is taken up with a comprehensive grammar and dictionary of the native language of Chili, called by some the Araucanian, but in this instance the Auca. The author is Mr. Raoul de la Grasserie. His treatise occupies 372 pages and embraces a large number of texts. To these he adds a literal translation and a grammatical analysis. His previous studies on American languages and on the philosophy of language in general guarantee his accuracy and thoroughness. He has used the moderately abundant writings of previous scholars with judgment, and throws new light on several points heretofore obscure in the construction of the tongue. (Langue Auca, Paris, 1898, J. Maisonneuve.)

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NOTES ON INORGANIC CHEMISTRY.

AT a meeting of the Institution of Civil Engineers (Great Britain) held March 15th Mr. Henry Fowler read a paper on 'Calcium Carbid and Acetylene,' which summarized the present knowledge of the subject. From the full abstract in *Nature* we note the following: As the power theoretically required to produce one pound of calcium carbid in the electric furnace is more than 2 H.P. hours, its manufacture is at present restricted to localities where power is cheap, as, for instance, where water-power is available. The acetylene flame has a high actinic value, and causes light colors to appear lighter and dark colors darker than when exposed to sunlight. The gas, when inhaled, combines with the hemoglobin and renders the blood incapable of taking up oxygen; it is no more dangerous, however, in this respect than coal gas. With calcium carbid at $80 a ton, acetylene can compete with coal gas at 62 cents per thousand feet, where flat flames are used for the latter, and a light of not less than 30 candles is required. It is now used for lighting a station on the Great Southern and Western Railway of Ireland, and at the Salford Docks of the Manchester Ship Canal. Its price prevents its use for gas-engines. It cannot be used economically to enrich coal gas, as with low percentages the increase is not above 1 candle-power for 1 per cent. acetylene. With water gas it is even less applicable, as more than 10 per cent. is required before any illumination is obtained. Methane and nitrogen are claimed to carry the gas without affecting its illuminating power.

THE subject of the Watt Memorial lecture, delivered March 11th at Watt Memorial Hall, by Professor Thorpe, was 'James Watt and the Discovery of the Composition of Water.' The honor of this discovery, which is one of the landmarks of the history of chemistry, has been shared by Cavendish and Lavoisier, but Professor Thorpe shows that Watt, whose connection with the discovery has been generally regarded as incidental, in writing to Priestley, April 21, 1783: "Are we not, then, authorized to conclude that water is composed of dephlogisticated (oxygen) and inflammable (hydrogen) air or phlogiston deprived of part of their latent heat," was the first, as far as we can prove from documentary evidence, to state distinctly that water is not an element, but is composed, weight for weight, of two other substances, one of which he regarded as phlogiston and the other as dephlogisticated air. It was on June 25th following that Lavoisier announced his discovery to the Academie des Sciences, while Watt's letter to Priestley was published with another letter of his in in the *Philosophical Transactions* as having been read on April 29, 1784. In reality, however, Watt antedated Lavoisier more than two months.

THE rare element gallium has been found by Professor Hartley and Mr. Hugh Ramage to be very widely distributed in the earth

and also in meteoric bodies, as has already been noticed in these notes. It, therefore, appeared to be of interest to determine if it is present in the sun. A paper on this subject has been read by these authors before the Royal Dublin Society. The first problem was to determine with great accuracy the wave-lengths of the principal lines in the spectrum of gallium. This was accomplished by photographing the spectrum of gallium with the 21.5-feet radius grating spectrograph in the Physical Laboratory of the Royal University of Ireland. The wave-length of the two principal lines was found to be 4,172.215 and 4,033.125. In Rowland's map of the solar specrum 4,172.211 is given as an aluminum line and 4,033.112 as not identified. As gallium is present in every bauxite and shale and every specimen of aluminum examined by the authors there is no doubt that this line should really be attributed to gallium and not to be aluminum. Gallium must, therefore, be added to the list of elements known to occur in the sun; which only emphasizes the wide-spread occurence of this element in nature.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

CIVIL SERVICE EXAMINATIONS IN SCIENCE.

Two important scientific positions are to be filled under the Smithsonian Institution, by examination, on June 7th.

One of these is that of Assistant Curator, Division of Mammals, U. S. National Museum, with a salary of $1,500 per annum. Competitors will be rated in the elements of education, experience, publications and thesis, which will be weighted 10, 15, 50 and 25, respectively. Applicants will be furnished with the subject for the thesis, and with special forms upon which it is to be submitted. The Department states that it is desirable that persons certified for this position shall be men not less than 25 nor more than 40 years of age, and that they should possess a good general education (college graduates preferred); a general knowledge of zoology, and a thorough knowledge of mammalogy, more especially as relating to the North American fauna; they should have a practical knowledge of field-collecting, and of museum methods of preserving, arranging and labeling collections.

The second vacancy is in the position of Physicist, for special work in connection with the Astrophysical Observatory, Smithsonian Institution, at a salary of $1,000 to $1,200 per annum. This examination will consist of the subjects below, which will be weighted as follows:

General physics,	7
Physical laboratory training,	5
Treatment of observations,	2
Mechanical drawing,	2
French,	1
German,	1
English,	2
Total,	20

MUSEUMS OF THE SCIENCE AND ART DEPARTMENT, LONDON.

THE Select Committee appointed to inquire into and report upon the administration and cost of the Museums of the Science and Art Department have agreed to the following first report:

Since the issue of the report of the Museums of the Science and Art Department Committee in July, 1897, your committee have continued the inquiry, but reserve for a further report the publication of additional evidence with their final review and recommendations.

They feel, however, bound to report without delay certain conclusions at which they have arrived, on consideration of the evidence, as regards the South Kensington Museum and the Geological Museum in Jermyn-street.

They are unanimously of opinion that with a view to present efficient management, to economy of administration, to future development of the collections, and to their full use for the purpose of exhibition and of instruction, it is necessary:

1. That the whole area on the east side of Exhibition-road (except that occupied by the Royal College of Science, which cannot be sacrificed except at great cost) be exclusively devoted to the Art Museum and the Art Library,