

into ninety-two elements of the periodic system, and all these ninety-two are recognised now to be aggregates of two simpler electrical units—positively charged protons and negatively charged electrons. Nevertheless, it is interesting to note that chemistry, in its development as a science from alchemy as an art, has passed through four distinct stages, in each of which one of the four elements of Aristotle has been dominant (see *NATURE*, March 10, p. 354).

Just as atmospheric air was found by Raleigh and Ramsay to contain traces of unsuspected elements—argon, neon, krypton and xenon—so ordinary water has recently been shown to have present in it a minute quantity of a novel compound—*heavy water*. Each hydrogen atom in heavy water comprises two protons and two electrons, or twice the quota of an ordinary hydrogen atom, and this increased complexity involves a significant change in chemical as well as in physical properties. Pure heavy water, prepared by a series of fractional electrolyses, has a density more than ten per cent higher than that of ordinary water. It freezes at 3.8° and boils at 101.6° C. It retards the development of plant life, and proves fatal to certain lower species of animal life, such as tadpoles and flat-worms. What its effect, in pure and diluted form, upon the human organism may be is at present merely a matter of interesting speculation. A very interesting survey was given of the views held on the nature of the elements from the earliest period to the present day, and Prof. Kendall suggested that in the future a further phase of development, corresponding with the fifth element of Aristotle, the quintessence or the ether, which survived the other four elements by a century, might recognise the greater importance of radiant energy in chemical processes.

Accidents and their Prevention

A CHADWICK public lecture on "The Causes and Prevention of Human Accidents" was delivered by Dr. C. S. Myers, principal of the National Institute of Industrial Psychology, on March 12. Hitherto accidents in factories and on the road have been too often attributed merely to recklessness and carelessness and to dangerous conditions. More than 50 per cent of factory accidents (fatal and non-fatal) are found not to be due to dangerous machinery; and it has been estimated that, however much better machinery be guarded, the present factory accident rate of more than 106,000 per annum is unlikely to be seriously reduced by these measures or by more extensive use of safety-first posters. On the road, in spite of improved signals, car controls, regulated speeds of traffic and better lay-out of roads, 216,000 were injured and more than 7,000 killed in Great Britain through car accidents in 1933. At least 80 per cent of all such fatal accidents are attributable to the 'human factor', the study of which in occupational life is the concern of the industrial psychologist. Accidents are not uniformly spread over the population whose actions may give rise to them. In each of two American investigations, it was found

that about a half of the total accidents incurred by trams and omnibuses were confined to about a third of their drivers. In England, the scores obtained in selection tests for the motor driver devised by the National Institute of Industrial Psychology, have proved to be so highly correlated with the records of the safe driving of motor drivers on the roads, that one well-known insurance company has recently offered a ten per cent reduction in the annual premium for accident insurance to those who have passed these tests satisfactorily. Selection methods, however, must be supplemented by adequate knowledge, which can be obtained only by systematic training.

New Land in the Antarctic

CONSUL LARS CHRISTENSEN, the Norwegian whaling expert who has done much to encourage Norwegian exploration in the Antarctic, left Cape Town in the whaler *Thorshavn* in December last year for the south. He has now returned to Montevideo and, according to the *Times*, announces the discovery of a new stretch of coast line 150 miles in extent, in lat. 72° S. Unfortunately, the longitude is not given but the land would seem to lie in the unknown sector south of Bouvet Island between Princess Ragnhild Land on the east and Crown Princess Martha Land on the west. The hypothetical coastline was there drawn in approximately the latitude of the new discovery, which has been named Princess Astrid Land. A further note in the dispatch in reference to soundings in deep water on the supposed site of land suggests that some earlier discoveries may have to be moved south, but no details are yet available.

A New Antarctic Expedition

It is announced in the *Times* that a British Antarctic Expedition will leave England in September for the western side of Graham Land. It will be led by Mr. J. R. Rymill, of the recent Watkins Greenland expedition, who will be accompanied by fourteen men most of whom have had experience in Greenland. They include Messrs. W. E. Hampton, Q. Riley, A. Stephenson, and E. Bingham. A vessel of about 120 tons, to be manned by the members of the expedition, will sail via Deception Island in the South Shetlands to Wilhelmina Bay in North Graham Land whence, after a reconnaissance by aeroplane, a sledge journey will be made along the east coast to Crane Channel and back. Later in the summer, the ship will be taken farther south and a base for two winters will be sought in Marguerite Bay, or farther south in Graham Land or possibly Hearst Land. If a safe harbour cannot be found, the ship will return to Deception Island leaving most of the expedition at a land station. From the southern base a sledge journey will start eastward in October 1935, returning about March 1936. It is hoped that this journey will settle the problem of the western coast line of the Weddell Sea. In the following summer, sledge journeys, supplemented by aeroplane flights, will be made westward to Charcot Island and beyond if possible. The expedition hopes to return to England in May 1937. This ambitious project, which should