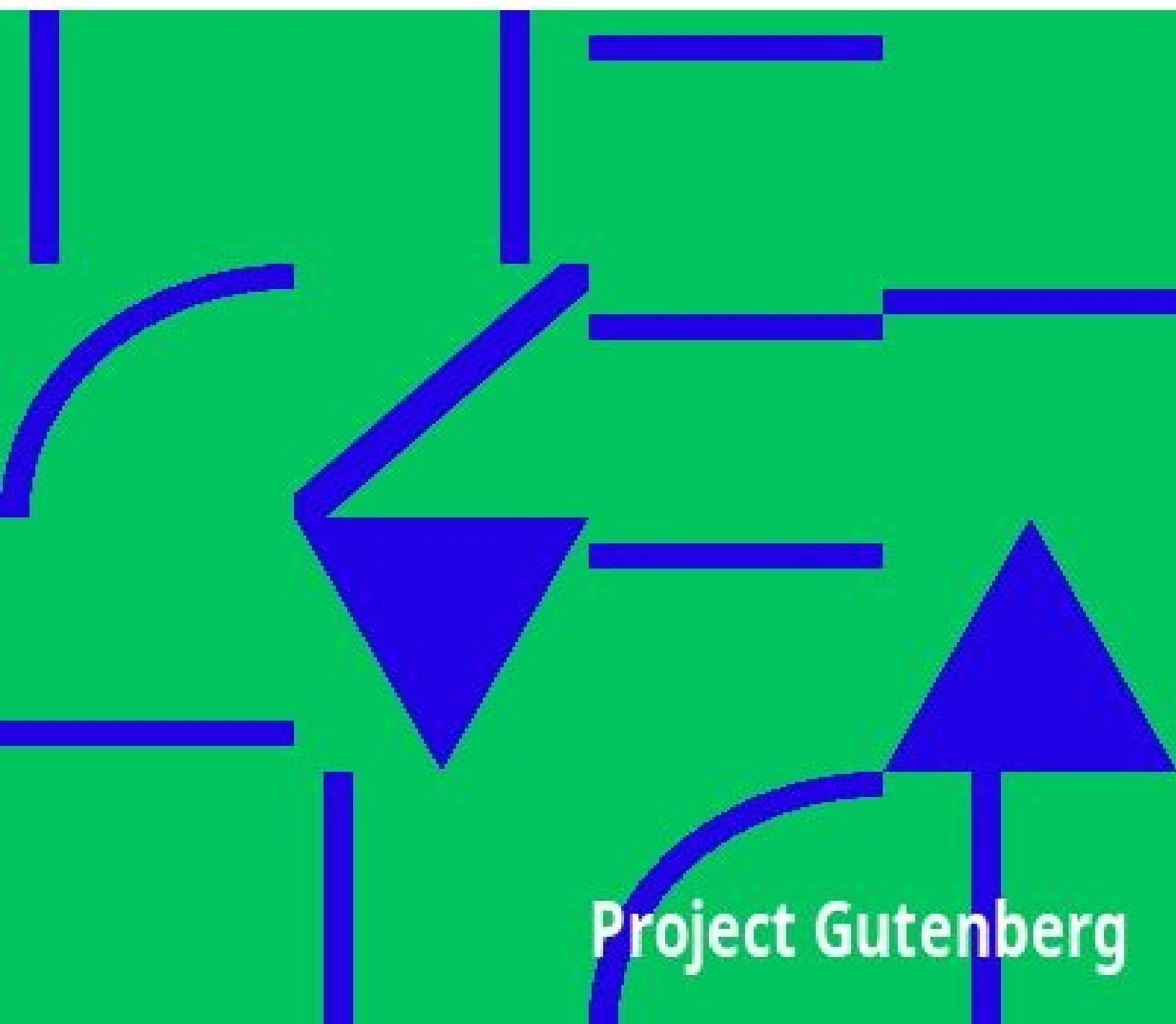


The Undersea Tube

L. Taylor Hansen



Project Gutenberg

The Project Gutenberg EBook of The Undersea Tube, by L. Taylor Hansen

This eBook is for the use of anyone anywhere at no cost and with almost no restrictions whatsoever. You may copy it, give it away or re-use it under the terms of the Project Gutenberg License included with this eBook or online at www.gutenberg.net

Title: The Undersea Tube

Author: L. Taylor Hansen

Illustrator: Hans Waldemar Wessolowski

Release Date: December 25, 2008 [EBook #27609]

Language: English

*** START OF THIS PROJECT GUTENBERG EBOOK THE UNDERSEA TUBE ***

Produced by Greg Weeks, Stephen Blundell and the Online Distributed Proofreading Team at <http://www.pgdp.net>

The Undersea Tube

BY L. TAYLOR HANSEN

**Classic Reprint from
AMAZING STORIES, Nov., 1929**

Copyright, 1929, by E. P. Incorporated

IF my friend the engineer had not told me the Tube was dangerous, I would not have bought a ticket on that fatal night, and the world would never have learned the story of the Golden Cavern and the City of the Dead. Having therefore, according to universal custom, first made my report as the sole survivor of the much-discussed Undersea Tube disaster to the International Committee for the Investigation of Disasters, I am now ready to outline that story for the world. Naturally I am aware of the many wild tales and rumors that have been circulated ever since the accident, but I must ask my readers to bear with me while I attempt to briefly sketch, not only the tremendous difficulties to be overcome by the engineers, but also the wind-propulsion theory which was made use of in this undertaking; because it is only by understanding something of these two phases of the Tube's engineering problems that one can understand the accident and its subsequent revelations.

It will be recalled by those who have not allowed their view of modern history to become too hazy, that the close of the twentieth century saw a dream of the engineering world at last realized—the completion of the long-heralded undersea railroad. It will also be recalled that the engineers in charge of this stupendous undertaking were greatly encouraged by the signal success of the first tube under the English Channel, joining England and France by rail. However, it was from the second tube across the Channel and the tube connecting Montreal to New York, as well as the one connecting New York and Chicago, that they obtained some of their then radical ideas concerning the use of wind power for propulsion. Therefore, before the Undersea Tube had been completed, the engineers in charge had decided to make use of the new method in the world's longest tunnel, and upon that decision work was immediately commenced upon the blue-prints for the great air pumps that were to rise at the two ends—

Liverpool and New York. However, I will touch upon the theory of wind-propulsion later and after the manner in which it was explained to me.

It will be recalled that after great ceremonies, the Tube was begun simultaneously at the two terminating cities and proceeded through solid rock—low enough below the ocean floor to overcome the terrible pressure of the body of water over it, and yet close enough to the sea to overcome the intensity of subterranean heat. Needless to say, it was an extremely hazardous undertaking, despite the very careful surveys that had been made, for the little parties of workmen could never tell when they would strike a crack or an unexpected crevice that would let down upon them with a terrible rush, the waters of the Atlantic. But hazard is adventure, and as the two little groups of laborers dug toward each other, the eyes of the press followed them with more persistent interest than it has ever followed the daily toil of any man or group of men, either before or since.

ONCE the world was startled by the "extree-ee—" announcing that the English group had broken into an extinct volcano, whose upper end had apparently been sealed ages before, for it contained not water but air—curiously close and choking perhaps, but at least it was not the watery deluge of death. And then came the great discovery. No one who lived through that time will forget the thrill that quickened the pulse of mankind when the American group digging through a seam of old lava under what scientists call the "ancient ridge," broke into a sealed cavern which gleamed in the probing flashlights of the workers like the scintillating points of a thousand diamonds. But when they found the jeweled casket, through whose glass top they peered curiously down upon the white body of a beautiful woman, partly draped in the ripples of her heavy, red hair, the world gasped and wondered. As every school child knows, the casket was opened by curious scientists, who flocked into the tube from the length of the world, but at the first exposure to the air, the strange liquid that had protected the body vanished, leaving in the casket not the white figure, but only a crumbling mass of grey dust. But the questions that the finding of the cave had raised remained unanswered.

Who was this woman? How did she get into the sealed cavern? If she had been the court favorite of that mythical kingdom, now sunk beneath the waves, and had been disposed of in court intrigue, why would her murderers have buried her

in such a casket? How had she been killed? An unknown poison? Perhaps she had been a favorite slave of the monarch. This view gained many converts among the archaeologists who argued that from all the evidence we have available, the race carrying the Iberian or Proto-Egyptian culture, long thought to have been the true refugees from sinking Atlantis, were a slight dark-haired race. Therefore this woman must have been a captive. Geologists, analyzing the lava, announced that it had hardened in air and not in water, while anthropologists classed the skull of the woman as essentially more modern than either the Neanderthal or Cro-Magnon types. But the engineers, secretly fuming at the delay, finally managed to fill up the cave and press on with their drills.

Then following the arguments that still flourished in the press, came a tiny little news article and the first message to carry concern to the hearts of the engineers. The sea had begun to trickle in through one slight crack. Perhaps it was only because the crevice was located on the English side of the now famous "ancient ridge" that the article brought forth any notice at all. But for the engineers it meant the first warning of possibly ultimate disaster. They could not seal the crack, and pumps were brought into play. However, as a month wore on, the crack did not appear to widen to any material extent and the danger cry of a few pessimists was forgotten.

Finally, it will be remembered, that sounders listening in the rocks heard the drillers of the other party, and then with wild enthusiasm the work was pushed on to completion. The long Tube had been dug. Now it only remained for the sides at the junction to be enlarged and encased with cast iron, while the work of setting up the great machines designed to drive the pellet trains through, was also pushed on to its ultimate end. Man had essayed the greatest feat of engineering ever undertaken in the history of the planet, and had won. A period of wild celebration greeted the first human beings to cross each direction below the sea.

Did the volume of water increase that was carried daily out of the Tube and dumped from the two stations? If it did, the incident was ignored by the press. Instead, the fact that some "cranks" persisted in calling man's latest toy unsafe, only attracted more travel. The Undersea Tube functioned on regular schedule for three years, became the usual method of ocean transit.

THIS was the state of matters, when on the fourth of March last, our textile company ordered me to France to straighten out some orders with the France

house, the situation being such that they preferred to send a man. Why they did not use radio-vision I do not care to state, as this is my company's business.

Therefore, upon entering my apartment, I was in the midst of packing when the television phone called me. The jovial features of "Dutch" Higgins, my one-time college room-mate and now one of the much-maligned engineers of the Undersea Tube, smiled back at me from the disk.

"Where are you? I thought we had a sort of dinner engagement at my apartment, Bob."

"By gollies I forgot, Dutch. I'll be right over—before it gets cold."

Then immediately I turned the knob to the Municipal Aerial-car yards, and ordered my motor, as I grabbed my hat and hurried to the roof. In due time, of course, I sprang the big surprise of the evening, adding:

"And, of course, I'm going by the Tube, I feel sort of a half-partnership in it because you were one of the designers."

A curious half-pained look crossed his face. We had finished our meal, and were smoking with pushed-back chairs. He finished filling his pipe, and scowled.

"Well? Why don't you say something? Thought you'd be—well, sort of pleased."

He struck his automatic lighter and drew in a long puff of smoke before answering.

"Wish you'd take another route, Bob."

"Take another route?"

"Yes. If you want it straight, the Tube is not safe."

"You are joking."

But as I looked into his cold, thoughtful blue eyes, I knew he had never been more serious.

"I wish that you would go by the Trans-Atlantic Air Liners. They are just as fast."

"But you used to be so enthusiastic about the Tube, Dutch! Why I remember when it was being drilled that you would call me up at all kinds of wild hours to

tell me the latest bits of news."

He nodded slowly.

"Yes, that was in the days before the crack."

"Yet you expected to take care of possible leaks, you know," I countered.

"But this crack opened after the tunnel had been dug past it, and lately it has opened more."

"Are the other engineers alarmed?"

"No. We are easily taking care of the extra water and again the opening seems to remain at a stationary width as it has for the past three years. But we cannot caulk it."

"Are you going to publish these views?"

"No. I made out a minority report. I can do no more."

"Dutch, you are becoming over-cautious. First sign of old age."

"Perhaps," with the old smile.

"But after all it is now more than three years since we have had a talk on the Tube. After it began to function as well as the Air-Express you sort of lost interest in it."

"And the world did too."

"Certainly—but the public ever was a fickle mistress. Who said that before me?"

He laughed and blew out a long puff of smoke.

"Everyone, Bob."

"But as to the Tube, if I cross under the sea, I would want to be as well informed on the road as I was three years ago. Now in the meantime, you have dropped interest in the long tunnel while I have become more interested in textiles—with the result that I have forgotten all I ever did know—which compared to your grasp of the details, was little enough."

BUT his face showed none of the old-time animation on the subject. What a different man, I mused to myself, from that enthusiastic engineering student that I used to come upon dreaming over his blue-prints. He was considered "half-cracked" in those days when he would enthuse over his undersea railroad, but his animated face was lit with inspiration. Now the light was gone.

"Well, Dutch, how about it? Aren't you going to make me that brief little sketch of the length plan and cross-section of the Tube? I remember your sketch of it in college, and it tends to confuse me with the real changes that were made necessary when the wind-propulsion method was adopted."

"All right, old timer. You remember that the Tube was widened at the sides in order that we could make two circular tubes side by side—one going each way."

"I had forgotten that they were circular."

"That is because of the pressure. A circle presents the best resistance," and picking an odd envelope from his pocket, he made the following sketch and passed it to me.

CROSS-SECTION OF TUBE

I nodded as I recognized the cross-section.

"Now the plan of the thing is like this," he added, putting aside his pipe and pulling a sheet of paper from the corner of his desk.

Rapidly, with all his old accuracy, he sketched the main plan and leaned over as he handed it to me.

PLAN OF UNDER-SEA TUBE

"You see," he explained, picking up his pipe again, "both pumps work at one time—in fact, I should say all four, because this plan is duplicated on the English side. On both ends then, a train is gently pushed in by an electric locomotive. A car at a time goes through the gate so that there is a cushion of air between each car. The same thing happens at Liverpool. Now, when the due train comes out of the suction tube, it goes on out the gate, but the air behind it travels right on around and comes in behind the train that is leaving."

"But how are you assured that it will not stall somewhere?"

"It won't be likely to with pressure pumps going behind it and suction pumps pulling from in front. We can always put extra power on if necessary. Thus far the road has worked perfectly."

"How much power do you need to send it through, under normal conditions?"

"Our trains have been averaging about fifty tons, and for that weight we have found that a pound pressure is quite sufficient. Now, taking the tunnel's length as four thousand miles (of course it is not that long, but round figures are most convenient) and the tube width eleven and one quarter feet each and working this out we have 3,020,000 cubic feet of free air per minute or 2,904,000 cubic feet of compressed air, which would use about 70,000 horse power on the air compressor."

"But isn't the speed rather dizzy?"

"Not any more dizzy, Bob, than those old fashioned money-carrying machines that the department stores used to use—that is in comparison to size. The average speed is about 360 feet a second. Of course, the train is allowed to slow down toward the end of its run, even before it hits the braking machinery beyond the gate."

"But how much pressure did you say would be put on the back of the diaphragm—I remember that each car has a flat disc on the back that fits fairly tightly to the tube ..."

"The pressure on the back is less than seven tons. However, the disc does not fit tight. There are several leaks. For instance, the cars are as you know, run on the principle of the monorail with a guiding rail on each side. The grooves for the rails with their three rollers are in each car. There is a slight leakage of air here."

"You used the turbo type of blower, didn't you?"

"Had to because of the noise. We put some silencing devices on that and yet we could not kill all of the racket. However a new invention has come up that we will make use of soon now."

"**B**UT I can't understand, Dutch, why you seemed so put out when I announced my intention of going to Europe via the Tube. Why, I can remember the day when that would have tickled you to death."

"You followed the digging of the Tube, didn't you?"

"Yes, of course."

"You remember the volcano and lava seams?"

"Yes."

"Well, I do not believe that the crack was a pressure crevice. If it had been, we were far enough below the ocean floor to have partly relieved the situation by the unusually solid building of the Tube. The tremendous shell of this new type of specially hardened metal—"

"And the rich concrete that was used as filling! That was one job no one slipped up on. I remember how you watched it—"

"Yet the crack has widened, Bob, since the Tube was completed."

"How can you be certain?"

"By the amount of water coming through the drain pipes."

"But you said that once more it was stationary."

"Yes, and that is the very thing that proves, I believe, the nature of the crack."

"I don't follow you."

"Why it isn't a crack at all, Bob. It is an earthquake fault."

"Good heavens, you don't mean—"

"Yes, I do. I mean that the next time the land slips our little tube will be twisted up like a piece of string, or crushed like an eggshell. That always was a rocky bit of land. I thought in going that far north, though, that we had missed the main line of activity; I mean the disturbances that had once wiped out a whole nation, if your scientists are correct."

"Then you mean that it is only a matter of time?"

"Yes, and I have been informed by one expert that the old volcanic activity is not dead either."

"So that is what has stolen away your laugh?"

"Well I am one of the engineers—and they won't suspend the service."

"Fate has played an ugly trick on you, Dutch, and through your own dreams too. However, you have made me decide to go by the Tube."

He took his pipe out of his mouth and stared at me.

"Sooner or later the Tube will be through, and I have never been across. Nothing risked—a dull life. Mine has been altogether too dull. I am now most certainly going by the Tube."

A bit of the old fire lit up his eyes.

"Same old Bob," he grunted as I rose, and then he grasped my hand with a grin.

"Good luck, my boy, on your journey, and may old Vulcan be out on a vacation when you pass his door."

Thus we said good-by. I did not know then that I would never see him again—that he also took the train that night in order to make one last plea to the International Committee, and so laid down his life with the passengers for whom he had pleaded.

It was with many conflicting thoughts, however, that I hurried to the great Terminus that fatal night, where after being ticketed, photographed and tabulated by an efficient army of clerks, I found myself in due time, being ushered to my car of the train.

FOR the benefit of those who have never ridden upon the famous "Flier," I could describe the cars no better than to say that coming upon them by night as I did, they looked like a gigantic, shiny worm, of strange shape, through whose tiny port-holes of heavy glass in the sides, glowed its luminous vitals.

I was pompously shown to the front car, which very much resembled a tremendous cartridge—as did all of the other segments of this great glow-worm.

Having dismissed the porter with a tip and the suspicion that my having the front car was the work of my friend, who was willing to give me my money's worth of thrill, and that the porter was aware of this, I stowed away my bags and started to get ready for bed. I had no sooner taken off my coat than the door was opened and an old fellow with a mass of silver hair peered in at me.

"I beg your pardon, sir, but I understand you have engaged this car alone?"

"Yes."

"I can get no other accommodations tonight. You have an extra berth here and I must get to Paris tomorrow. I will pay you well—"

I smiled.

"Take it. I was beginning to feel lonesome, anyway."

He bowed gravely and ordered the porter to bring in his things. I decided he was a musician. Only artists go in for such lovely hair. But he undressed in dignified silence, not casting so much as another glance in my direction, while on my part I also forgot his presence when, looking through the port-hole, I realized that the train had begun to move. Soon the drone of the propelling engines began to make itself heard. Then the train began to dip down and the steel sides of the entrance became too high for me to see over. My friend of the silver hair had already turned off the light, and now I knew by the darkness that we had entered the Tube. For some time I lay awake thinking of "Dutch" and the ultimate failure of his life's dream, as he had outlined it to me, and then I sank into a deep, dreamless sleep.

I was awakened by a terrible shock that hurled me up against the side of the compartment. A dull, red glow poured through the port-hole, lighting up the interior with a weird, bloody reflection. I crept painfully up to the port-hole and looked out. The strangest sight that man has ever looked upon met my eyes. The side of the wall had blown out into a gigantic cavern, and with it the rest of the cars had rolled down the bluff a tangled, twisted mass of steel. My car had almost passed by, and now it still stuck in the tube, even though the last port-hole through which I peered seemed to be suspended in air. But it was not the wrecked cars from which rose such wails of despair and agony that held my attention, but the cavern itself. For it was not really a cave, but a vast underground city whose wide, marble streets stretched away to an inferno of flame and lava. By the terrible light was lit up a great white palace with its gold-

tipped scrolls, and closer to me, the golden temple of the Sun, with its tiers of lustrous yellow stairs—stairs worn by the feet of many generations.

Above the stairs towered the great statue of a man on horseback. He was dressed in a sort of tunic, and in his uplifted arm he carried a scroll as if for the people to read. His face was turned toward me, and I marveled even in that wild moment that the unknown sculptor could have caught such an expression of appeal. I can see the high intellectual brow as if it were before me at this moment—the level, sympathetic eyes and the firm chin.

THEN something moving caught my eyes, and I swear I saw a child—a living child coming from the burning city—running madly, breathlessly from a wave of glowing lava that threatened to engulf him at any moment. In spite of all the ridicule that has been showered upon me, I still declare that the child did not come from the wreckage and that he wore a tunic similar to the one of the statue and not the torn bit of a nightgown or sheet.

He was some distance from me, but I could plainly see his expression of wild distraction as he began to climb those gleaming stairs. Strangely lustrous in the weird light, was that worn stairway of gold—gold, the ancient metal of the Sun. With the slowness of one about to faint he dragged himself up, while his breath seemed to be torn from his throat in agonizing gasps. Behind him, the glowing liquid splashed against the steps and the yellow metal of the Sun began to drip into its fiery cauldron.

The child reached the leg of the horse and clung there.

... Then suddenly the whole scene began to shake as if I had been looking at a mirage, while just behind my car I had a flashing glimpse in that lurid light of an emerald-green deluge bursting in like a dark sky of solid water, and in that split-second before a crushing blow upon my back, even through that tangle of bedclothes, knocked me into unconsciousness, I seemed to hear again the hopeless note in the voice of my friend as he said:

"—an earthquake fault."

After what seemed to me aeons of strange, buzzing noises and peculiar lights, I at last made out the objects around me as those of a hospital. Men with serious faces were watching me. I have since been told that I babbled incoherently about

"saving the little fellow" and other equally incomprehensible murmurings. From them I learned that the train the other way was washed out, a tangled mass of wreckage just like my car, both terminus stations wrecked utterly, and no one found alive except myself. So, although I am to be a hopeless cripple, yet I am not sorry that the skill and untiring patience of the great English surgeon, Dr. Thompson, managed to nurse back the feeble spark of my life through all those weeks that I hung on the borderland; for if he had not, the world never would have known.

As it is, I wonder over the events of that night as if it had not been an experience at all—but a wild weird dream. Even the gentleman with the mass of silver hair is a mystery, for he was never identified, and yet in my mind's recesses I can still hear his cultured voice asking about the extra berth, and mentioning his pressing mission to Paris. And somehow, he gives the last touch of strangeness to the events of that fatal night, and in my mind, he becomes a part of it no less than the child on the stairs, the burning inferno that lit the background, and the great statue of that unknown hero who held out his scroll for a moment in that lurid light, like a symbol from the sunken City of the Dead.

THE END

Transcriber's Note: This etext was first published in *Amazing Stories* November 1929 and was produced from *Amazing Stories* May 1961. Extensive research did not uncover any evidence that the U.S. copyright on this publication was renewed. Minor spelling and typographical errors have been corrected without note.

*** END OF THIS PROJECT GUTENBERG EBOOK THE UNDERSEA TUBE ***

***** This file should be named 27609-h.htm or 27609-h.zip *****
This and all associated files of various formats will be found in:
<http://www.gutenberg.org/2/7/6/0/27609/>

Produced by Greg Weeks, Stephen Blundell and the Online
Distributed Proofreading Team at <http://www.pgdp.net>

Updated editions will replace the previous one--the old editions
will be renamed.

Creating the works from public domain print editions means that no
one owns a United States copyright in these works, so the Foundation
(and you!) can copy and distribute it in the United States without
permission and without paying copyright royalties. Special rules,
set forth in the General Terms of Use part of this license, apply to
copying and distributing Project Gutenberg-tm electronic works to
protect the PROJECT GUTENBERG-tm concept and trademark. Project
Gutenberg is a registered trademark, and may not be used if you
charge for the eBooks, unless you receive specific permission. If you
do not charge anything for copies of this eBook, complying with the
rules is very easy. You may use this eBook for nearly any purpose
such as creation of derivative works, reports, performances and
research. They may be modified and printed and given away--you may do
practically ANYTHING with public domain eBooks. Redistribution is
subject to the trademark license, especially commercial
redistribution.

*** START: FULL LICENSE ***

THE FULL PROJECT GUTENBERG LICENSE
PLEASE READ THIS BEFORE YOU DISTRIBUTE OR USE THIS WORK

To protect the Project Gutenberg-tm mission of promoting the free
distribution of electronic works, by using or distributing this work
(or any other work associated in any way with the phrase "Project
Gutenberg"), you agree to comply with all the terms of the Full Project
Gutenberg-tm License (available with this file or online at
<http://gutenberg.net/license>).

Section 1. General Terms of Use and Redistributing Project Gutenberg-tm
electronic works

1.A. By reading or using any part of this Project Gutenberg-tm
electronic work, you indicate that you have read, understand, agree to
and accept all the terms of this license and intellectual property
(trademark/copyright) agreement. If you do not agree to abide by all
the terms of this agreement, you must cease using and return or destroy
all copies of Project Gutenberg-tm electronic works in your possession.
If you paid a fee for obtaining a copy of or access to a Project
Gutenberg-tm electronic work and you do not agree to be bound by the
terms of this agreement, you may obtain a refund from the person or
entity to whom you paid the fee as set forth in paragraph 1.E.8.

1.B. "Project Gutenberg" is a registered trademark. It may only be
used on or associated in any way with an electronic work by people who
agree to be bound by the terms of this agreement. There are a few
things that you can do with most Project Gutenberg-tm electronic works
even without complying with the full terms of this agreement. See

paragraph 1.C below. There are a lot of things you can do with Project Gutenberg-tm electronic works if you follow the terms of this agreement and help preserve free future access to Project Gutenberg-tm electronic works. See paragraph 1.E below.

1.C. The Project Gutenberg Literary Archive Foundation ("the Foundation" or PGLAF), owns a compilation copyright in the collection of Project Gutenberg-tm electronic works. Nearly all the individual works in the collection are in the public domain in the United States. If an individual work is in the public domain in the United States and you are located in the United States, we do not claim a right to prevent you from copying, distributing, performing, displaying or creating derivative works based on the work as long as all references to Project Gutenberg are removed. Of course, we hope that you will support the Project Gutenberg-tm mission of promoting free access to electronic works by freely sharing Project Gutenberg-tm works in compliance with the terms of this agreement for keeping the Project Gutenberg-tm name associated with the work. You can easily comply with the terms of this agreement by keeping this work in the same format with its attached full Project Gutenberg-tm License when you share it without charge with others.

1.D. The copyright laws of the place where you are located also govern what you can do with this work. Copyright laws in most countries are in a constant state of change. If you are outside the United States, check the laws of your country in addition to the terms of this agreement before downloading, copying, displaying, performing, distributing or creating derivative works based on this work or any other Project Gutenberg-tm work. The Foundation makes no representations concerning the copyright status of any work in any country outside the United States.

1.E. Unless you have removed all references to Project Gutenberg:

1.E.1. The following sentence, with active links to, or other immediate access to, the full Project Gutenberg-tm License must appear prominently whenever any copy of a Project Gutenberg-tm work (any work on which the phrase "Project Gutenberg" appears, or with which the phrase "Project Gutenberg" is associated) is accessed, displayed, performed, viewed, copied or distributed:

This eBook is for the use of anyone anywhere at no cost and with almost no restrictions whatsoever. You may copy it, give it away or re-use it under the terms of the Project Gutenberg License included with this eBook or online at www.gutenberg.net

1.E.2. If an individual Project Gutenberg-tm electronic work is derived from the public domain (does not contain a notice indicating that it is posted with permission of the copyright holder), the work can be copied and distributed to anyone in the United States without paying any fees or charges. If you are redistributing or providing access to a work with the phrase "Project Gutenberg" associated with or appearing on the work, you must comply either with the requirements of paragraphs 1.E.1 through 1.E.7 or obtain permission for the use of the work and the Project Gutenberg-tm trademark as set forth in paragraphs 1.E.8 or 1.E.9.

1.E.3. If an individual Project Gutenberg-tm electronic work is posted with the permission of the copyright holder, your use and distribution must comply with both paragraphs 1.E.1 through 1.E.7 and any additional terms imposed by the copyright holder. Additional terms will be linked to the Project Gutenberg-tm License for all works posted with the permission of the copyright holder found at the beginning of this work.

1.E.4. Do not unlink or detach or remove the full Project Gutenberg-tm

License terms from this work, or any files containing a part of this work or any other work associated with Project Gutenberg-tm.

1.E.5. Do not copy, display, perform, distribute or redistribute this electronic work, or any part of this electronic work, without prominently displaying the sentence set forth in paragraph 1.E.1 with active links or immediate access to the full terms of the Project Gutenberg-tm License.

1.E.6. You may convert to and distribute this work in any binary, compressed, marked up, nonproprietary or proprietary form, including any word processing or hypertext form. However, if you provide access to or distribute copies of a Project Gutenberg-tm work in a format other than "Plain Vanilla ASCII" or other format used in the official version posted on the official Project Gutenberg-tm web site (www.gutenberg.net), you must, at no additional cost, fee or expense to the user, provide a copy, a means of exporting a copy, or a means of obtaining a copy upon request, of the work in its original "Plain Vanilla ASCII" or other form. Any alternate format must include the full Project Gutenberg-tm License as specified in paragraph 1.E.1.

1.E.7. Do not charge a fee for access to, viewing, displaying, performing, copying or distributing any Project Gutenberg-tm works unless you comply with paragraph 1.E.8 or 1.E.9.

1.E.8. You may charge a reasonable fee for copies of or providing access to or distributing Project Gutenberg-tm electronic works provided that

- You pay a royalty fee of 20% of the gross profits you derive from the use of Project Gutenberg-tm works calculated using the method you already use to calculate your applicable taxes. The fee is owed to the owner of the Project Gutenberg-tm trademark, but he has agreed to donate royalties under this paragraph to the Project Gutenberg Literary Archive Foundation. Royalty payments must be paid within 60 days following each date on which you prepare (or are legally required to prepare) your periodic tax returns. Royalty payments should be clearly marked as such and sent to the Project Gutenberg Literary Archive Foundation at the address specified in Section 4, "Information about donations to the Project Gutenberg Literary Archive Foundation."
- You provide a full refund of any money paid by a user who notifies you in writing (or by e-mail) within 30 days of receipt that s/he does not agree to the terms of the full Project Gutenberg-tm License. You must require such a user to return or destroy all copies of the works possessed in a physical medium and discontinue all use of and all access to other copies of Project Gutenberg-tm works.
- You provide, in accordance with paragraph 1.F.3, a full refund of any money paid for a work or a replacement copy, if a defect in the electronic work is discovered and reported to you within 90 days of receipt of the work.
- You comply with all other terms of this agreement for free distribution of Project Gutenberg-tm works.

1.E.9. If you wish to charge a fee or distribute a Project Gutenberg-tm electronic work or group of works on different terms than are set forth in this agreement, you must obtain permission in writing from both the Project Gutenberg Literary Archive Foundation and Michael Hart, the owner of the Project Gutenberg-tm trademark. Contact the Foundation as set forth in Section 3 below.

1.F.

1.F.1. Project Gutenberg volunteers and employees expend considerable effort to identify, do copyright research on, transcribe and proofread public domain works in creating the Project Gutenberg-tm collection. Despite these efforts, Project Gutenberg-tm electronic works, and the medium on which they may be stored, may contain "Defects," such as, but not limited to, incomplete, inaccurate or corrupt data, transcription errors, a copyright or other intellectual property infringement, a defective or damaged disk or other medium, a computer virus, or computer codes that damage or cannot be read by your equipment.

1.F.2. LIMITED WARRANTY, DISCLAIMER OF DAMAGES - Except for the "Right of Replacement or Refund" described in paragraph 1.F.3, the Project Gutenberg Literary Archive Foundation, the owner of the Project Gutenberg-tm trademark, and any other party distributing a Project Gutenberg-tm electronic work under this agreement, disclaim all liability to you for damages, costs and expenses, including legal fees. YOU AGREE THAT YOU HAVE NO REMEDIES FOR NEGLIGENCE, STRICT LIABILITY, BREACH OF WARRANTY OR BREACH OF CONTRACT EXCEPT THOSE PROVIDED IN PARAGRAPH F3. YOU AGREE THAT THE FOUNDATION, THE TRADEMARK OWNER, AND ANY DISTRIBUTOR UNDER THIS AGREEMENT WILL NOT BE LIABLE TO YOU FOR ACTUAL, DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES EVEN IF YOU GIVE NOTICE OF THE POSSIBILITY OF SUCH DAMAGE.

1.F.3. LIMITED RIGHT OF REPLACEMENT OR REFUND - If you discover a defect in this electronic work within 90 days of receiving it, you can receive a refund of the money (if any) you paid for it by sending a written explanation to the person you received the work from. If you received the work on a physical medium, you must return the medium with your written explanation. The person or entity that provided you with the defective work may elect to provide a replacement copy in lieu of a refund. If you received the work electronically, the person or entity providing it to you may choose to give you a second opportunity to receive the work electronically in lieu of a refund. If the second copy is also defective, you may demand a refund in writing without further opportunities to fix the problem.

1.F.4. Except for the limited right of replacement or refund set forth in paragraph 1.F.3, this work is provided to you 'AS-IS' WITH NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

1.F.5. Some states do not allow disclaimers of certain implied warranties or the exclusion or limitation of certain types of damages. If any disclaimer or limitation set forth in this agreement violates the law of the state applicable to this agreement, the agreement shall be interpreted to make the maximum disclaimer or limitation permitted by the applicable state law. The invalidity or unenforceability of any provision of this agreement shall not void the remaining provisions.

1.F.6. INDEMNITY - You agree to indemnify and hold the Foundation, the trademark owner, any agent or employee of the Foundation, anyone providing copies of Project Gutenberg-tm electronic works in accordance with this agreement, and any volunteers associated with the production, promotion and distribution of Project Gutenberg-tm electronic works, harmless from all liability, costs and expenses, including legal fees, that arise directly or indirectly from any of the following which you do or cause to occur: (a) distribution of this or any Project Gutenberg-tm work, (b) alteration, modification, or additions or deletions to any Project Gutenberg-tm work, and (c) any Defect you cause.

Section 2. Information about the Mission of Project Gutenberg-tm

Project Gutenberg-tm is synonymous with the free distribution of electronic works in formats readable by the widest variety of computers including obsolete, old, middle-aged and new computers. It exists because of the efforts of hundreds of volunteers and donations from people in all walks of life.

Volunteers and financial support to provide volunteers with the assistance they need, is critical to reaching Project Gutenberg-tm's goals and ensuring that the Project Gutenberg-tm collection will remain freely available for generations to come. In 2001, the Project Gutenberg Literary Archive Foundation was created to provide a secure and permanent future for Project Gutenberg-tm and future generations. To learn more about the Project Gutenberg Literary Archive Foundation and how your efforts and donations can help, see Sections 3 and 4 and the Foundation web page at <http://www.pgla.org>.

Section 3. Information about the Project Gutenberg Literary Archive Foundation

The Project Gutenberg Literary Archive Foundation is a non profit 501(c)(3) educational corporation organized under the laws of the state of Mississippi and granted tax exempt status by the Internal Revenue Service. The Foundation's EIN or federal tax identification number is 64-6221541. Its 501(c)(3) letter is posted at <http://pglaf.org/fundraising>. Contributions to the Project Gutenberg Literary Archive Foundation are tax deductible to the full extent permitted by U.S. federal laws and your state's laws.

The Foundation's principal office is located at 4557 Melan Dr. S. Fairbanks, AK, 99712., but its volunteers and employees are scattered throughout numerous locations. Its business office is located at 809 North 1500 West, Salt Lake City, UT 84116, (801) 596-1887, email business@pglaf.org. Email contact links and up to date contact information can be found at the Foundation's web site and official page at <http://pglaf.org>

For additional contact information:

Dr. Gregory B. Newby
Chief Executive and Director
gbnewby@pglaf.org

Section 4. Information about Donations to the Project Gutenberg Literary Archive Foundation

Project Gutenberg-tm depends upon and cannot survive without wide spread public support and donations to carry out its mission of increasing the number of public domain and licensed works that can be freely distributed in machine readable form accessible by the widest array of equipment including outdated equipment. Many small donations (\$1 to \$5,000) are particularly important to maintaining tax exempt status with the IRS.

The Foundation is committed to complying with the laws regulating charities and charitable donations in all 50 states of the United States. Compliance requirements are not uniform and it takes a considerable effort, much paperwork and many fees to meet and keep up with these requirements. We do not solicit donations in locations where we have not received written confirmation of compliance. To

SEND DONATIONS or determine the status of compliance for any particular state visit <http://pglaf.org>

While we cannot and do not solicit contributions from states where we have not met the solicitation requirements, we know of no prohibition against accepting unsolicited donations from donors in such states who approach us with offers to donate.

International donations are gratefully accepted, but we cannot make any statements concerning tax treatment of donations received from outside the United States. U.S. laws alone swamp our small staff.

Please check the Project Gutenberg Web pages for current donation methods and addresses. Donations are accepted in a number of other ways including including checks, online payments and credit card donations. To donate, please visit: <http://pglaf.org/donate>

Section 5. General Information About Project Gutenberg-tm electronic works.

Professor Michael S. Hart is the originator of the Project Gutenberg-tm concept of a library of electronic works that could be freely shared with anyone. For thirty years, he produced and distributed Project Gutenberg-tm eBooks with only a loose network of volunteer support.

Project Gutenberg-tm eBooks are often created from several printed editions, all of which are confirmed as Public Domain in the U.S. unless a copyright notice is included. Thus, we do not necessarily keep eBooks in compliance with any particular paper edition.

Most people start at our Web site which has the main PG search facility:

<http://www.gutenberg.net>

This Web site includes information about Project Gutenberg-tm, including how to make donations to the Project Gutenberg Literary Archive Foundation, how to help produce our new eBooks, and how to subscribe to our email newsletter to hear about new eBooks.