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)	3 " (Cubes)	4 " (Tesseracts)	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.

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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.