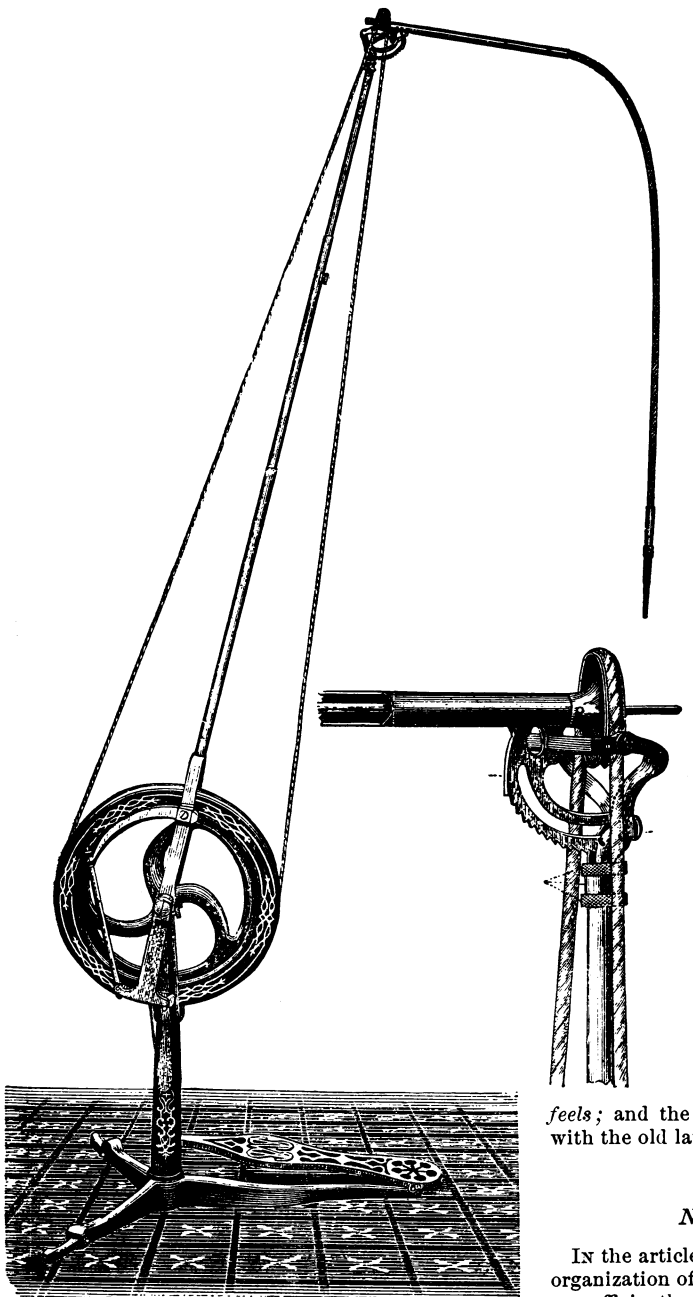
power and a greater rate of speed. 4°. The wheel and treadle should be placed under a bench, and the



THE WHITE DENTAL ENGINE, APPLICABLE TO GEM-ENGRAVING.

flexible arm passed through its centre, in front of the workman. A machine of this kind might be used for all rough grinding-out; or, for some of the fine work, a diamond-pointed tool, the diamond being the amorphous carbonado. This would in all respects be a miniature rock-drill. Mr. Kunz had no doubt that with this tool, the diamond being properly secured, any stone softer than diamond could be engraved much more readily than with any known drill; and that for engraving on diamond it could also possibly be used, since the amorphous diamond is really harder than the crystalline form of this mineral. As engraving on this gem has been much more in vogue of late than ever before, its use in this field, also, would be required. It could at least make the round furrows, such as in ancient times were made by the bow-drill, and afterward by the diamond or emery-stone point, and then polished out by the finer particles of these minerals. One great advantage of this method is, that the very pulsation, as it were, of the artist, will be conveyed to the drill, thus imparting to the stone whatever artistic feeling he may possess, instead of the mechanical, unartistic effect so common with the work of the old machine. By this method, should it be given a fair trial, not only will the style of work be likely to be greatly improved, but a rapidity of execution will be attained that has never been accomplished by the old lathe-machine, even by the best workmen. Who would think of a sculptor holding the statue against the chisel, or of a violinist rubbing the bow with the violin? And yet the present mode of engraving is quite correctly illustrated in these apparently extreme examples. The conveyance of the pulsation through such a machine as this is really the same as the inspiration which a musician or an artist conveys to his instrument, his brush, or pencil: it is what he *feels;* and the graver cannot convey this pulsation with the old lathe.

NOTES AND NEWS.

In the article in our number of last week, on the organization of an international scientific association, no sufficiently distinct reference was made to the committee appointed by the American association. Dr. Minot has called our attention to the omission, which we endeavor to make good by the following statement. The committee referred to was appointed in 1882 at the Montreal meeting of the American association

for the advancement of science, "to confer with committees of foreign associations for the advancement of science with reference to an international convention of scientific associations." The committee consists of Dr. T. Sterry Hunt, Mr. Alexander Agassiz, and Professor Simon Newcomb. If the British association responds, as has been suggested, by also appointing a committee, the official channels for the interchange of opinion between the two national bodies will be suitably established on both sides. We are unable to make any authorized statement as to what the American committee has done or proposes, but its membership justifies the conviction that it is capable of efficient action, wisely planned. We shall await their report with interest.

— The circular of the Philadelphia local committee announces that the local and general secretaries of the American association will have their offices in the library of Horticultural hall. The post-office will be in the Academy of music, where letters bearing the initials A. A. A. S. will be delivered.

In section B, physics, electricity will undoubtedly be a prominent subject of discussion. In consequence of the provision of congress for the appointment, by the President of the United States, of a scientific commission to conduct a national conference of electricians and investigations related to the international electrical exhibition, it is probable that official conferences of electricians will be held immediately after the meeting of the association, so as to allow all visiting scientific men interested in this department to participate.

The president of section E, geology, suggests that the following order be observed in the reading of papers: 1°. Geography and stratigraphic (post-archaean) geology; 2°. Geology of crystalline rocks; 3°. Mineralogy and lithology; 4°. Paleontology; 5°. Quaternary geology; 6°. Miscellaneous. As a large number of papers is expected, it is suggested that special days be assigned to the above topics in the order given. The subject of crystalline rocks will form a special topic of discussion. The presence of a number of British geologists will add unusual interest to the occasion. Special geological excursions will be arranged to places of interest in the vicinity.

It is proposed to effect an organization in section C, chemistry, under the title of the sub-section of agricultural chemistry. All chemists interested in the application of the science to agriculture are invited to attend this convention of agricultural chemists, to be held Monday evening, Sept. 10. The Association of the *American journal of agricultural science* will also meet during the week, and all persons interested in promoting this enterprise are invited to attend.

Special efforts have been made to render the meetings of section D, mechanical science, of unusual importance, invitations having been sent to a large number of specialists and mechanical and engineering societies to participate. Papers are expected on the subjects of standard bars, flat surfaces, screws, etc. Room will be provided for the erection of apparatus.

All botanical members are requested to call at the Academy of natural sciences as soon as practicable after arrival, and register: this will constitute them members of the American botanical club of the association, which was instituted at the Minneapolis meeting, and entitle them to the privileges of the same. Special excursions will be organized to the Bartram gardens, the pine barrens of New Jersey, and other localities of botanical interest.

It is expected that an effort will be made toward the formation of a sub-section on meteorology.

The proposed organization of an International scientific association will be brought forward for discussion. It is hoped that the British association also will take some action during its session at Montreal, to enable it to unite with the American association in a common effort to found such a congress. Those who are interested in the undertaking, who can make any suggestions or desire information as to the plans formed, are invited by the local committee to communicate with Dr. Charles S. Minot, No. 25 Mount Vernon Street, Boston, Mass., who, in accordance with the wish of the permanent secretary, has assumed charge of the correspondence relating to this matter. In this connection it is worthy of note that the local committee has sent invitations to more than two hundred foreign societies, inviting them to send representatives to Philadelphia. A number have accepted; and this increase in the number of foreign scientific men will add to the importance of the movement. Among the American societies which will meet simultaneously in Philadelphia are the American institute of mining engineers, the American institute of electrical engineers, the Pennsylvania state agricultural society, the Agassiz association, and the Association of collegiate alumnae. For all business concerning papers, membership, etc., address F. W. Putnam, Hotel Lafayette, after Aug. 20; and for all local business, transportation, and rooms, address local secretaries, H. C. Lewis and E. J. Nolan, at the Academy of natural sciences.

— The President has selected the following as members of the electrical commission to conduct experiments on the occasion of the exhibition at the Franklin institute: Prof. H. A. Rowland, Baltimore; Professor John Trowbridge, Cambridge; Prof. G. F. Barker, Philadelphia; Prof. R. A. Fisk, San Francisco; Prof. M. B. Snyder, Philadelphia; Prof. J. Willard Gibbs, New Haven; Professor Simon Newcomb, Washington; Prof. E. J. Houston, Philadelphia; Prof. C. A. Young, Princeton; Dr. W. H. Wahl, Philadelphia.

— Some weeks ago a plan for bringing certain subjects for debate before the chemical section of the American association for the advancement of science, at its approaching meeting in Philadelphia, was considered by the fellows of section C, and has resulted in the following selection: 1°. To what extent is the hypothesis of 'valence' or 'atomicity' of value in explaining chemical reactions? 2°. What is the best initiatory course of work for students entering upon laboratory practice, and what are the best methods of illustrating chemical lectures? These subjects, if

approved by the standing committee, will be offered for public discussion in the sectional meetings at such time as the committee may determine, probably on Monday and Tuesday, Sept. 8 and 9. In addition to the above, the following subjects have been carefully considered by some of the members, and papers or discussions on them may be expected, if the committee are able to arrange for them upon the daily programmes: Fermentation; Adulteration of food and drugs; Thermo-chemistry and chemical theory.

— With a view of more generally disseminating the results of scientific investigation, and of facilitating the work of the student in natural history, the following members and officers of the Academy of natural sciences, Philadelphia, have associated themselves into a bureau of scientific information, whose function shall be the imparting, through correspondence, of precise and definite information bearing upon the different branches of the natural sciences. It is believed by them, that, through an organization of this kind, considerable assistance can be rendered to those who, by the nature of their surroundings, are precluded from the advantages to be derived from museums and libraries. As the organization is of a purely voluntary character, it is to be hoped that no unnecessary burden will be imposed upon its members by communications of an essentially trivial nature. All correspondence must be accompanied by a return stamp (two cent), and may be addressed to the following: Joseph Leidy, M.D., Mycetozoa, Rhizopoda, Entozoa, Vertebrate paleontology; Edward Potts, Pond life, Fresh-water sponges, and Bryozoa; George W. Tryon, jun., Conchology; Benjamin Sharp, M.D., Worms, Annelids, Histology; G. H. Horn, M.D., North-American Coleoptera; H. C. McCook, D.D., Ants, Spiders, Insect architecture; Henry Skinner, M.D., North-American moths; Eugene M. Aaron, Diurnal Lepidoptera; W. N. Lockington, Echinoderms, Fishes; Spencer Trotter, M.D., North-American ornithology; Thomas Meehan, Exotic and cultivated plants; J. H. Redfield, Ferns and North-American phanerogamic plants; J. T. Rothrock, Vegetable physiology; F. Lamson Scribner, Grasses; H. Carvill Lewis, Mineralogy, Glacial and stratigraphical geology; Angelo Heilprin, Invertebrate paleontology, Physiography, Dynamical geology; D. G. Brinton, M.D., Ethnology, American linguistics, and Archeology; Harrison Allen, M.D., Teratology; J. Gibbons Hunt, M.D., Microscopical technology; E. J. Nolan, M.D., Bibliography of natural history; Professor Harrison Allen, chairman; Professor Angelo Heilprin, secretary. It is to be clearly understood that the scope of the organization does not embrace considerations of a purely professional character, such as mineral or chemical analyses, nor the determination of collections, except by special agreement. Departments not represented in the above titles will be filled as early as practicable: correspondence pertaining to such should be addressed to the secretary. In all other departments the respondents may be addressed directly, care of the Bureau of scientific information, Academy of natural sciences.

— Lieut. A. R. Gordon of the royal navy, superintendent of the Canadian meteorological service, sailed from Halifax, June 22, in the steamer Neptune, with a party of observers, to establish stations along the Hudson's Strait. The crew, with the explorers, will in all number fifty-five men. The expedition will first call at Nain, on the Labrador coast, and finally at Ramah, the northernmost station on the Atlantic coast, and but a few hundred miles south of Cape Chudleigh, at the entrance to the strait. Eskimo interpreters will be engaged at one or more of these Labrador stations. Seven stations in the strait will be established, as follows: No. 1, at Cape Chudleigh, at the south-east entrance of the strait; No. 2, on Resolution Island, at the north-east entrance of the strait, and about forty-five miles across from No. 7 station; No. 3, at Cape Hope, or on the south side of about the centre of the strait, and about two hundred and fifty miles from stations 1 and 2; No. 4, directly north of No. 3, on the Upper Savages Islands; No. 5, on the south-east end of Nottingham Island, and about two hundred miles from No. 4; No. 6, on the south side of Mansfield Island, and a hundred and fifty miles from No. 5; No. 7, at Fort Churchill, four hundred and sixty miles from No. 6.

— By order of the secretary of the navy, a board, consisting of Commodore Luce, Capt. Sampson, and Commander Goodrich, has reported upon the establishing of a post-graduate course, or school of application, for officers of the navy. It recommends that the leading subjects of the course should be the 'science and art of war,' and 'Law and history.' Subsidiary to these, instruction will be given in ordnance, torpedoes, and hydrography. These latter courses will consist partly of instruction in the higher mathematics and the physical sciences, and partly of practice at the Washington navy arsenal and experimental battery and the Newport torpedo station.

Only officers of and above the rank of lieutenant are to be allowed to take the courses. In the two main branches the students are to come to the school, and the subjects are to be taught by eminent specialists. For the instruction in science, the students must go to the instructors, wherever such and the necessary laboratories are to be found. For this and other reasons, the board recommends Newport for the site of the school, that the students in science may avail themselves of the facilities about Boston.

— The Detroit *Free press* reports a fall of a light dust on Lake Michigan on June 13. The dust covered the ground about Wangoshance lighthouse to the depth of an inch.

— The paper promised by Professor Bonney for the Montreal meeting of the British association will be on the archaean rocks of Britain, and not on the archaean rocks of Canada.

— The director of the meteorological observatory of Turin, Father Denza, is organizing observations on board the Godard captive balloon, which ascends to an altitude of two hundred to three hundred metres at the Turin exhibition.