

that they get clear away from the atom, in ordinary metals they have not sufficient energy to get clear, but cling to the outer parts of the atom, and have to be helped by the kathode rays to escape.

I would like to direct attention to the analogy between the effects just described and an everyday experience with discharge tubes—I mean the difficulty of getting these tubes free from hydrogen when the test is made by a sensitive method like that of the positive rays. Though you may heat the glass of the tube to melting point, may dry the gases by liquid air or cooled charcoal, and free the gases you let into the tube as carefully as you will from hydrogen, you will still get the hydrogen lines by the positive-ray method, even when the bulb has been running several hours a day for nearly a year. The only exception is when oxygen is kept continuously running through the tube, and this, I think, is due, not to lack of liberation of hydrogen, but to the oxygen combining with the small quantity of hydrogen liberated, just as it combines with the mercury vapor and causes the disappearance of the mercury lines. I think this production of hydrogen in the tube is quite analogous to the production of X_3 , of helium, and of neon. I have been greatly assisted in the experiments I have described by Mr. F. W. Aston, Trinity College, and Mr. E. Everett.

J. J. THOMSON

February 8

*THE SMITHSONIAN AFRICAN
EXPEDITION*

THE collections made by the Smithsonian African Expedition under the leadership of Col. Theodore Roosevelt, when received, were distributed to the various departments of the National Museum to which they pertained; the birds were sent to the bird department, the large animals to the mammal department, the plants to the botanical department, and so on.

A number of groups of the large mammals have been prepared, and a number of individual specimens mounted for exhibition purposes. Most of the specimens have been placed in the study series, and the duplicates will be distributed by exchange or otherwise.

The groups of large mammals now mounted will shortly be placed on exhibition in the new Museum mammal hall where the larger animals will be exhibited. Those that were on exhibition have been temporarily withdrawn, in order to place them in their proper place in the classification in the hall, which is closed temporarily pending the arrangement of the cases containing the specimens.

It now seems an opportune time to make a final statement relating to the expedition and with this in view the secretary recently communicated with the parties who contributed to the fund, and has thus far received replies from the following that they have no objection to their names being given to the public. In this connection the secretary wishes to state that up to this week Colonel Roosevelt has not known who the contributors were, with the exception of Mr. Carnegie and possibly one or two personal friends.

It has not been the custom of the institution to publish the names of contributors to research work or expeditions conducted under its direction until such enterprise had been completed, and only then when the contributor had no objection to such publication. The contributors include:

Mr. Edward D. Adams, of New York City.
Hon. Robert Bacon, of Boston, Mass.
Mr. Cornelius N. Bliss, of New York.
Mr. James Campbell, of St. Louis, Mo.
Mr. W. Bayard Cutting, of New York City.
Mr. Andrew Carnegie, of New York City.
Mr. Cleveland H. Dodge, of New York City.
Mr. E. H. Gary, of New York City.
Mr. John Hays Hammond, of Washington, D. C.
Col. H. L. Higginson, of Boston, Mass.
Mr. Hennen Jennings, of Washington, D. C.
Mr. J. S. Kennedy, of New York.
Mr. Ralph King, of Cleveland, Ohio.
Hon. George von L. Meyer, of Washington, D. C.
Mr. D. O. Mills, of New York.

Hon. T. H. Newberry, of Michigan.
 Mr. L. L. Nunn, of Provo, Utah.
 Mr. H. C. Perkins, of Washington, D. C.
 Mr. George W. Perkins, of New York City.
 Mr. Henry Phipps, of New York City.
 Mrs. Whitelaw Reid, of New York City.
 Hon. Elihu Root, of Washington, D. C.
 Mr. J. C. Rosengarten, of Philadelphia, Pa.
 Mr. Jacob H. Schiff, of New York City.
 Mr. Isaac N. Seligman, of New York City.
 Mr. O. M. Stafford, of Cleveland, Ohio.
 Hon. Oscar S. Straus, of New York City.
 Mr. Isidor Straus, of New York.

From the contributions, the Smithsonian's three fifths share of all the expenses were paid; the other two fifths were paid by Colonel Roosevelt, which covered all his personal expenses and those of his son, and their proportionate two fifths share of the total expenses of the expedition.

The following is the complete list of the collections made by the expedition that have been received by the institution:

	Specimens
Mammals	5,013
Birds	4,453
Birds' eggs and nests	131
Reptiles and batrachians	2,322
Fish	447
Plants	5,153 sheets
Insects	3,500
Shells	1,500
Miscellaneous invertebrates ..	650
Total	23,169

As the result of this expedition, the biological collections now in the National Museum from East Africa are probably the most complete and systematic of any in the world.

THE INSTITUTE OF ARTS AND SCIENCES OF COLUMBIA UNIVERSITY

NEW YORK is to have an Institute of Arts and Sciences, which has been organized by Columbia University, to begin operation next fall. The object of the university is to offer its educational advantages to a wider constituency, including professional business men and women, and people of leisure, and to bring the general public into closer relation with its work and purposes. To this end it

has been decided to offer, in the late afternoons and evenings, approximately from October to May, short series of lectures, of the university extension type, on history, literature, art, music, drama, ethics, etc., addresses by distinguished statesmen and educators from home and abroad, illustrated lectures on travel, lecture recitals on forthcoming opera, orchestral programs, the history of music, etc., dramatic readings and recitals, and occasional dramas, authors' readings, concerts and recitals by orchestras, operatic singers, and other artists, and oratorios and chorus concerts by the Columbia University Festival Chorus.

The work of the institute will be distinct from the regular academic work of the university and will not receive academic credit in any way, its aim being mainly to furnish a platform for the free and unbiased discussion of current social and economic questions, and to afford a thorough program for general culture, in other words, to provide a system of adult education and rational recreation of an educational nature for busy people. The university offers at present many miscellaneous public lectures which are provided for by special endowment or by exchange professorships, and at times the attendance has been so large that thousands have been turned away. All these lectures will be incorporated in the program of the institute. While many of these lectures and events will be held in the auditoriums on the university campus it is likely that a part of the program will be offered at a Harlem center and also at a down town center, and, as the work grows, other centers will be established. It is expected that about 300 lectures and entertainments will be offered during the season by the best lecturers and artists.

While no definite program for the first season can be announced now the institute has assurances of the cooperation of the Philharmonic Society Orchestra, the New York Symphony Society Orchestra under Walter Damrosch, the Kneisel quartet, and many other organizations, while well known soloists will probably be included in the list of entertain-