tains all the arsenic originally in the tissue. The residue is then dissolved in very dilute sulphuric acid. This solution is then gradually introduced into the Marsh apparatus. In this apparatus (holding up a bulbular glass instrument), thirty grammes of pure zinc, alloyed with a little platinum, is placed. Then a small quantity of sulphuric acid is poured in, which, acting on the zinc, generates hydrogen gas. This gas issues from a tube like this, (attaching a glass tube like the spout of a pump to the Marsh apparatus). It then passes through this tube (exhibiting another tube), called the chloride of calcium tube. This dries the gas, and frees it from moisture. The gas then passes through a longer and smaller glass tube (showing it), and finally issues in a jet, which when lighted gives a colourless flame. When the apparatus is filled with hydrogen gas, the substance under examination for arsenic is poured into the upper bulb of the Marsh machine (showing the bulb). A glass stop cock (illustrating) is then turned, and the fluid flows, drop by drop, into this lower bulb, into which the hydrogen is being constantly evolved. In this manner the solution containing the arsenic is brought into contact with the hydrogen. The arsenic combines with the hydrogen, forming a gaseous compound, called arseniureted hydrogen. The arseniureted hydrogen ultimately passes through the narrow glass tube (showing tube). This tube is placed over a small glass furnace (exhibiting a furnace). By the action of these three lights (showing lights in furnace) six inches of the tube are heated to a red heat. As the arseniureted hydrogen passes through this six inches of tube, it is decomposed into metallic arsenic and free hydrogen. The hydrogen passes off, and the metallic arsenic is deposited at the cold end of the tube. The apparatus is allowed to run until the zinc is completely dissolved. This usually takes in from three to four hours. It depends upon the rapidity with which the gas is evolved. As the first portion of the acid flows into the bulb a second portion of stronger sulphuric acid is added, and allowed to flow under the zinc. Lastly, a third portion of still stronger sulphuric acid is added. These serve to completely change the arsenic into arseniureted hydrogen, and the entire amount of metallic arsenic is deposited on the inner surface of the glass tube. The apparatus is then taken apart, and the portion of the tube containing the metal is cut out with a file. (The Professor illustrated by cutting a tube with a file). Thus a piece of glass is secured which contains all the metallic arsenic. The tube, plus the arsenic, is then carefully weighed. Then the incrustation of arsenic is dissolved by nitric acid. The tube is rinsed with water, and finally dried. It is weighed. The difference between the first and second weighing is the weight of the metallic arsenic. My hundred gramme sample of the stomach mixture, treated in this manner, gave a metallic deposit, which weighed 1 3-10 milligrammes.

"I calculate from my analysis of the 100 grammes of stomach mixture," Professor Chittenden continued, "that the whole 603 grammes contained 79-500ths of a grain of arsenic. I next verified the result already obtained. I dissolved the metallic acid in nitric acid, and evaporated the solution to a dryness. It left a white residue. This residue dissolved completely in a drop of water. I then added a little solution of nitrate of silver, soluble in ammonia and soluble in nitric acid. I identified the substance as the white oxide of arsenic beyond the shadow of a doubt. It is the same as that sold at stores under the name of arsenic.

The Professor said that he next weighed out 106 grammes. or 3 ounces 323¼ grains of the sample stomach mixture, and treated it in the same manner as he had treated the preceding portion. He got from it 1 7-25 of a milligramme of metallic arsenic. This demonstration proved to his mind that the arsenic was evenly distributed. There still remained 43 grammes of this sample stomach mixture. He oxidized this in the same manner, and obtained from it metallic arsenic. He proved it by a different process from the first. He used various processes in proving its demonstrations, with the same result. The arsenic was always there. The liver, kidney, heart, lungs and spleen, brain, trachea, diaphragm, and intestines were similarly examined. The total amount of arsenic obtained from these organs was 1 grain and 847,5000ths of a grain.—*Scientific American.*

Dr. Lambert says it is a common error that the joints of animals have always a synovial fluid which is in the nature of a lubricant. The elephant with his relatively moderate motions and great weight, has admirable cartilages but absolutely no lubrication therefor.

TO TAKE OUT MILK AND COFFEE STAINS.

These stains are very difficult to remove, especially from light colored and finely finished goods. From woolen and mixed fabrics they are taken out by moistening them with a mixture of one part glycerine, nine parts water, and one-half part aqua ammonia. This mixture is applied to the goods by means of a brush, and allowed to remain for twelve hours (occasionally renewing the moistening). After this time, the stained pieces are pressed between cloth, and then rubbed with a clean rag. Drying, and if possible a little steaming, is generally sufficient to thoroughly remove the stains. Stains on silk garments which are dyed with delicate colors, or finely finished, are more difficult to remove. In this case five parts glycerine are mixed with five parts water, and one-quarter part of ammonia added. Before using this mixture it should be tried on some part of the garments where it cannot be noticed, in order to see if the mixture will change color. If such is the case no ammonia should be added. If, on the contrary, no change takes place, or if, after drying, the original color is restored, the above mixture is applied with a soft brush, allowing it to remain on the stains for six or eight hours, and is then rubbed with a clean cloth. The remaining dry substance is then carefully taken off by means of a knife. The injured places are now brushed over with clean water, pressed between cloths and dried. If the stain is not then removed, a rubbing with dry bread will easily take it off. To restore the finish, a thin solution of gum arabic, or in many cases beer is preferred. is brushed on, then dried and carefully ironed. By careful manipulation the stains will be succesfully removed.

OLD GERMAN NEWSPAPERS.

At the end of last year there were in circulation in Germany 4,413 newspapers. Of these 98 were older than the present century. Among them the *Frankfürter Journal*, 261 years old ; the *Magdeburg Zeitung*, 253 years old ; the *Leipziger Zeitung*, 221 years old ; the *Jenaische Zeitung*, 207 years ; the *Augsburger Postzeitung*, 195 years ; the *Gotaische Zeitung*, 190 years ; the *Vosetsche Zeitung*, 159 years ; the *Berlin Intelligenzblatt*, 128 years ; the *Kolnische Zeitung*, 84 years. There are 200 newspapers averaging from 80 to 50 years ; 1,127 averaging from 50 to 21 years ; 1,542 between 20 and 6 years ; and 1,380 between 5 years and 3 months old. Altogether there are 1,491 German newspapers more than 20 years old. That a newspaper's existence in Germany is often a very ephemeral one may be inferred from the fact that 20 per cent of the newspapers which circulated through the German post office in 1880 came first into existence within the same year, and the average existence of those newspapers was not more than six months. Some have been more hardy, and have survived into the present year.

EFFECTS OF HEAT ON ELECTRICAL CONDUCTION.

Prof F. Guthrie, F.R.S., recently read a paper on the discharge of electricity by heat. He showed by means of a gold leaf electroscope that a red hot iron ball, when highly heateda would neither discharge the positive prime conductor of g glass electrical machine nor the negative one, but on coolind the ball a temperature was found at which the ball dischargen the negative conductor, but not the positive one. Lastly, on cooling the ball still further—but not below a glowing temperature—it was found to discharge both positive and negative electricity. A platinum wire rendered red hot by the current also discharged a negatively-charged electroscope more readily than a positively-charged one. When placed between two electroscopes, one havifig a + and the other a — charge, it discharged neither. When the + one was withdrawn the—was discharged ; but when the—was withdrawn the + was not discharged. There therefore seemed a tendency in a hot body to throw out + rather than —electricity. These are interesting experiments, and open a litte room for discussion *versus* positive and negative electricity.

The Eye of the House Fly.—Prof. Fairfield thinks there are reasons to believe that the common house fly with its numerous lenses, capable, as has lately been proved, of change of focus, like the human eye, by a circular muscle, overlooked by early entomologists, can avoid the serious difficulties we meet with in higher powers, and could distinctly recognize objects only a twenty-millionth of an inch in diameter.