Pacific coast tribes, is the result of many years devoted to the subject by the late Professor and Mrs. T. S. C. Lowe, of Pasadena. The collection comes to the academy as an indefinite loan through the generosity of Hon. Wm. M. Fitzhugh, of San Francisco. Mr. Fitzhugh not only gives the collection, but will also meet all the expenses of labeling, card cataloguing, providing cases of the best type and installing the collection in the academy's new museum building now under construction in Golden Gate Park.

BY an amendment to the by-laws recently adopted by the Academy of Natural Sciences of Philadelphia, the members can now borrow certain books to be designated by the librarian and the library committee. The library has been exclusively for reference, no one having been allowed to take books from the building, since 1859.

THERE has been a decline of more than 6,000 applications for patents during 1914 in Great Britain. Whereas in 1913 the number of patents applied for was over 31,000—practically the same as the preceding year—the total of 1914 amounts to barely 25,000. The causes of this falling off are said to be the interference with certain trades consequent upon the war and the cessation of applications from hostile countries. As these causes apply to only the last five months of the year, the decrease during that period amounts to about one half.

A SERIES of six popular demonstrations in science has been arranged by Syracuse University and the Technology Club of Syracuse, as follows:

January 14—The production and application of electricity: Dean William P. Graham, of Smith College of Applied Science.

January 21—Some of our common birds and how they are helpful or harmful: Dr. Chas. C. Adams, forest zoologist of the New York State College of Forestry.

January 28—Bacteria, friends and foes: Professor H. N. Jones, of the department of bacteriology, Syracuse University.

February 4—Gas engines—their construction and operation: Mr. George Babcock, expert with the Franklin Automobile Co.

February 11—How timber decays and how this decay may be prevented: Dean Hugh P. Baker, of the New York State College of Forestry.

February 18—Illuminating and other gases and how they are produced and used in our industries: Dr. E. N. Pattee and Professor C. R. Hoover, of the department of chemistry of Syracuse University.

UNIVERSITY AND EDUCATIONAL NEWS

MR. GEORGE SKELTON YUILL, of London and Australia, has given a sum of $20,000 to the University of Aberdeen to found a scholarship in chemistry in the memory of the arts class of 1864–68, of which he was a member. The scholarship will be held by a student of the university for the purpose of research within it, or for the study of the practical applications of chemistry elsewhere. Mr. James Campbell, LL.D., chairman of the governors of the North of Scotland College of Agriculture, has founded four bursaries or scholarships to be held by students of the university in the college.

IT is stated that there are this year matriculated in the University of Berlin 7,037 men and 898 women, as compared with 8,200 men and 859 women last winter.

DR. WILLIAM H. PARK has offered his resignation as dean of the New York University Medical College because of the ruling of the department of health that its department heads shall not hold administrative positions elsewhere. Dr. Park is director of laboratories. He will retain his position as professor of bacteriology and hygiene in the college.

PROFESSOR DE LA VALLÉE POUSSIN, of the University of Louvain, will, as has already been announced, give a course of lectures at Harvard University. The lectures which will be in French are on Lebesque Integrals. The first lecture will be given on February 16 and the course will be given twice (possible three times) a week throughout the remainder of the academic year. There will also be supplementary lectures and explanations in English by Dr. Dunham Jackson.

Professor R. M. Barton, of the University of New Mexico, has been appointed professor of mathematics in Lombard College.

Discussion and Correspondence

The Rate of Continental Denudation [1]

In an article bearing the above title, published in Science, December 25, 1914, Charles Keyes contends that determinations of mineral matter carried by such streams as the Mississippi are of little or no value, particularly as a basis for estimates of "the rate of lowering of the continental surface through stream corrasion" (and transportation?). To the present writer it seems that the article as a whole and most of the individual statements in it are likely to give many readers a wrong impression, and that some of the statements, for example that "The elaborate stream measurements thus go for naught" are altogether and demonstrably untrue.

The great practical value of the water analyses is too obvious to need elucidation. They are essential in water-supply problems almost innumerable, especially in connection with providing water for industrial and municipal use, and for irrigation; in fact they were made primarily for use in solving just such problems, not "with the express purpose of determining the rate of lowering" of the land surface. The measurements of stream discharge that have been utilized in calculating the rates of denudation furnish the basic data for many of the greatest public and private hydraulic developments in the United States.

The educational value of the data afforded by these determinations is equally obvious. That the Mississippi is gathering from the surface, mostly from the soil, of its own basin several hundred million tons of earthy material every year and is dumping this material into the Gulf of Mexico; that practically none of this material is being returned; that some parts of the basin are losing by stream action more rapidly than others; that the earth's surface everywhere is being continually modified by such action—valleys carved, hills razed, and so on—these are not facts that it is worthless to ascertain.

Apparently Mr. Keyes wishes to convince his readers that the stream observations that he assails are futile because the effects of stream action are modified by internal earth movements and by the introduction of wind-blown materials.

That parts of the Mississippi basin have been uplifted in past geologic time is a matter of common knowledge, but the writer does not see that it affects the precision of conclusions regarding the amount of material now being removed by the streams. The statement that "Since Glacial times—perhaps 10,000 years ago—a very considerable part of the upper Mississippi Valley appears to have been elevated not less than 500 or 600 feet" must have reference to the remarkable work of late years on raised Pleistocene beaches of the Great Lakes, but the published reports on this work indicate that only a small part of the Mississippi Valley has been affected by the uplift, and none of it so much as 500 or 600 feet. The 500- and 600-foot isobases lie entirely outside of the Mississippi basin in the vicinities of Lake Superior and Quebec.

As to wind deposits, it should be remembered that strata of other than wind origin lie at or near the surface throughout the Mississippi basin, whereas if dust had been accumulating "over the entire Mississippi Valley faster than the river and its tributaries are carrying rock waste to the sea," water-laid and ice-laid materials would not outcrop but would be deeply buried under eolian dust instead of under products of their own decomposition. That large quantities of material have been and are being shifted by the wind no one doubts. The literature on the subject is voluminous, as is shown by the excellent bibliography compiled by Stuntz and Free, and many precise data have been recorded. For example, J. A. Udden calculated in 1894 that the capacity of the atmosphere over the Mississippi basin to transport dust may be a thousand times that of the river, but he did not fail to observe that the actual load carried by the air is "an insignificant fraction" of its capacity load. Dust, however, is shifted back

[1] Published by permission of the Director, U. S. Geological Survey.