suite of rooms consisting of drawing, dining, bed, and bath rooms, together with a kitchen and scullery, efficiently and beautifully lighted. In the kitchen demonstrations of electric cooking are being carried out, and are under the direction of a first-class cook. Electric laundry work is also shown.

A COUNTRY IN THE MAKING.¹

THE Argentine Republic has recently celebrated the centenary of its existence as an independent State, and, in the national "stocktaking" which inevitably belongs to such an event, considerable attention has been given to education, as a result of which we have two large volumes of statistical records, and a third volume of monographs, on the various grades of educational work that come under the direction of the State.

Prior to its escape from Spanish control, such education as there was in the country was under clerical, and, for the most part, Jesuitical direction. In the ancient (Argentine) city of Cordova, the foundation of which by Peruvian Spaniards dates back to 1573, the Jesuits established a high school (*Colegia maxima*) in 1610, which Pope and King combined to raise to the dignity of a university very few years later. The university was for two hundred years the sole representative of higher studies. It was secularised in 1800, and a sister university was set up at Buenos Aires in 1821 by the recently organised Government.

It is interesting to note how world-wide was the influence of Napoleonic ideas. There was then no Department of Public Instruction, and the new university was entrusted with the duty of educational administration in the city and district. After various experiments in constitution-making, however, the influence of the great republic of the north made itself felt, and in the federal form of government which was completely adopted in 1860, the duty of providing primary schools was put upon the local legislatures, and a central Ministry of Public Instruction was also formed. It was not, however, until Sarmiento's presidency (1868-73) that the country really woke up to its educational needs. Sarmiento had been an exile for some years, and during that time Chile had sent him to Europe and the United States to study educational systems. He had met Humboldt, Guizot, Cobden, and Horace Mann, and entered upon his presidential period full of great projects for the development of national education. His influence led to greatly-increased grants from the central exchequer to the provincial governments, and to the establishment of a great training college for teachers on the model of similar institutions in the United States.

The degree of progress which has been attained in the provision of primary schools, and the vast difficulties of the Government, are best illustrated by the comparative number of children between six and fourteen who could not read or write (*illettrés*) in 1895 and in 1900. There were in the former year 57 per cent., and in the latter 32.6 per cent. Education is compulsory between six and fourteen; we may suppose that the children in school do not learn to read within a year, and so reduce the 32.6 to approximately 28 per cent.—not a bad result if we keep in mind the enormous territory and the sparseness of the population, immediately the precincts of the large towns are left behind. Uruguay is the only other South American State which comes approximately near to such a result; the number of illiterates rises to 80 per cent.

¹ "République Argentine. Recensement général d'Éducation levé le 23 mai 1900." By Albert B. Martinez. Tome i, "Population Scolaire." Pp. xlii+448. Tome ii, "Statistique Scolaire." Pp. lxxiii+344. Tome iii, "Monographies." Pp. ii+702. (Buenos Aires, 1900.)

in Brazil and 90 per cent. in Venezuela. In spite of what has been accomplished in the sphere of primary education, the cost to the State is very small in comparison with what is paid for the higher schools and universities.

Most of the secondary schools are under the direct control of the Central Government. They follow a five-year course preparatory to the university. As is the case in Austria, it is worthy of note that psychology is a subject of instruction in the last school year. The schools in Buenos Aires are magnificently housed; their equipment is costly, and their staffs are ample. The five schools cost the city more than 100,000*l.* in 1908. But in the smaller towns things do not go so well. The subjects are appropriated to chairs (*catedras*), the holders of which must give at least three hours a week instruction. They are for the most part occupied by local professional men, whose main interests are not, of course, in the school. There are two State high schools for girls, in Buenos Aires and in La Plata, but the majority of girls are educated in conventual institutions. The Jesuitical seminaries also attract many of the sons of the wealthier classes.

There are now three universities in the country, a third having been founded by the State of La Plata in 1906. This last foundation follows the United States model, with a supervising president who brings unity into the system of government by more or less independent faculties such as obtains in Cordova and Buenos Aires. All the universities are handsomely provided with funds. In 1908, Cordova received 55,000*l.*, Buenos Aires 90,000*l.*, and La Plata 86,000*l.* from the national exchequer. Nor is capital expense spared. The State has recently voted 1,200,000*l.* for various university buildings, including a new hospital for the medical school at Buenos Aires, and buildings at Cordova in celebration of the tercentary of its foundation.¹

Vigorous life and a profound belief in education are obvious everywhere. Technical schools, a new public school on the English pattern, magnificent museums and libraries such as our great provincial cities may long yearn for in vain—all these are pointed to with legitimate pride. Here and there in the record one comes across interesting bits of heterodoxy, which bear witness to a healthy independence of view. "J'estime que l'institution des Kindergarten est une véritable hérésie pédagogique et un crime de lèse-enfance." This is startling, to say the least. Nevertheless, the volumes fill one with admiration for the pride and faith in the future of their country which animates their authors and the administrators whose work they record. J. A. GREEN.

DR. F. W. PAVY, F.R.S.

ON September 19 the death occurred of Dr. Frederick William Pavy, F.R.S., in his eighty-third year. Dr. Pavy was born in Wiltshire in May, 1829, and was educated at Merchant Taylors' School. He subsequently entered Guy's Hospital, where he had a distinguished career, and in the course of his graduation at the London University took the exhibition and gold medal in materia medica, the gold medal in medicine, and honours in other subjects. He became a doctor of medicine in 1853. He studied physiology in the laboratory of Claude Bernard, in Paris, and soon began that prolonged research into the relation of sugar to the animal economy, in reference to the causation and treatment of glycosuria and diabetes, which terminated only with his life.

¹ V. article "Argentine Republic," Macmillan's Cyclopædia of Education.

Dr. Pavy's first communication to the Royal Society was in 1855, and was entitled "An experimental inquiry into the nature of the metamorphosis of saccharine matter as a normal process of the animal economy." In this he gave reasons for believing that the sugar formed in the liver is not entirely destroyed by combustion in the body, but is changed by means of fermentation. This was followed in 1858 and 1860 by accounts of an "Experimental inquiry into the alleged sugar-forming function of the liver." In these he demonstrated that the large amount of sugar found in the blood returning from the liver was not, as Bernard supposed, present during life, but was really the result of a transformation of the glycogen taking place with great rapidity after death.

In subsequent papers he showed the influence upon the formation of sugar in the blood, of the injection of alkalis, and of acids, into the circulation. Claude Bernard had shown that a lesion of a certain part of the fourth ventricle would cause glycosuria; in 1859 Pavy, in a communication "On the lesions of the nervous system producing diabetes," demonstrated that the same change in the urine was brought about by removal of the superior cervical ganglion, or the division of the sympathetic trunk in the neck. He referred this appearance of sugar to an alteration in the vasomotor apparatus of the liver. In 1863 he was led to ask why the gastric secretions did not in health digest the gastric mucous membrane itself; and from a series of ingenious experiments he drew the inference that this was due to the circulation in the stomach walls of an alkaline blood which was sufficient to neutralise the acid gastric juice, coming into contact with the mucous membrane.

In the same year, Dr. Pavy was elected a Fellow of the Royal Society, and so far as communications to this society were concerned he appears to have rested on his oars for several years. Not that he was idle; far from it. He was for a time demonstrator of anatomy at Guy's Hospital. Within two or three years of graduation, he was appointed lecturer on physiology and comparative anatomy, and he continued his lectures on physiology until 1878, for the last five years in conjunction with Dr. Pye-Smith. In 1859 he was appointed assistant physician to Guy's Hospital, and in 1871 he became full physician. In 1862 appeared his work entitled "Researches on the Nature and Treatment of Diabetes," and he soon acquired a large professional practice among sufferers from that complaint.

Dr. Pavy did not, however, confine himself to the subject of diabetes; he did valuable work in connection with the forms of functional albuminuria, and he wrote a "Treatise on the Function of Digestion." This was followed in 1874 by a "Treatise on Food and Dietetics," which was a standard book for many years. In 1890, at the age of sixty-one, he retired from hospital work at Guy's, but he still enjoyed a large private practice, held the offices of censor and Harveian orator at the Royal College of Physicians, and continued unintermittingly and with dogged perseverance his researches upon the destination of sugar and other carbohydrates in the animal system. In 1875 he read a paper before the Royal Society "On the production of glycosuria by the effect of oxygenated blood on the liver," and in the following ten years he read as many papers bearing on the carbohydrates and diabetes. He made many practical additions to the chemistry of the subject, and his introduction of an ammoniated cupric test in the volumetric estimation of sugar was undoubtedly of great value.

Dr. Pavy has made numerous other communications to medical journals on these subjects; he published in

1894 a "Treatise on the Physiology of the Carbohydrates," and in 1908 delivered three lectures "On the pathology and treatment of diabetes viewed by the light of present-day knowledge." In all this later work he insists on the fact that carbohydrates can be both derived from, and converted into, proteid, as one of great importance in relation to diabetes.

Dr. Pavy's work was well known abroad, and he was the recipient of several honours. He was a corresponding member of the Société d'Anatomie of Paris; and in 1908 the Academy of Medicine of Paris awarded the Godard prize to his work on carbohydrate metabolism on diabetes. In 1901 he was awarded the Baly medal by the Royal College of Physicians of London.

FREDERICK TAYLOR.

NOTES.

EXHAUSTIVE tests have been made during the last two weeks by Mr. A. W. Sharman with instruments invented by him for telephoning through water without wires. A small telephone station has been erected in a room in an hotel on the cliffs at Pegwell Bay, and the other station has been fitted up on a motor-boat cruising in various parts of the bay. The microphone used in speaking is connected in series with a battery of four or five dry cells and an impulse coil, the coil being of special construction and giving very short induced currents of high potential, which are communicated to the water by two wires connected to the terminals of the coil and terminating themselves in plates buried in the sand or submerged in the water. Two similar plates, connected direct with a very low resistance telephone receiver, enable the speech to be "picked up" at distances of a mile and more. The speech transmitted through the water has been very distinct, and the system has shown good possibilities of its being used as a means of verbal communication between two ships, such as a battleship and a submarine. The effect is very directional; and another advantage is that, with a small tuned buzzer, telegraphic signals can be transmitted through the earth or water for a distance of several miles; the primary energy required is extremely small, four watts sufficing to telephone over a distance of two miles. Experiments are also being made in combining with the Sharman instruments a sensitive telephone receiver invented by Mr. T. Thorne Baker, with which it is hoped the present range may be increased by 50 per cent. or more.

THE naval dirigible, an experimental airship which has been building at Messrs. Vickers' works, Barrow, for the Admiralty, during the last two years, was wrecked on Sunday, September 24, while being towed out into the centre of Cavendish Dock in preparation for a flight. The vessel, which is of the Zeppelin type, is 510 feet long, 45 feet in diameter, and of a capacity of 20,000 cubic metres. The rigid framework, containing seventeen separate gas-bags, is constructed of a new alloy known as "duralumin." Each of the gondolas, fore and aft, contains a 200 horse-power Wolseley motor, the motor in front driving two propellers on either side, and that in the rear driving one propeller placed behind the gondola. The accident started so soon as the order to begin to veer the bow round towards the centre of the dock was obeyed. The ship bulged and broke by her seventh, eighth, and ninth gas-bags, approximately in the middle. The outer fabric fortunately held, enabling both portions to be secured and eventually returned to the shed, without injury to the crew, though several men were obliged to swim for safety. The exact cause of the accident is unknown, nor is it likely to be made public. Structural weakness would seem