

THE BUCHANAN-GORDON DIVING DRESS.

BY OUR ENGLISH CORRESPONDENT.

We herewith present a photograph of a diver clad in a new diving dress known as the Buchanan-Gordon diving dress, and the two gentlemen standing to the right of him in the picture are Messrs. W. W. Gordon and A. Gordon respectively. The gentlemen mentioned arrived in Great Britain recently from Melbourne, Australia, for the purpose of showing Britishers their improved deep sea diving apparatus, which has been generally adopted in connection with pearl fisheries in the colonies. With a view to clearly demonstrating its advantages, the patentees, after a number of successful experiments in Australia, brought a couple of dresses to London. They received every assistance from that famous firm of submarine engineers Messrs. Siebe, Gorman & Company, London, the principal partner of which had the honor of designing the present day dress.

The chief diver of the firm, the famous W. R. Walker (who is represented in the photograph wearing the dress), was granted liberty to assist in the experiments, which took place on the Clyde during last month from Messrs. Ross & Marshall's steam yacht *Aerolite*, which was chartered for the work. After accustoming himself to the new dress and familiarizing himself with the currents, etc., Walker bottomed 31 fathoms, or 189 feet. He was under the water for fifty minutes, during which he was subjected to a pressure of over 80 pounds to the square inch, but on coming up he was quite fresh. The next time Walker went down on the Clyde there was present a large gathering of well known experts. Some trouble was experienced in fathoming a sufficient depth, but after a time a lovely spot was found at the mouth of Loehgoil. The line showed a depth of 33 fathoms, but the yacht swung round a little, and when Diver Walker reached the ground the indicator pointed to 31 fathoms, or roughly speaking, about 186 feet. Walker was under the water forty minutes, and while on the ground he unhooked a block which was fastened to the bottom of a separate line, and brought it to the surface. On regaining the boat and divesting himself of the dress he showed not the slightest signs of exhaustion, and on all hands the experiment was voted a great success. This depth has never before been attained in Great Britain. Walker spoke highly of the dress, which he describes as an admirable one for its purpose—deep sea diving.

In the present day he has never been deeper down than 133 feet or 22 fathoms. While on the ground he said he moved about with as much ease and comfort as he had done at a depth of 15 fathoms in the old dress. During the experiments the pumps, air hose, and lately designed telephone (never before used at such a depth) of Messrs. Siebe, Gorman & Company were used. The diver was delighted with the telephone, through which while he was below he spoke to his attendant on the deck of the vessel.

To prove the efficiency of the Buchanan-Gordon dress, a novice tried it, and in his first attempt he bottomed 10 fathoms, the next day he managed 15 fathoms and his next trial he fathomed 19½ fathoms. The dress has been designed to meet the requirements of all descriptions of deep sea diving up to 30 fathoms, or at even greater depths. The invention is a dress which in itself withstands the tremendous pressure of great depths, enabling the diver to breathe a normal air pressure. It is in effect a suit of armor which defies all assaults, yet enables the wearer to move about with the utmost ease. The most important part is the helmet, which descends to the waist in one piece of solid copper, and weighs no less than 2½ cwt., while the dress

weighs 5 cwt. The arms and the lower half of the dress consist of a series of spiral springs covered with waterproof material, which at the same time gives strength and mobility. These springs are made of Delta metal—a phosphor bronze of immense strength. By a series of ingenious arrangements the suit can be adjusted to the height of the diver, and there is a jointed brass support running along the outside of the legs, which is intended to prevent the horrible accidents which might be caused by the upward pressure of the water. But perhaps the most interesting portion of the Gordon dress is the escape valve. Presuming a diver to be at a depth of 26 fathoms, he would have to stand a pressure of 69 pounds to the square inch; and, therefore, an air pressure of more than this amount would have to be pumped into the diver's dress in order that the escaping air might overcome the external resistance. But in the Gordon process this difficulty is overcome in a very simple manner. The escape valve, which is perfectly under the diver's control, is attached to a floating hose, the upper end of which can be submerged at any required depth below the surface. This reduces the head against which the air

has been placed in the hands of the young architect Wilhelm Wilberg, a former student and assistant of Dr. Dörfeld.

The work has now proceeded far enough to determine its extraordinary importance. A buried city preserved almost in the completeness of Pompeii is coming to light. Up to this time no Greek city has been excavated that gives any clue to the arrangement of streets, public squares, monuments and public buildings, or to the architecture of any considerable number of private houses. Here we find a city, to be sure, of the Hellenistic period, laid out with great regularity, with streets crossing at right angles, with shops, colonnades, market places, theaters, a council house, and a great number of private houses preserved in such completeness as to display their general architecture, distribution of space, use, decoration and equipment.

South of the great square of the temple alluded to above, and closely adjoining it, has been found the great market place or agora of the city, which was surrounded on all four sides by broad colonnades, of which that on the north side was peculiarly noble and stately. Adjoining this at one end, and opening upon one

corner of the agora, was found a small square building constructed somewhat like a theater, which was evidently the council house of the city. It is marvelously well preserved. Sixteen rows of seats are still in place. The walls, doors, windows, platforms, etc., are all preserved. One of the side walls ends in a massive arch, which, as being demonstrably a work of the fourth century B. C., must rank as the earliest, or at least one of the few earliest, specimens of the arch in Greek construction. The whole building represents something entirely unique in the relics of Greek architecture.

There has also been found a small theater in which the stage structure, the skené, is still standing entire. Three doors open from it upon the orchestra, and the proscenium, with its rows of columns and the architrave above them, remains intact. No Greek theater as yet discovered is so perfectly preserved as this, and in the future discussions of the "stage question" this structure is likely to assume a leading place.

The Present Price of Aluminum.

The Aluminum World contains each month the latest price list for aluminum in all forms. Our readers will doubtless be interested in knowing the present quotations.

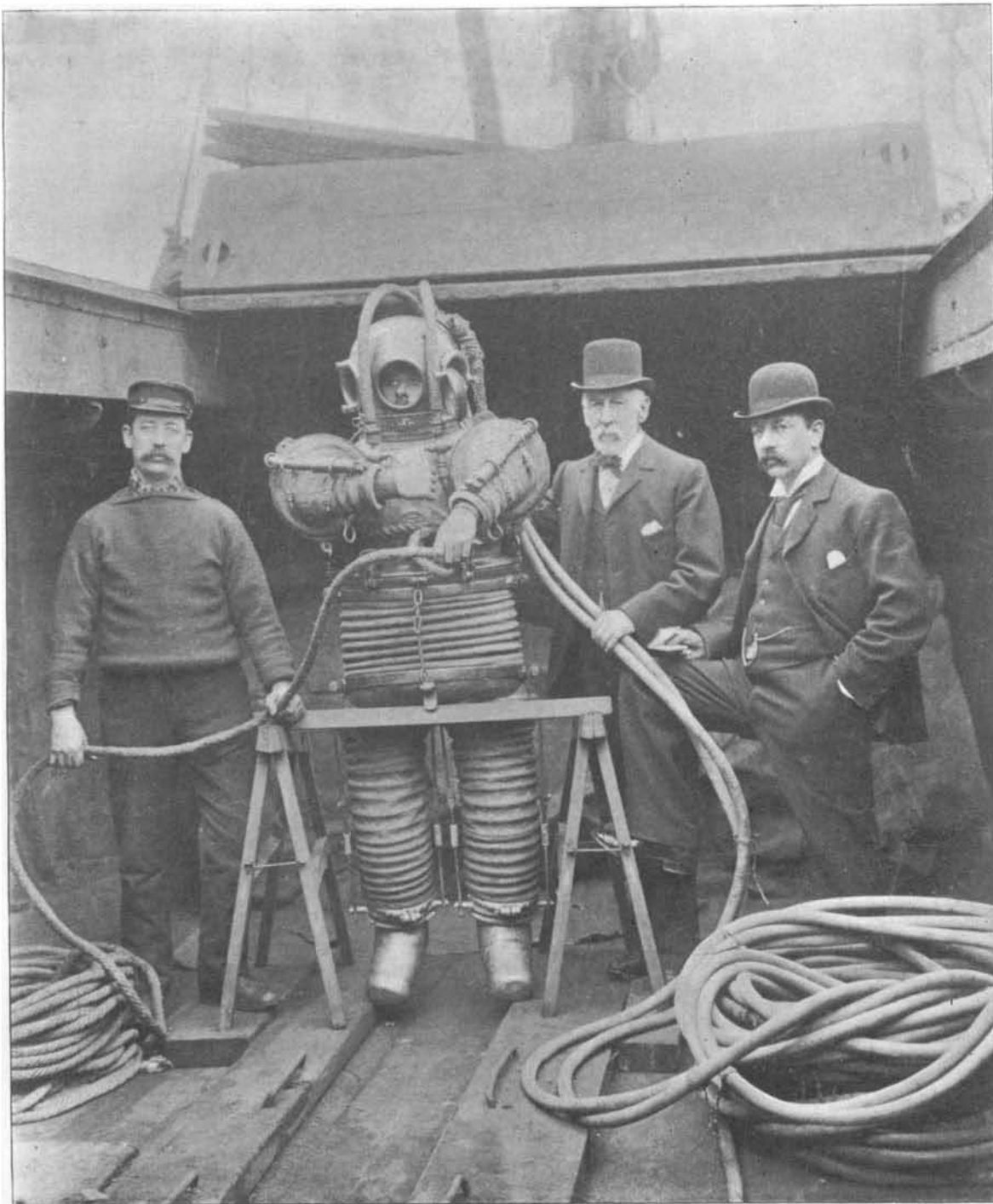
Aluminum ingots, guaranteed to be over 99 per cent pure, cost 40 cents a pound in small lots and 34 cents in ton lots. Aluminum guaranteed to be over 90 per cent pure for alloying with iron and steel

costs only 31 cents in ton lots. Special casting alloy containing over 80 per cent pure aluminum for use in place of brass costs 27 cents a pound. Aluminum castings cost 45 cents and upward a pound. Aluminum bronze ingots containing 2½ per cent of aluminum cost 13 cents a pound, while those containing 10 per cent cost 16 cents.

Aluminum rods cost 53 to 55 cents a pound, and rolled squares and other sections, in orders of not less than 1,000 pounds at a time, \$1 a pound. Plate and sheet aluminum costs from 40 cents to \$2.90 per pound, while wire costs from 55 cents to \$4.80 per pound. Finely powdered aluminum for paint, printing and other purposes costs \$1.75 a pound.

Aluminum is now so cheap that it is used in many cases as a substitute for brass.

PERHAPS the largest house in the world is in Wieden, a suburb of Vienna. In this domicile there are 1,400 rooms, divided into 400 suites of from three to six rooms each, and they at present shelter 2,112 persons, who pay an annual rental of over 100,000 florins.



EXPERIMENTS WITH A NOVEL DIVING SUIT IN ENGLAND.

escapes and thereby permits the pressure of air supplied to the diver to be proportionately diminished.

But perhaps the most valuable feature of the invention is the capacity of the dress for retaining air.

A Greek City Unearthed.

Private letters just received in this country by a correspondent of the New York Tribune bring news of most important discoveries made by the German archaeologists excavating on the site of the ancient Priene, in Asia Minor, opposite the island of Samos. Years ago an English expedition excavated and studied the Temple of Athena, the chief sanctuary of the city, built at the order of Alexander the Great. The work was then abandoned, and meanwhile the ruins have been so thoroughly exploited and wasted by the neighboring population that nothing is left but a confused heap of stones. In 1895 the work of exploring the ruins of the city was resumed, this time by Germans under the direction of the Berlin Museum and at the expense of the Prussian government. The architectural work