record as endorsing the action of the California Society for the Promotion of Medical Research in its resistance to the proposed California so-called "Humane Pound Law" which would greatly curtail scientific experimentation in which live animals are used.

(*b*) A reiteration of a resolution of former years condemning all types of anti-vivisection laws designed to destroy modern physiological and medical research.

2. That the Kentucky Academy of Science stands with other good and patriotic citizens in opposition to the enactment of Senate Bill 3925 to authorize the construction of a dam at Yellowstone Lake and a tunnel for the diversion of water from that lake to a tributary of the Snake River. It voices its opposition to all similar acts proposing the conversion of natural areas in National Parks.

The general officers of the Kentucky Academy of Science elected for the year 1938–1939 are:

President, Dr. W. R. Allen, University of Kentucky.

Vice-president, Dr. James L. Leggett, Transylvania College.

Secretary, Dr. Alfred Brauer, University of Kentucky (reelected).

Treasurer, Professor Wm. J. Moore, Eastern Kentucky State Teachers College, Richmond.

Representative on Council of A. A. A. S., Dr. Austin R. Middleton, University of Louisville (reelected).

Councilor to Kentucky Junior Academy of Science, Dr. Anna A. Schnieb, Eastern Kentucky State Teachers College (reelected).

ALFRED BRAUER,
Secretary
UNIVERSITY OF KENTUCKY

THE UTAH ACADEMY OF SCIENCES, ARTS AND LETTERS

THE thirty-first annual meeting of the Utah Academy of Sciences, Arts and Letters was held at the Utah State Agricultural College in Logan, on May 13 and 14. The banquet meeting was held Friday evening, May 13, from 6:00 to 8:00 P.M. at the Bluebird Café. The program was furnished by the Utah State Agricultural College commemorating the fiftieth anniversary of the founding of the institution. Director William Petersen was the toastmaster. Addresses were made by Dr. John A. Widtsoe, fifth president of the college, and Dr. E. G. Peterson, sixth and incumbent president. One hundred and ten were present.

At 8:00 P.M. the annual evening meeting of the academy was held in Chapel Hall at the college. The Bel Canto Ladies Chorus, under the direction of Professor Walter Welti, of the college, furnished a number of beautiful selections. The annual presidential address was then given by Dean Milton Bennion, president of the academy, his subject being "The Contribution of Philosophy to Civilization." Professor A. N. Sorensen, of the English Department, Utah State Agricultural College, then presented a paper titled, "Literature in the Modern World."

The members of the academy executive council were the guests of President E. G. Peterson at a breakfast in the Commons Building from 7:00 to 9:00 A.M. Saturday morning, May 14.

At 9:00 A.M. a general session was held in the Auditorium of the Engineering Building, at which President Milton Bennion presided. The following papers were read: "Social Security Programs of the Mormon Church under Joseph Smith and Brigham Young," by President F. Y. Fox, L. D. S. Business College, Salt Lake City, and "Utah Literature, from the Utah State Guide Book," by Mr. Maurice L. Howe, director of the Utah Federal Writer's Project.

The following were then announced as elected as officers of the academy for the following year: *President,* M. Wilford Poulson, of the Brigham Young University; *First Vice-President,* Ralf R. Woolley, Salt Lake City; *Second Vice-President,* A. L. Beeley, University of Utah; *Council members,* Reed Bailey, U. S. Forest Service, Joseph E. Greaves, Utah State Agricultural College, and Thomas C. Adams, University of Utah. Thirty-three new members were elected.

The various section meetings began at 10:00 A.M. In the Physical Science Section fourteen papers were given. The geologists of the Physical Science Section inaugurated a field day this year. The excursion was under the direction of Dr. J. S. Williams, of the Utah

State Agricultural College, who met the geologists and students, sixty in all, at 8:00 A.M., Friday, May 13, at Brigham City and conducted them through Cache Valley. Many interesting features were visited and studied. Twenty-four papers were presented in the Biological Section, five in the Social Science Section and six in the Arts and Letters Section.

A vote of thanks and appreciation was extended to the local committee—Drs. W. W. Henderson, *Chairman,* Bert L. Richards and O. W. Israelson—and the officials of the college for the splendid manner in which they handled the academy meetings.

It was decided to hold the autumn meeting of the academy at Brigham Young University.

VASCO M. TANNER,
Permanent Secretary-Treasurer

SPECIAL ARTICLES

ON THE PROPERTIES OF RECTILINEAR FIGURES OF n DIMENSIONS

SOME years ago the writer derived some curious relations between functions of the expression 2^n which appear to be of sufficient interest to publish.

TABLE I

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
n =	0	1	2	3	4	5	
2^n	1	2	4	8	16	32	Points
$\frac{n}{1}.2^{n-1}$		1	4	12	32	80	Lines
$\frac{n(n-1)}{2!}.2^{n-2}$			1	6	24	80	Areas
$\frac{n(n-1)(n-2)}{3!}.2^{n-3}$				1	8	40	Volumes
$\frac{n(n-1)(n-2)(n-3)}{4!}.2^{n-4}$					1	10	*
$\frac{n(n-1)(n-2)(n-3)(n-4)}{5!}.2^{n-5}$						1	*
Figures of :—	0 dimensions (Points)	1 dimension (Lines)	2 dimensions (Squares)	" (Cubes)	" (Tesseracts)	"	
				3	4	5	

From the expression 2^n, if we derive the expressions:

$$\frac{n}{1}.2^{n-1};\ \frac{n(n-1)}{2!}.2^{n-2};\ \frac{n(n-1)(n-2)}{3!}.2^{n-3};$$

$$\frac{n(n-1)(n-2)(n-3)}{4!}.2^{n-4};$$

etc., with, as the m^{th} term:

$$\frac{n(n-1)(n-2)(n-3)\ \ldots\ (n-m+2)}{(m-1)!}.2^{n-m+1}$$

and in them substitute for n the values 0, 1, 2, 3, 4, . . ., Table I can be prepared.

In column (2) the properties of a point are described, and in columns (3), (4) and (5) the properties of lines, squares and cubes respectively. In column (6) the tesseract, which possesses 8 cubes, 24 squares, 32 lines and 16 points, is indicated. It seems reasonable to conclude, therefore, that column (7) would indicate the properties of the corresponding fifth-dimensional figure, whilst the extension of these expressions would remain true for rectilinear figures of n-dimensions.

E. R. BARTLAM

CEYLON TECHNICAL COLLEGE,
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PHOSPHORYLATION OF GLYCOGEN IN VITRO

PHOSPHORYLATED carbohydrates are of particular interest in view of the role of phosphorylated intermediates in the breakdown of glycogen by muscle enzymes. The synthesis of phosphorylated glycogen was therefore undertaken. The preparation of a new compound, namely, the calcium salt of the phosphoric acid ester of glycogen, is described.

The method for phosphorylating glycogen adopted was similar to that employed by Kerb[1] for phosphrylation of starch. Thirty grams of glycogen (free of phosphorus) were dissolved in 750 cc of hot water and, after cooling, 120 gm of calcium carbonate were added. The mixture was then cooled to about 3° and 25 gm of phosphorus oxychloride in 75 cc of chloroform

[1] J. Kerb, *Biochem. Z.*, 100: 3, 1919.