been shown recently that the saving in excess of soap consumed by a hard water will render it economical for a city to expend a considerable sum in softening a hard water supply. In a recent number of the *Journal* of the American Chemical Society, M. L. Griffin gives the details of a series of experiments in the use of several softening agents. Waters containing less than .025 grams lime and .007 grams magnesia cannot be appreciably purified, though harder waters can often be reduced below these figures by purification. Calcium carbonate is most effectively removed by sodium hydroxid, sodium fluorid, and in some cases sodium aluminate. Calcium sulfate and chlorid are best treated with sodium fluorid, which, however, has no effect on magnesium salts. Sodium hydroxid is the most useful reagent for magnesium salts, and barium hydroxid follows, but the latter is not satisfactory for waters containing a large proportion of calcium carbonate and sulfate.

In the *Journal* of the Russian Chemical Society a new cerium mineral from the Caucasus is described by G. Tschernik, which from the analysis seems to be essentially a titanate and zirconate of cerium. It contains a gas which is 90% a mixture of nitrogen and argon. The mineral contains but .03% uranium and no helium. The ash of a coal from Tkwibuli, which was chiefly calcium sulfate, with alumina and silica, and about 10% of ceria, lanthana and didymia, showed the presence of over 1% of helium.

The *Report* of the Australian Association for the Advancement of Science contains a description by Thomas Steel of a 'red rain' which fell over Melbourne and much of Victoria on December 27, 1896. The rain carried down an unusually heavy fall of dust of red color, which appeared on analysis to be an ordinary surface soil derived from volcanic rocks. Under the microscope the presence of diatoms, scales of lepidoptera, quartz and garnet were detected.

An instance of the use of liquid ammonia as a solvent is shown by C. Hugot in the *Comptes Rendus*, where the selenids of sodium and potassium are thus formed. A mixture of selenium with the alkali metal is treated with liquid ammonia. If the metal is in excess the insoluble selenid Na_2Se or K_2Se is formed while if the selenium predominates a polyselenid Na_2Se_4 or K_2Se_4 is formed, which is dissolved in the ammonia and is obtained on its evaporation. Contrary to the observation of Franklin and Krauss, Hugot finds that selenium itself is insoluble in liquid ammonia. J. L. H.

TECHNICAL UNIVERSITY DEGREES.

A letter, recently received from Ex-President Andrew D. White, our Minister to Berlin, relative to matters educational, mainly, tells of the festival on the 100th anniversary of the founding of the great technical college at Charlottenburg, Berlin. This celebration, with its processions, its speech-making by the Emperor and other notables, and the structure and decorations of the great college buildings, have been fully described by press correspondents; but it has not been stated, so far as has been observed, except in a brief note in Science, that the Emperor, while erecting this splendid institution into a national, technical, university, making its powers those of the academic universities and its director a '*Rector Magnificus*,' conferred also the special power of giving the degree '*Dr. Ing.*,' doctor of engineering, a degree already established in this country, in 1884, at the initiative of the writer, and very sparingly conferred, to date, by the Stevens Institute of Technology.

The event, both as being the occasion of the formal institution of a national technical university, and as giving formal and official recognition to a degree which gives claim to full standing of the profession of Archimedes and Leonardo and the Marquis of Worcester, beside those of Hippocrates and of Justinian, was one of unusual importance and significance. This movement has been a vitally important part of that systematic programme which has led to the industrial triumph of Germany, of which Dr. White says in this letter: "It is amazing to see how, in their way, the Germans have gone steadily on until they have established a wonderful system of manufacturers all over their country and an astonishing commercial connection, through fleets of great steamers going to all parts of the world."

R. H. Thurston.