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.

"That delineation and construction are natural, early, and simple modes of thought-expression, cannot be doubted, and needs no demonstration before this council. That these modes of mental activity should be trained at school, where the sense-perception, the memory, the reasoning-power, and the verbal expression of thought, are trained, also needs no demonstration. The statement must be accepted as true as soon as it is made; for the proposition that certain mental powers shall be intentionally omitted from the school-training has not as yet found any conscious defenders, though numerous cases might be cited where men have unconsciously argued in support of it.

"The powers of thought-expression by delineation and by construction are among the activities for which Froebel made so prominent a place in his kindergarten. The principle underlying the kindergarten and the manual-training school is one and the same. It must be recognized, and its application extended to the primary and grammar grades. Then we may speak of the manual-training movement and mean something definite thereby, and we may still speak of the manual-training school and mean a school which represents the principle of the manual-training movement in the instruction it offers to pupils of high-school age.

"We urge upon the council the determination to use the phrase in this sense. It is the sense which is warranted by educational history, and the only sense that views manual training as involving the application of a great pedagogic principle, and not as an attempt to improve the methods of high-school instruction alone. We therefore submit the following resolution, and recommend its adoption: —

"*Whereas* there are several and conflicting uses of the term 'manual training,' be it hereby

"*Resolved* that the New Jersey Council of Education defines 'manual training' as 'training in thought-expression by other means than gesture and verbal language, in such a carefully graded course of study as shall also provide adequate training for the judgment and the executive faculty.' This training will necessarily include drawing and constructive work, but experience alone can determine by what special means this instruction may best be given."

SCIENTIFIC NEWS IN WASHINGTON.

Sanitary Precautions in Florida. — That "Bureau of Health." — Two Other Bills. — Oil on Water. — The Ores of Nickel Mountain. — Fossil Wood. — National Geographic Society. — Philosophical Society.

Sanitary Precautions in Florida.

THE last three of the weekly health reports of Surgeon-Gen. Hamilton have presented shocking accounts of the deplorable sanitary condition of the cities of Florida, and of the general neglect of health precautions, especially in sewage, that prevails there. The correspondent of "Science" called on Gen. Hamilton, and asked some questions bearing on these reports, eliciting the following statement.

"In general terms," said Gen. Hamilton, "it should be understood that the condition of the towns in Florida, so far as investigated, has revealed a shameful neglect of the commonest sanitary precautions. In Jacksonville the sewage system is quite inadequate, the sewers having been made largely of terra-cotta pipe; and in many of the towns cesspools were constructed where the contents were allowed permanently to percolate the soil. In view of the theory concerning yellow-fever germs being in the alimentary canal and found in the excretions, the conditions existing were exactly those most favorable to the propagation of the disease. If the people of Florida would themselves obey the ordinary laws of self-preservation, and look after their own interests, they would have much less trouble with epidemics. The Federal Government is enforcing in the yellow-fever districts more radical measures than ever before known in the history of this country: establishing gratuitous public laundries for the cleansing of possibly infected bedding and clothes, and fumigating with the consent of municipalities."

That "Bureau of Health."

The following report to the secretary of the treasury, here printed for the first time, will be likely to seal the fate of the bill which was referred to him for his judgment as to its expediency: —

TREASURY DEPARTMENT,
Office of Supervising Surgeon-General,
U. S. Marine Hospital Service,
Dec. 28, 1888.

The Hon. C. S. FAIRCHILD, Secretary of the Treasury.

Sir, — I have to report, concerning House Bill No. 11,454, that this bill, which offers a reward of $100,000 to any person of any nationality who discovers the true germ of yellow-fever, is wrongly conceived in my judgment, and should not pass. It was recently made the subject of strong ridicule in the American Health Association, and not a word was raised in its defence. The effect of the mere introduction of the bill has been to flood the bureau with "crank" letters of every description, many of the remedies recommended being preposterous. It will be better for the government to pay the prize as a reward of merit *after* the discovery shall have been made and established. The history of prizes for the discovery of remedies in times past is a blot on legislation not only in our own country, but in several countries of Europe; and the rewards bestowed have generally turned out to have been improperly given. It is recommended, therefore, that the bill be indefinitely postponed. Respectfully yours,

JOHN B. HAMILTON,
Supervising Surgeon-General, M.H.S.

Two Other Bills.

Dr. Hamilton has reported favorably on so much of House Bill No. 7,731 as provides for the establishment of a public laboratory in Washington; also on House Bill No. 11,533, providing for a board of yellow-fever commissioners to investigate the sanitary condition of foreign infected places, and to provide for the co-operation of Spain and Mexico.

House Bill No. 11,723, for the creation of a bureau of health, etc., referred to the secretary of the treasury, is reported back to the committee adversely by Dr. Hamilton, whose opinion the secretary asked. It is held that the twenty experts which the bureau would call for could not be had for two reasons: 1. Because there are no such experts whose practice has been limited to scarlet-fever, diphtheria, small-pox, and the like; 2. If there were, $1,200 a year would not be adequate compensation.

Oil on Water.

The United States Signal Office publishes accounts of eleven vessels which report that they used oil with great effect during the hurricane off the Bahamas in November. The following are some of the reports: Bark "Auburndale" "used oil with great success, safety of vessel and lives of all on board attributed to its use, only four gallons needed;" bark "Hale," "fish oil used in bags at Catheads, vessel and crew saved by its use;" brig "Hussey," "blew a hurricane, lay to, and used oil constantly, thus saving the vessel;" schooner "St. Croix," "in constant danger, but all damage prevented by timely use of oil;" barkentine "Retriever," heavy gale, "but rode it out without breaking a rope-yarn, thanks to the use of oil." The vessels seem generally to have used only a few gallons of oil each.

The Ores of Nickel Mountain.

The interesting ores of Nickel Mountain, Oregon, are described in Dr. Day's new volume of "Mineral Resources of the United States."

"The mountain has an elevation of 2,800 feet above Riddle, or about 3,600 feet above the sea. At an elevation of 1,000 feet above the valley, the nickel ores are first found; and from this height, on all sides of the mountain to the very summit, are found beds of ore covering areas from one to twenty acres, and averaging six feet in thickness. The ores are invariably found either in bowlders disseminated through a highly ferruginous earth, or in a stratified bed underlaid by an altered serpentine. In places the ore in these beds is not more than a foot in thickness, but in others it will run to a depth of thirty feet. Nothing like vein-formation has yet been encountered. Occurring with the nickel ores is chromic iron and chalcedonic silica. Sometimes the latter contains nickel oxides, forming the beautiful gem stone chrysoprase. Nearly all the hydrated nickel and magnesium silicates are found in greater or less quantities at these mines. No nickel minerals other than the sili-