

Reel #10

FORM NO. 6-3M-2-32

GOLDEN GATE BRIDGE AND HIGHWAY DISTRICT
INTEROFFICE MEMORANDUM

TO Mr. H. Clay Bernard

DATE October 21st, 1933

FROM Mr. R. P. Winston

AT San Francisco

SUBJECT Recompression Chambers

REFERENCE

The recompression chamber - more familiarly known as "The Iron Doctor" - used in connection with diving and caisson work is primarily designed for use in the treatment of caisson disease, or as it is more commonly called "The bends". The chamber is occasionally used for subjecting men to air pressure during the physical examination made to determine their fitness for working under air.

The recompression chamber built by the Pacific Bridge Company for use on the Golden Gate Bridge is nine feet in diameter and twenty-one feet, eight inches long and is designed to stand pressures as high as one hundred pounds. A bulkhead with an air tight door divides the chamber into two compartments, both bulkhead and door being equipped with small windows for observation purposes. It is possible to put either or both compartments under pressure. Electric lights and heating coils are part of the installation and the rear chamber is equipped with six bunks.

When a man is working under compressed air, his body, through the lungs, absorbs and becomes saturated with excess nitrogen. A too sudden release from pressure does not allow the body to desaturate; consequently nitrogen bubbles form and increase in size as time elapses. It is these large bubbles of nitrogen that cause the "bends" due to their lodging in the tendons, bone muscles, and nerve endings. Symptoms usually appear within an hour after coming out from under pressure but frequently not until after several hours. Many jobs have a rule that men stay around the work for an hour after coming out of pressure and as a further protection, each worker must wear a badge giving instructions to rush him to the nearest recompression chamber in the event of his being seized with an attack away from the job. Two chambers are available in San Francisco. One is at the Transbay Bridge and one at the Golden Gate.

Upon arrival at the chamber, the patient is immediately put to bed in the rear compartment and if the case is severe a doctor stays with him. In mild cases the man is alone in the chamber and kept under observation from outside. Once in the compartment, the air tight door is bolted shut and pressure put on to equal about two-thirds of the pressure under which he was working previous to the attack. Under pressure, relief comes almost immediately. Decompression is then started at a slow rate and if, when pressure is down to zero, no further symptoms are manifested, the patient is released. In most cases one such treatment is sufficient to cure an attack but occasionally two or more are necessary.

In practically all cases there is no recurrence of the attack but no immunity is established as a man is susceptible to bends following any period of work under air.

It must not be assumed that caisson disease is a common occurrence. Many men work as "sand hogs" for years and never suffer an attack. A good physical condition is of prime importance. Excessive drinking, constipation and insufficient rest are some of the contributing causes. With good health and proper job conditions, the risk of an attack of bends is reduced to the minimum.

GOLDEN GATE BRIDGE AND HIGHWAY DISTRICT
INTEROFFICE MEMORANDUM

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TO Mr. H. Clay Bernard
FROM Mr. R. P. Winston
SUBJECT Recompression Chambers - Continued

DATE October 31, 1933

AT San Francisco

REFERENCE

To supply air for caisson work on the Golden Gate Bridge, the Pacific Bridge Company has installed a modern and complete compressor plant. The main installation consists of two Chicago Pneumatic Company, two-stage motor driven compressors, each capable of maintaining 100# air pressure and delivering 2500 cubic feet of free air per minute per unit. As an emergency plant, they have an Ingersoll-Rand Compressor of 1100 cubic feet per minute capacity, driven by a 200 H.P. Marine boiler. The steam unit is kept fired at all times and can be cut in at once in the event of a failure of power and consequent shutting down of the electrically driven units.

R.P.W.

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