

subject could recline in a comfortable position. The interior was electrically illumined, and by means of the telephone and electric bell the subject was able to communicate with his companion outside. A two-cylinder motor-driven pump was used for compressing the air, and this was capable of raising the air pressure within the cylinder to six atmospheres in approximately 40 minutes. There were two decompression pipes with taps of fine bore, so that the rate of escape could be very finely adjusted. In order to avoid any accumulation of carbon dioxide gas, a constant ventilation was maintained.

In one of the tests Mr. Greenwood, upon emerging from the chamber, experienced itching in both fore-arms, more especially in the right. At first the pains were light, but after a lapse of about 20 minutes they increased, becoming neuralgic in character. After remaining moderately intense for five minutes, they gradually subsided. Later investigations indicated that the pains were due to the fact that the subject remained practically motionless during the period of decompression.

In the course of the investigations pressures ranging up to 92 pounds were attained. In no instance were any severe after-effects experienced. A pressure of 90 pounds is equivalent to a water depth of 210 feet, which is some 90 feet in excess of the safety limit fixed by the British Admiralty for divers. It is thus evident that an adult may be safely submitted to a total barometric pressure of seven atmospheres. Even a greater depth than 210 feet might be attained, since the limit appears to be fixed by the pressure at which the toxic effects of high-tension oxygen become an immediate danger. These toxic effects have been closely studied by several scientists. When the partial pressure of oxygen reaches two atmospheres, corresponding to ten atmospheres of air, or a depth of 350 feet in water, convulsions may occur in animals within 20 minutes. It is possible that this limit may be extended by diluting the air with nitrogen, but upon this point the investigators do not claim to afford any testimony. However, the results of their practical observations show that the diving depth may be safely increased up to 210 feet.

The observers prepared a careful record of the various sensations they experienced under pressure. The feeling of discomfort in the ears, due to a different air pressure on opposite sides of the tympanum, is well known. Previous to the experiments Mr. Hill had not practised the opening of the Eustachian tubes, and the effect of the test was most disturbing