proper is nearly completed, and should be finished by the present organization. When thus finished, the work of the coast-survey on land will be practically ended, but the hydrographic operations must be permanently continued. In this hydrographic work a large corps of naval officers and seamen are employed under the coast-survey; and the navy is also engaged, under the organization of the hydrographic bureau, in conducting researches of like and related character off the coast. It is evident that this hydrographic work prosecuted by the coast and geodetic survey is pre-eminently a naval work, from the fact that officers and seamen of the navy are employed in its prosecution. The officers of the navy are necessarily, and should be, the geographers of the sea. Statesmen agree, that, even in time of peace, a naval establishment must be maintained. A school is supported by the general government for the education and training of officers to command its navies. This training should be continued by practical operations at sea, not by engaging in unnecessary war, but in the navigation of the seas and the management of vessels; and, while thus engaged, the navy may be appropriately and economically employed in the study of oceanic geography. I am therefore clearly of the opinion that the hydrographic work of the coast and geodetic survey should be transferred to the hydrographic bureau of the navy. As thus organized, it would necessarily have a military administration, and could not properly be placed with the other scientific bureaus enumerated above under one common management. There would yet necessarily be relations existing between the bureau of navigation and the other scientific bureaus; but they would be of a much less fundamental character, and would be limited in scope, and the few relations thus existing could be properly adjusted by convention.

If the signal-service is to have a military organization, it would be unwise to directly associate it with bureaus with civil organizations, for reasons already stated. Should it be deemed wise to include it in the group of scientific institutions, it should then be reorganized on a civil basis.

The various lines of research enumerated in characterizing the scientific bureaus above are such as properly pertain to the functions of government in the common judgment of mankind. The warrant for this statement exists in the fact that the leading civilized governments of the world do, in fact, provide for the prosecution of such operations. The subject of the endowment of such research by government has been widely discussed by statesmen and by scholars in America and in Europe alike; and the wisdom of such endowment, and the fundamental principles that should control such work, have been again and again clearly enunciated. The actual practice of the several governments engaged in this work is to a large extent harmonious, but in some important particulars there is diversity of methods. In the British government a part of the scientific research is controlled by organizations in the executive departments: another part is controlled by scientific societies organized under royal charters, and receiving grants of money from the general government. In the German states various methods are adopted, one of the most important of which is that the universities receive grants from the general government for scientific research. This latter method largely prevails in Russia; but in all of these countries the methods adopted in the United States are steadily gaining ground, and the practice of European governments is steadily following the precedents established in the United States.

The questions submitted by act of congress to the deliberation of this commission affect profoundly all of the important industries of the land. You are to decide for the people the best methods of utilizing the results of all scientific research, as they pertain to the welfare of the people of the United States; and your action, should it be confirmed by congress, will ultimately affect the deepest interests of all the people; and the influence of your action will be exercised in promoting or retarding scientific research itself, which is the chief agency of civilization, and the results of which constitute the chief elements of civilization.

THE AMERICAN SOCIETY FOR PSYCHICAL RESEARCH.

AT a meeting held in Boston, Jan. 8, the organization of the society was completed. The conduct of the affairs of the society is by the constitution placed in the hands of a council of twenty-one, which consists of Prof. G. Stanley Hall of Baltimore; Mr. George S. Fullerton of Philadelphia; Dr. William James, Prof. E. C. Pickering, Prof. J. M. Peirce, of Cambridge; Mr. Coleman Sellars of Philadelphia; Major A. A. Woodhull of New York; Professor Simon Newcomb of Washington; Drs. C. S. Minot and H. P. Bowditch, and Messrs. W. H. Pickering and C. C. Jackson, of Boston; Col. T. W. Higginson and Mr. N. D. C. Hodges, of Cambridge; Prof. George F. Barker of Philadelphia; Mr. S. H. Scudder and Prof. C. C. Everett, of Cambridge; Mr. Morefield Storey of Boston; Professor John Trowbridge of Cambridge; Mr. William Watson of Boston; and Professor Alpheus Hyatt of Cambridge. Professor Newcomb has been chosen by the council as president of the society, and Profs. Hal, Fullerton, E. C. Pickering and Drs. Bowditch and Minot, as vice-presidents; Mr. Watson, treasurer; and Mr. N. D. C. Hodges, secretary.

After the organization was completed, Professor Pickering, who was in the chair, referred briefly to the work of the committee on organization, which has had the matter in charge since last fall, and said that the details of organization would bear a small part in the work of the society; that there was now need of co-operation among all members in order that there might be some fruitful investigations carried on. He urged all members to look about among their friends for suitable subjects; Professor Pickering's opinion being that it would be much safer and more satisfactory to experiment on people of good standing, who might exhibit powers of mind-reading, or

might be good subjects for hypnotic experiments, rather than employ the professionals, many of whom are doubtless tricksters. He referred to the wide interest which is exhibited now throughout the whole world in the prosecution of psychical research.

The committee on work, or suggestions as to possible work, stated that they had sent out circulars to the members of the society, calling for volunteers as members of the investigating committees; that they had received a number of answers; that the most of them were from those specially interested in thought-transference; and they recommended the appointment of a committee on that subject. They also suggested that a circular should be issued by the society, describing the methods of making experiments in thought-transference, and pointing out the precautions to be taken. Such a committee has been appointed by the council, and will in a short time issue its circular, and commence work. It is thought best, that, in order to confine as far as possible the possibility of guessing correctly what is in a person's mind by mere chance, the object thought of should not be too simple; that is, if it is a figure, it should not be a circle, or a square, or harp-shaped. A word was suggested as a suitable thing to think of, or any one of the digits from one to ten.

There was a lengthy discussion, in which Drs. Minot and Bowditch, Professor Pickering, Col. Higginson, Dr. James, and others, took part. Many of the speakers advocated the employment of professionals, saying that it was nearly impossible, with many would-be honest mind-readers, to tell where their real power ended, and where fraud began. It was stated that some of the professionals confess that at times they eked out their powers with a mild deceit. It was felt by many that in testing professionals there would not be any feeling of restraint about using precautions against fraud; that it would be perfectly understood that all means for getting at the truth could rightfully and properly be employed.

For the present the work of the society will be confined largely to experiments on thought-transference. The committee on work hesitates to recommend to the members at large investigations in hypnotism, on account of the danger which would arise when they were carried on by inexperienced hands.

SOME RECENT EXPERIMENTS WITH OIL IN STOPPING BREAKERS.[1]

THE U. S. hydrographic office, in pursuance of its policy to lessen the dangers of navigation, has recently commenced the collection of information to determine the best manner of using oil to calm the surface of troubled waters.

This matter has long been a subject of controversy. In 1844 a Dutch commission, after pouring a few gallons of oil on the storm-beaten bosom of the North Sea, and finding the waves not sensibly affected declared that the oft-repeated account of the saving of ships by this means was a fantastic creation of the imagination. Notwithstanding this, Scotch coasters have saved themselves again and again by strewing the sea with the fatty parts of fish, cut into small pieces, which were carried with them for the purpose; and so much reliable information on this subject has now been collected from the common experience of seafaring men, that the evidence in its favor can no longer be controverted.

It must be understood, however, that the use of oil does not make the surface perfectly smooth, but merely lessens the dangerous effect of what the seaman calls 'combers,' or the great broken, rolling masses of water which have first disabled and then swamped so many ships since man first began to go down to the sea.

A case lately reported of the use of oil is that of the steamship Thomas Melville, while running before a gale in February, 1884, when she was constantly boarded by heavy seas. As her situation became more and more critical, it was determined to try what effect oil would have upon the water. Two canvas bags holding about a gallon were made, therefore, punctured in many places with a sail-needle, and filled with oil. These bags were hung over the bows, and allowed to drag in the water. The seas no longer came on board, and the safety of the vessel was secured. The bags were refilled every four hours.

The application of oil to the quieting of water at the entrances of harbors is one that has received very considerable attention; and credit is due to Messrs. Shields and Gordon of England for their energy and enterprise, as well as for the thought, time, and money expended in endeavoring to establish its use, and in bringing the subject into prominent notice.

At Folkestone, Eng., Mr. Shields's apparatus consisted of three large casks placed on shore at the end of the old mole. These were connected by pipes with small hand-pumps, each of which was worked by one man. Two lead pipes about an inch and a quarter in diameter extended from the casks along the bottom, through the entrance to the harbor, about 2,950 feet toward's Shakespeare's Cliff. At intervals of every hundred feet, vertical pipes were soldered to the main pipes; and in the former were placed conical valves properly protected from mud and slime by caps.

Unfortunately, on the day set apart for a public exhibition the weather was not entirely favorable; that is to say, the wind was not from the right direction. The sea, however, was sufficiently disturbed to show the working of the apparatus. When the oil was pumped through the tubes, it soon showed its effect upon the surface; and this became more apparent as the amount of oil was increased.

A broad glassy strip was soon distinguished which was more than a half-mile long. A fully manned lifeboat, which was sent into the oil-covered strips of water, was tossed about in a lively manner, but took in no spray. Meanwhile the sea outside of the strip was everywhere breaking into white caps. After

[1] Communicated by Capt. J. R. Bartlett, chief hydrographer of the navy.