and Bailey Willis, son of Nathaniel P. Willis, the poet and littérateur.

Among palæontologists are Dr. W. H. Dall, Dr. C. A. White, Mr. C. D. Walcott and Mr. Robert T. Hill.

Among chemists are Professors F. W. Clarke, H. W. Wiley, R. B. Warder, and C. E. Munroe, Dr. J. M. Toner, Mr. W. F. Hillebrand and Mr. T. M. Chatard.

Biological science is represented in all its branches—botany by Mr. George B. Sudworth, Mr. F. V. Coville, Mr. W. R. Smith, Dr. Erwin F. Smith, Mr. B. T. Galloway and Mr. F. H. Knowlton; entomology by Prof. C. V. Riley, Mr. L. O. Howard, Mr. W. H. Ashmead and Mr. George Marx; ichthyology by Prof. Theodore N. Gill, Dr. Tarleton H. Bean, and Mr. Richard Rathbun; ornithology by Mr. Robert Ridgway, Dr. Elliott Coues, and Mr. H. W. Henshaw; mammalogy by Prof. F. A. Lucas, Mr. C. Hart Merriam and Mr. F. W. True.

Professors Cleveland Abbe and F. H. Bigelow, meteorologists, are enrolled, and Messrs. H. M. Wilson and F. H. Newell, whose work in the arid West upon problems of irrigation has given them prominence.

Among anthropologists are Colonel Garrick Mallery, Dr. Robert Fletcher, Prof. O. T. Mason, Mr. James C. Pilling, Mr. Thomas Wilson, Mr. F. H. Cushing, Drs. Cyrus Thomas, J. Owen Dorsey and A. S. Gatschet, Captain J. G. Bourke and Mr. James Mooney.

Outside the sphere of technical science many distinguished names appear in the list of members. Here are the venerable Alexander Melville Bell and his son, Alexander Graham Bell, the inventor of the telephone.

Education is represented by Dr. James C. Welling, President of Columbian University, Prof. W. B. Powell, Superintendent of the Public Schools of Washington, President J. E. Rankin, of Howard University, and President E. M. Gallaudet, of the National College for the Deaf.

Literature and journalism are represented by Mr. Henry Adams, the historian, Mr. George Kennan, Mr. William E. Curtis, Mr. C. S. Noyes, Mr. T. W. Noyes; Mr. S. H. Kauffman, Mr. H. L. West, Mr. H. B. Macfarland, Mr. Harry Godwin, Mr. W. A. Croffut, Mr. E. B. Wight, Mr. Henry Farquhar, Mr. C. R. Dodge, and Mr. Clifford Howard.

Other well-known members are Mr. Gardiner G. Hubbard, Mr. B. H. Warner, Mr. John Tweedale, Dr. Swan M. Burnett, Prof. A. H. Thompson, Prof. Gilbert Thompson, Dr. R. W. Shufeldt, Dr. Cyrus Adler, Rev. Teunis S. Hamlin, Rev. G. M. Searle, Dr. Joseph Pohle, Rev. J. G. Hagen, Dr. A. F. A. King, Dr. L. C. Loomis, Mr. John Joy Edson, Rev. J. Macbride Sterrett, Mr. William B. Taylor, Mr. Edward Clark, Prof. H. L. Hodgkins, Dr. Theobald Smith, Dr. D. E. Salmon, Mr. Henry Ulke, Mr. J. Stanley Brown, Major William H. Webster, Mr. A. B. Johnson, Dr. H. C. Yarrow, Mr. C. J. Bell, Mr. Edwin Willits, Mr. W. A. De Caindry, Mr. J. Ormond Wilson, and Mr. W. B. Chilton.

Among ladies enrolled are Mrs. Caroline H. Dall, Miss Alice Fletcher, Miss Kate Foote, Mrs. J. M. Lander (who will be remembered by old play-goers as Miss Jean Davenport), Dr. Anita Newcomb McGee, Mrs. E. R. Scidmore, Miss Sara A. Scull, Mrs. M. C. Stevenson, Mrs. L. O. Talbott, and Miss Haidee Williamson.

Meetings of the societies are held monthly or semi-monthly from October to May at the Cosmos Club, at Madison Place and I Street, and at each meeting two or more papers are usually read and discussed.

Most significant is the extent of the out-of-town membership of these societies, including some of the best-known scientific men in the country, among them Prof. W. O. Atwater, of Wesleyan University; Dr. F. Bascom, Ohio State University; Dr. J. C. Branner, Leland Stanford University; Prof. T. C. Chamberlin, University of Chicago; President John M. Coulter, Indiana University; Dr. Thomas Craig, Johns Hopkins University; Prof. W. R. Dudley, Leland Stanford University; President Daniel G. Gilman, Johns Hopkins University; Prof. E. L. Greene, University of California; Prof. E. S. Holden, Lick Observatory; Prof. E. S. Morse, Peabody Academy of Science; Prof. H. S. Pritchett, Washington University, St. Louis; Prof. I. C. Russell, University of Michigan; Prof. H. M. Seely, Middlebury College, Vermont; Prof. D. P. Todd, Amherst, Mass.; Prof. Winslow Upton, Brown University, R. I.; Prof. C. R. Van Hise, University of Wisconsin; Prof. George H. Williams, Johns Hopkins University; Prof. H. S. Williams, Yale; Prof. Alex. Ziwet, University of Michigan; Prof. J. E. Whitfield, Philadelphia; Dr. Washington Matthews; Major C. E. Dutton and Mr. Charles Nordhoff.

The constant increase in the number of this class of members is an indication that Washington is rapidly becoming a national centre of scientific thought.

GOLDEN SANDS OF THE PACIFIC COAST.

BY CLARENCE M. BUEL, E.M., ST. PAUL, MINN.

THESE auriferous deposits denominated "Black sands" occur at intervals from Takutat Bay, some 250 miles north of Sitka in Alaska to Santa Cruz Bay, California, and have been worked for many years with primitive appliances, sluice box and pan, the gold being fine flake or flour, less than twenty-five per cent being saved. These deposits already mined, milled and on the dump, ready to work, contain a sufficient quantity of gold to more than pay the national debt, *could it be saved*, but the prospector finding two hundred colors in his pan, little thinks that the color visible to the naked eye is but the 1,000,000th part of a grain, finds it so alluring that he at once rigs up a rough sluice box, and often sends a sample to an assayer who gives him returns from $5 to $40 per ton, wonders that he seldom makes more than $4 per day, though other methods have been pursued in attempting to separate the gold from the sands too numerous to relate. Accompanying the gold is found platinum and nearly all the platinoid metals. Chlorination has been tried without success, and the cyanide process (McArthur-Forrest patent) proved a failure, the reason cheifly being that the magnetic iron of which these deposits are largely composed converts the cyanide of potassium into a ferro-cyanide, and the zinc used in precipitation rendered inert by reason of its speedy oxidation in the humid saline atmosphere to which it must needs be subjected. On the Oregon coast, at the mouth of the Coquille, the camp of a thousand miners a few years since is now reduced to a single miner. There are old beaches miles back from the present beaches, with beds several feet in thickness, rich in gold, inexhaustible in extent, unworked now and awaiting some method by which the precious metal may be extracted. This state of affairs exists at Gold Beach, Port Orford, Yaquina Bay, Peterson's Point, and over one hundred other localities. Yet each year sees its quota of Chinese working in their crude manner and paying a royalty of $1 per foot for the privilege. The magnetic iron forms nearly 40/100 and is a mixture of the protoxide and sesquioxide of iron, having 72 parts metallic iron to 28 of oxygen. It is quite hard and scratches glass; strongly magnetic, it is the same as the lodestone, excepting that the latter possesses polarity. It is found in nature disseminated through granite, gneiss, mica, slate, syenite, hornblende slate, chlorite slate and limestone, and is suitable for making the finest quality of steel. Zircon is also found, though too small to be noticed except mineralogically.