

## SCIENCE:

A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES.

PUBLISHED BY

N. D. C. HODGES,

47 LAFAYETTE PLACE, NEW YORK.

SUBSCRIPTIONS.—United States and Canada..... \$3.50 a year.

Great Britain and Europe..... 4.50 a year.

Communications will be welcomed from any quarter. Abstracts of scientific papers are solicited, and twenty copies of the issue containing such will be mailed the author on request in advance. Rejected manuscripts will be returned to the authors only when the requisite amount of postage accompanies the manuscript. Whatever is intended for insertion must be authenticated by the name and address of the writer; not necessarily for publication, but as a guaranty of good faith. We do not hold ourselves responsible for any view or opinions expressed in the communications of our correspondents.

Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

VOL. XV.

NEW YORK, MAY 2, 1890.

No. 378.

## CONTENTS:

A SUPERIOR ARC-LAMP.....	267	LETTERS TO THE EDITOR.	
ON THE USE OF THE PHONOGRAPH		Recognition by Young Children.	
IN THE STUDY OF THE LAN-		J. Mark Baldwin 274	
GUAGES OF AMERICAN INDIANS		Whirlwinds. M. A. Veeder.....	275
J. Walter Fewkes 267		Effigy-Mound in the Valley of the	
FACTS ABOUT TORNADOES		Big Sioux River, Iowa.	
H. A. Hazen 269		T. H. Lewis 275	
THE MANUFACTURE OF OZONE.....	272	Gorse or Furze. J. R. McGinnis 275	
THE OIL-FIELDS IN NEW ZEALAND 272		Lightning-Discharge.	
THE USE OF OIL.....	272	S. T. Moreland 276	
NOTES AND NEWS.....	273	Sunspots and Tornadoes.	
EDITORIAL.....	274	James P. Hall 276	
Professor F. H. Snow, the New		BOOK-REVIEWS.	
Chancellor of the University of		Graphics, or the Art of Calcula-	
Kansas.		tion by Drawing Lines.....	277
		AMONG THE PUBLISHERS.....	277

FOR SOME TIME PAST there has been a tendency in our colleges and universities to select as their presidents men who have attained eminence in special lines of research. This is notably true in regard to the case of Presidents Jordan of Indiana, Schaffer of Iowa, and Adams of Cornell. Another name may now be added to the list. We refer to the recent selection by the regents of the University of Kansas of Professor F. H. Snow, Ph.D., as chancellor of that institution. Professor Snow was graduated at Williams College in 1862, and afterwards prepared to enter the Congregational ministry. He, however, soon showed a special interest in natural history, and was elected a member of the first faculty of the University of Kansas when it was organized, in 1866. For several years he taught a variety of branches, but as the institution grew in strength he was enabled to confine himself to a greater extent to the specialties in which he had the most interest. He has been an indefatigable collector throughout the Western States and Territories, paying special attention to entomology. In honor of his distinguished services to the State, the new natural-history building recently erected by the State was named "Snow Hall." He has not only carried on the work of instruction in his large classes at the university, but has found time to make careful investigation in various fields of biology, and to furnish much valuable material to current scientific literature. Though a specialist, he is not a narrow man, but is well informed

on the topics of the day, especially those that attract the attention of the educational world. In all positions where executive ability is required, he has shown himself eminently fitted for the task. This appointment meets the hearty approval of the faculty of the university, and of the people of the State.

## LETTERS TO THE EDITOR.

\*.\* Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

## Recognition by Young Children.

ONE of the most obscure topics, as well as one of the most neglected, of modern psychology is that of recognition. The question, "Why is it that I recognize an image when it returns to my consciousness?" is usually passed over unobserved or intentionally omitted in our general treatises. Experiments, however, upon the question are forcing it upon our notice, thus doing a service which we are coming to expect from the new method wherever it is applied.

I have recently advanced a theory of recognition,<sup>1</sup> based both upon mental analysis and objective experiment,<sup>2</sup> according to which the feeling of familiarity called recognition arises from the re-instatement of the apperceptive or relational process of the earlier presentation. According to this theory, single unrelated homogeneous images (bell-stroke, pure color) would not be recognized, single complex images (human face) would be recognized only in the degree in which the complexity had impressed itself in the first perception, and clear recognition would arise only when the relations attentively discerned were clearly brought out in the reproduced state. A further result would be that images, when reproduced, would largely depend upon and re-enforce each other in producing the feeling of familiarity.

I have recently had an opportunity to test a little child six months and a half old, with these points in view, and the result was quite instructive. Her nurse, who had been with her continuously for five months, was absent for a period of three weeks, and on her return was instructed first to appear to the child simply in her usual dress, but to remain silent; then to withdraw from sight, but to speak as she had been accustomed to; and finally to appear and sing a nursery rhyme, which by special care the little girl had not been allowed to hear during the nurse's absence. The first result was that the child gazed in a questioning way upon the face, but showed no positive sign of recognition; yet the absence of positive fear and antipathy shown at first toward the substitute nurse indicated that the visual image was not entirely strange. Second, the tones of the nurse's voice were not at all recognized, as far as passive indications even of familiarity were concerned,—a result we would expect from the greater purity and simplicity of the auditory images. The third experiment was attended by complete and demonstrative recognition. The visual (face) and auditory (rhyme) images must have re-enforced one another, giving again the old established complex apperception of the nurse.

As to the ultimate meaning of recognition, we are quite in the dark: it is only its mental conditions that fall to the psychologist. On the view given above, it would seem to rest in the active side of our mental life, and to consist in the diminished expenditure (whatever that is) involved in the repetition of an act of attention.

This case also shows, as far as any individual case can, that images from different senses vary greatly in intensity in early child-life, that they are not well differentiated from one another, and that even at the very early age of six months special memories are becoming more or less permanent.

J. MARK BALDWIN.

University of Toronto, April 23.

<sup>1</sup> Handbook of Psychology: Senses and Intellect (New York, Holt), pp. 176-178.

<sup>2</sup> Work of Lehmann, Philos. Studien, VI.