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THE RESULTS of the explorations of the Hemenway Southwestern Archæological Expedition in 1887-88, under the direction of Frank Hamilton Cushing, promise to be of the greatest importance to our knowledge of ancient America. The plan of the researches is so comprehensive that we may expect they will clear up the history of the natives of the South-west States and Territories and of northern Mexico, — their somatological character as well as the origin and development of their peculiar culture. Mr. S. Baxter, secretary of the expedition, has recently reviewed the most important results hitherto reached. It has been ascertained that the culture of this region was identical with that of Zuñi. The inhabitants of these ancient cities practised an elaborate and thorough system of co-operative river and rain irrigation, and seem to have had a system of canal navigation. They had domesticated animals, notably the turkey, and probably also the rabbit and a variety of the *Auchenia*, or llama. Mr. Cushing has also found facts which lead him to conclude that an entirely indigenous metallurgic art existed; that the natives knew how to reduce ores by smelting, and how to fuse and braze with terra-cotta and cane blowpipes. These researches are of the greatest value, as they are founded on studies of a surviving branch of the peoples once living in these regions, the customs of which serve as a clew to the finds made in the ruined cities. The final results of the expedition will undoubtedly form the starting-point for investigations into the ancient civilization of America.

AN AMERICAN GEOLOGIC SOCIETY.

WITH the activity in geologic investigation during the last decade there has grown up among American geologists the feeling that their work should be more fully co-ordinated and unified, and that more frequent opportunities for personal intercourse should be secured. This feeling took definite shape in 1881, when, at the Cincinnati meeting of the American Association, definite movement was made toward the co-ordination of the Federal and State geologic surveys, and toward the organization of an American geologic society.

The efforts of the geologists in attendance at Cincinnati were not, however, seconded by their absent brethren so warmly as to warrant the founding of the proposed society. The plan has since been kept in mind by its promoters, and during the past summer a call was issued for a meeting of geologists interested in the proposal to form such a society, in Cleveland, on Aug. 14 last. This call was met by a hearty response, and the twoscore of geologists present effected a preliminary organization, adopted a provisional constitution, and appointed a committee to call a subsequent meeting and complete the organization. This committee consisted of Professor Alexander Winchell of the University of Michigan; Professor John J. Stevenson of the University of the City of New York; Professor Charles H. Hitchcock of Dartmouth; Professor John R. Proctor, State geologist of Kentucky; and Professor Edward Orton, State geologist of Ohio.

The meeting for final organization took place in Sage Hall of Cornell University, at Ithaca, on Dec. 27. The attendance was small, but included representatives of a considerable part of the country. Chairman Winchell of the committee on organization presided; a list of 102 geologists, engaged in either original investigation or teaching, who had subscribed to the constitution and paid the entrance-fee, was read; and the provisional constitution prepared at Cleveland was adopted, and the organization thereby rendered complete. The following officers were then elected: president, Professor James Hall, State geologist of New York; first vice-president, Professor James D. Dana, Yale College; second vice-president, Professor Alexander Winchell, University of Michigan; secretary, Professor John J. Stevenson, University of the City of New York; treasurer, Professor Henry S. Williams, Cornell University; executive council, the above-named officers, and the following fellows at large,—Hon. J. W. Powell (director United States Geological Survey), Professor J. S. Newberry (Columbia College), and Professor C. H. Hitchcock (Dartmouth College). Two committees were appointed as follows: committee on revision of provisional constitution, Professor Alexander Winchell, Professor Henry S. Williams, Professor C. H. Hitchcock, Professor J. J. Stevenson, and H. L. Fairchild of the University of Rochester; advisory committee on publications, Professor Joseph LeConte (University of California), Mr. W. J. McGee (United States Geological Survey), Professor N. H. Winchell (State geologist of Minnesota), Professor I. C. White (University of West Virginia), Professor William M. Davis (Harvard University).

According to the terms of the provisional constitution, original fellows of the society comprise working and teaching geologists, who, being members or fellows of the American Association, subscribe to the constitution and pay the entrance-fee before Jan. 1, 1889. In addition to the 102 original fellows thus constituted, sixteen candidates for fellowship were elected at the Cleveland meeting. The society thus starts out with a membership of 118, including nearly every eminent geologist of the United States, and little if any undesirable material, and with a fund (derived wholly from membership-fees) of nearly twelve hundred dollars in the treasury.

It was the prevailing belief at the meeting that the Geologic Society of America is destined to take rank with the leading organizations of related aim in Great Britain, France, Germany, Austria, and other countries; and that, to maintain the high character with which it starts out, it will be necessary to limit the fellowship, and that the legend indicating fellowship in the society ("F.G.S.A.") should be regarded as an honorary title. But one dissenting voice was raised against the last proposition.

The meeting of organization was concluded by an eloquent ad-

dress by the newly elected president, Professor Hall, in which he recounted the history of the development of geologic science in America from its first inception, through the informal meetings of the four State geologists of New York, for discussion of their respective observations, in 1838–40; through the organization of the American Society of Geologists, into which these informal meetings grew, in 1840; through the development of this geologic society into the most powerful scientific organization in the country, the American Association for the Advancement of Science; through the development of the various State and Federal surveys; through the various efforts made for concerted action among American geologists; and down to the completion of the organization of the present society. With every step in this half-century Professor Hall has been identified. The progress has been due to his own efforts perhaps more largely than to those of any other individual. His heart was touched, and his spirit touched, by the recognition of his decades of patient labor; and his picture of the progress of these decades was painted in glowing colors.

The next meeting of the Geologic Society of America will be held at Toronto in August next, in connection with the annual meeting of the American Association for the Advancement of Science.

The Geologic Society of America will hereafter hold regular annual meetings during the holiday week, perhaps in connection with those of the American Society of Naturalists. Biennial meetings for the presentation of papers, for the study of representative geologic areas, etc., will be held each summer in connection with the regular meetings of the American Association, beginning with the Toronto meeting in August next.

AN AUTHORITATIVE DEFINITION OF MANUAL TRAINING.

AT the regular semi-annual meeting of the New Jersey Council of Education, held at Trenton, Dec. 26, 1888, a report was received from the special committee on manual training, which contained a definition of manual training. This definition was unanimously indorsed by the council, which is made up of the leading educators of the State. It has therefore more than usual significance, and, if generally adhered to, will not only place the discussion of manual training on the plane which it should occupy, but will render the discussion itself more intelligent and intelligible.

An abstract of the report is presented below. The committee charged with its preparation consisted of Dr. Nicholas Murray Butler of Paterson (chairman), Henry R. Russell of Woodbury, Superintendent C. E. Meleney (now of Somerville, Mass.), S. R. Morse of Atlantic City, and C. C. Stimets of Jersey City.

"It seems most essential at this time that some definite meaning should be attached to the phrase 'manual training,' and some action taken which would clearly indicate the opinion of the council as to exactly what 'manual training' means. It is now used in a variety of senses, and no single, definite idea is connoted by it. We hear of the 'manual-training problem,' the 'manual-training movement,' the 'manual-training school,' 'manual training in connection with geography,' and various other uses of the word, which are strangely incongruous and misleading. Some one use of the word should be selected as the proper one; and it is the opinion of the committee that this council is a body of such educational authority that it may with propriety undertake the decision of this difficult question.

"Sir Philip Magnus, an authority of much weight, says, 'By manual training one commonly means exercises in the use of tools employed in working wood and iron.' Professor Woodward of St. Louis adds to this definition the comment, 'Drawing is understood to be included in the exercises as a matter of course.' These quotations sufficiently illustrate the lack of definiteness with which the term is used even by men of high educational authority. Sir Philip Magnus defines what he means by manual training, and Professor Woodward immediately says that Sir Philip Magnus of course means to include something which he has very evidently intentionally omitted.

"Manual training was first used in this country in the sense in which Sir Philip Magnus uses the phrase. In the report which Professor Runkle submitted to the trustees of the Massachusetts Institute of Technology, after seeing the European exhibits at the Philadelphia Exposition in 1876, he used the term in this sense; and in consequence of his argument, based in turn upon this use of the term, a school of mechanic arts was added to the courses of instruction already in operation at the institute. It is to be observed that instruction in drawing already formed part of the curriculum of the institute, and that it was not included in the term 'manual training' at the time to which we refer. When, however, the St. Louis manual-training school was founded, and later the manual-training school at Chicago, the phrase 'manual-training' was broadened sufficiently to include instruction in drawing, in addition to the instruction in the tools commonly used in working wood and iron. Judge MacArthur, Mr. Charles H. Ham, Col. Augustus Jacobson, and others who wrote and spoke on the subject of manual training about this time, also used the word in the sense just indicated.

"When, however, the principle of the manual-training school was attacked and criticised, and it became necessary to show on what grounds it could appeal to the public funds for support, it immediately became necessary to examine very critically, not alone the economic arguments which were urged in its favor, but the educational ends which it was expected to serve. It was at once claimed by its advocates that the manual-training school was not a trade school, nor a school for apprentices, but an educational institution, in which certain trades and technical occupations were called upon to furnish material to develop the mental powers of the pupils in certain directions. Immediately this position was taken, it was necessary to show what the mental powers in question were, and why they should be developed in the directions indicated. The advocates of the manual-training school were prompt to reply that that institution was only putting into practice the educational doctrines taught by Comenius and Rousseau, and those which were carried out in another sphere of educational activity by Froebel. With the mention of Froebel and the drawing upon the kindergarten and its fundamental principles for arguments in support of the manual-training school, the narrow conception and application of the word 'manual training' then in vogue broke down, and it began to be used in a much broader as well as a much truer and more significant sense. It is because some who write and speak on this subject use the phrase in its older and narrower acceptation, while others refer to it in its broader and more comprehensive sense, that the confusion to which we have above alluded exists. It seems to us that the council should note carefully the difference between the narrow and the broad use of the phrase, and we urge upon the council the advisability and necessity of giving the weight of its authority to the more liberal application of the words.

"'Manual training,' in the narrower sense, may be defined as 'exercises in the use of tools commonly used in working wood and iron, together with instruction in drawing.' In this sense, the kindergarten; the movement for drawing and form-study in the primary and grammar schools; the movement for better and more objective methods of teaching history, geography, number, etc.; and the manual-training movement, — are all distinct. That they are, on the contrary, not distinct but closely related, and indeed interdependent, is the decided opinion of your committee. This close relation and interdependence makes the narrower signification of the term 'manual training' at this time an impossible and a wrong one, and lays the basis for the broader and more comprehensive definition. 'Manual training,' in the latter sense, is 'instruction in thought-expression by other means than verbal language and gesture.' It includes necessarily instruction in delineation and instruction in constructive work. Whether or not the tools commonly used for working wood and iron shall be employed for the purposes of giving a part of the instruction in constructive work, is a mere incident.

"We are of opinion that the educational value of proper instruction in the use of tools has been fully proven; but it is not to be supposed that the means of giving instruction in manual training will not improve and develop, as text-books, maps, and other schoolroom apparatus have improved and developed.