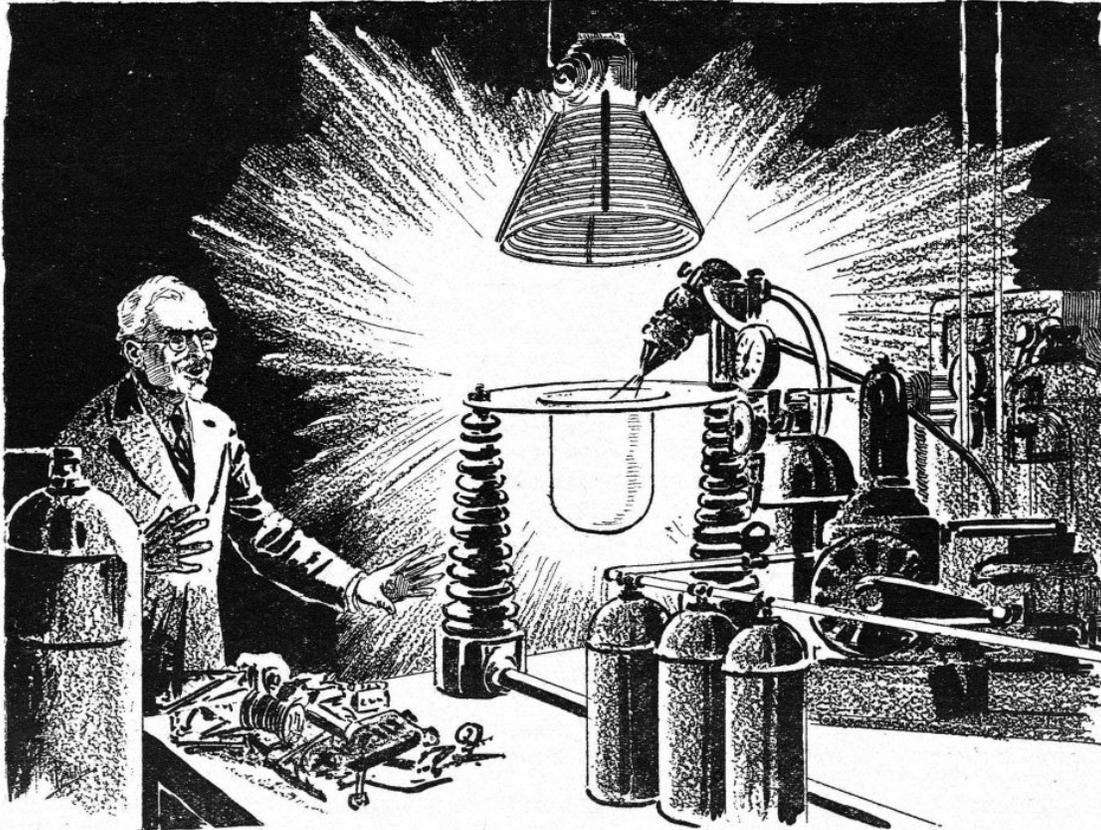


ABSOLUTE ZERO

By Harold Moorhouse Colter



The fall breezes must have witnessed strange sights as they whirled past his window. There was the old gentleman standing before the glass jar, like an ascetic before a shrine . . . It became a serious business to him, this feeding of the child of science that knew no satisfaction.

THE inhabitants of the little village of White Manitou are uncertain as to who should be blamed. It was hardly fair to put all the onus on the meager shoulders of Mr. Jones. In fact, it would be a rather difficult thing to do, because that gentleman was resting peacefully about six feet underground in the little churchyard. Furthermore, no one was at all sure that he had any shoulders at the time of his burial. He had been carefully scooped into his coffin, the performers of the ghastly deed looking the other way, while they did their painful duty.

But here was the crux of the whole

matter, in the opinion of the villagers; someone had to be blamed. There were those who condemned the hydro for extending its services to the village. Others held that the agent who sold the electric refrigerator to Jones was responsible. Which leads to the conclusion that no one knew exactly what had happened.

Could it have been suicide?

Absolutely not! Did anyone ever hear of a man dropping through two plank floorings and crushing himself flat on the basement floor to produce the simple result of leaving this world behind? Again, absolutely

not; in the first place, it would be practically impossible; and in the second place, the thoughts of such a gruesome procedure would be too painful for most persons inclined to self-destruction. But since he was dead, obviously something must have killed him. Here are the facts related to me, together with my own ideas on the case.

The year 1925 saw the advent of the hydroelectric power line to White Manitou. The electric company had thoughtfully installed a transformer on the main power line and wired the two streets of the hamlet. Of course, it was just as thoughtful to have a polite young gentleman call once a month to collect promptly all that was coming to the company.

Shortly after the arrival of the hydro an enterprising refrigerator agent arrived in town. Within the first half hour he had sold Mr. Jones an electric refrigerator which immediately ensured his success in White Manitou, for everyone knew that old Philander Jones would not invest in anything which did not promise him a sure return on his precious money.

Unfortunately he was not gifted with the foresight to see that his latest purchase would give him a flying start on the road to ruin. Within a week, he was transformed from a rheumatic old miser clad in a suit that was green with age, into an enthusiastic old spendthrift with an intensely interested look on his face and a weird brilliancy in his eyes never noted before. And on what did he waste his once treasured money? Wire, copper tubing, air pumps, steel cylinders, books and electrical magazines were the least of his purchases. It horrified the neighbors to see the amount of express that arrived daily at old Philander's barnlike house.

Nor could his astonished fellow citizens grasp the significance of all this. Of course, not one of them would admit his ignorance for a minute, but just the same,

some head machinery that had been peacefully rusting for many years had to do some nimble work to get out its owner's edition on time, explaining the phenomenon. This hindered no one from broadcasting his (and especially her) personal views and even the most bewildered needed no great amount of persuading to hazard a guess. Most of them would admit: "The poor old fellow's gone off his head all right," secretly or otherwise regretting that he had been so hasty in buying the refrigerator. Or else, "Betcha anything he's going to make a fortune out of homebrew."

Whenever anyone summoned up his courage to talk to him, the old man did not cut him off short. Instead, he was a fountain of eloquence; but no one could follow his train of thought or grasp his ideas. He seemed to be living in a different world. Mr. Jones would only discuss liquid air, absolute zero and like foreign subjects, so that no one ever thought of chatting with him a second time. Soon the old man became disgusted and relapsed into his former gloom.

Perhaps if they had been able to look in through the windows of the second story of his house, they might have seen light; but again they might not have. At any rate, he had established an elaborate liquid air plant in the second story of his house. There were electric gas compressors into which cold water ran and came out steaming. Philander presided over this like a hoary old wizard.

"Only three more degrees," he exulted to the doctor, who was bandaging a badly frozen finger for him. "I have it down to two hundred and seventy below now. Only three more degrees. I've a cup full of liquid hydrogen up at the house now. You ought to see how it sparkles! It's as clear as crystal! Oh heavens! only three more degrees." The doctor smiled and agreed with him that it was wonderful, thinking that poor Jones was at the mercy of an hallucination. However, there was nothing to prove that he was dangerously

insane; even if the women folk were afraid of him.

Another month slipped by and Autumn arrived in golden splendor. Every one became engrossed in the fall rush, and they forgot mad Mr. Jones. Nor was mad Mr. Jones worrying about them. Only one more degree now and absolute zero would be his for keeps.

ONE evening in the first week of September, the lamp light showed in his window until twelve o'clock. No one knew how much later it shone, for no one was awake to see. If any one had been up all night, they would have seen the light until it was drowned by the red rays of the rising sun. If this mythical watcher had waited until half past seven, he might have been rewarded by a unique sight. At that time the door of Mr. Jones' house was flung suddenly open, and he rushed, hatless, into the street. He was also coatless and bootless. He ran down the road shrilly yelling at the top of his old voice: "Oh boy! Hurrah!" and "Hurrah! Oh Boy!"

All the early risers of White Manitou came running to gape at the weird spectacle. Mr. Jones seemed to sense something wrong and stopped awkwardly in the middle of the road. Finally he seemed to come to the conclusion that he had been shouting the wrong words. At once his face cleared and he started his rheumatic gallop down the short avenue again. "Eureka," he cried, and he made the whole town ring. Unfortunately he tripped over a clod of earth and fell heavily upon his chest, abruptly extinguishing his enthusiasm. He arose dejectedly and, gasping for breath, limped homeward.

He was deeply humiliated. He stayed indoors for the next week and a half and would see no one. Then he began to steal out at dusk and slyly pick up every bit of iron he found lying about to carry it into the house. He soon became bolder and made excursions down the back lanes in the daylight. These

raids of Philander were always for the same thing—iron. His plunder was armloads of old plow shares, old mower guards; anything and everything made of iron. He must have gathered scrap iron enough to fill the house. Yet after his death the only iron found there was one old plow share and a baby carriage wheel.

The short sunshiny days of autumn withered into the snow-filled gloom of winter. No one paid any further attention to the old man. At first it seemed as if he had some great secret which he wanted to tell to any one who would listen. But none of the villagers cared to learn his secret. Sometimes he would waylay one of the neighbors and try to tell him, but before poor Jones could get fairly started, the man would turn coldly away or shrink from him in fear. His emotions came close to the surface in those latter days. Several persons had observed pathetic tears in his eyes after he had been shunned. One of these, tenderhearted but quite timid, summoned up his courage and returned to the old man to speak to him. He no sooner approached Philander than he was met by such a storm of imprecations and maledictions that he fled in terror.

The next morning Mr. Jones was found dead, crushed to a shapeless pulpy mass. It appeared as if something had fallen on him from a tremendous height and had carried his body through two floors to the basement. But this theory was proved impractical owing to the fact that the roof of the house was uninjured.

I happened to be there when his body was removed for burial. There were pieces of thick glass mingled with the flesh. I made some investigations on my own account but was unable to explain satisfactorily the results of my enquiries.

HERE is a brief outline of what apparently happened: Mr. Jones had for some reason crawled under the table upon which much of

the liquid air apparatus rested. Part of the mechanism, a large vessel with double thick walls, had fallen through and struck the old man with such violence as to carry him through the two floors. Further progress was arrested by the concrete floor in the basement.

Here was the great difficulty. What had forced that vessel downwards?

I wrote to one of my scientific minded friends and asked him to help me in my dilemma. A few days later I received a postcard from him. "Neutronium. Now figure it out for yourself," it said. I gasped—the whole thing was clear to me. I sat down and wrote the details of the tragedy.

A FEW months previously Mr. Jones had purchased the electric refrigerator, and for some unknown reason had become extremely interested in the mechanism and operation of the device. A thorough study of the principle of refrigeration, based on the fact that compression creates heat, while the reverse operation produces cold, led him to investigate the process of the manufacture of liquid air. He was not satisfied with a theoretical knowledge of the subject and its applications. Being such a hardened old skeptic, he wanted to see everything for himself. Accordingly, he had installed a complete experimental plant. The natural consequence of his experiments with liquid air, was that he should want to approach as close to absolute zero as possible. Apparently he had reached the goal of his desire—which proved to be his undoing.

A large glass vessel stood at one end of the sturdy little table upon which rested much of the experimental apparatus. Over it was a spray nozzle through which liquid hydrogen was forced. The evaporation which occurred, turned a high percentage of the hydrogen into a metallic powder that fell on the bottom of the vessel. This was evaporated by some method of his own invention and as a result, absolute zero (the greatest degree of

cold possible) was produced. That is to say—273 degrees Centigrade or 0 degrees Absolute scale. This process in an open vessel would apparently be very wasteful of hydrogen, but there was a hood over it that captured the excess gas and carried it to a liquefying machine.

During these investigations, he noticed a very peculiar phenomenon. A wire nail dropped into the vessel melted away into nothing, accompanying its disappearance was a discharge of static electricity, which did not raise the temperature within the container. This discovery gave him the greatest thrill of delight he had felt in all his dismal life. Every scrap of iron about the house was thrown into the insatiable jaws of the vessel. Profiting by painful experience, he hung several tufts of stranded wire over this strange creation to collect the powerful charges of electricity formed, each time a piece of iron was placed in the jar.

The fall breezes must have witnessed strange sights as they whirled past his window. There was the old gentleman standing before the glass jar, like an ascetic before a shrine. He would cautiously drop a piece of metal into it and then nervously start back as a purple haze sprang into being above it. It became a serious business to him, this feeding of the child of science that knew no satisfaction. One might almost compare it to an ancient heathen sacrifice. Scarcely a moment went by but what a piece of metal was sinking silently into apparent nothingness. Tons of iron and steel found their way into a glass jar no bigger than a magician's silk hat and into oblivion.

Then came the fatal morning. His nervous system was strained to the point of breakdown. A careless thrust of a piece of iron into the glass. A flash of electric current that knocked him under the table. A deafening crash and Philander Jones was no more.

Neutronium! That was the answer. A

single electron united with a single proton to form a substance of which only one cubic inch would weigh sixty million tons. The cold of the vessel had made the mad whirl of the electrons about their nucleus cease. Electrical conditions were suitable for the union which took place. Oddly enough, the cold walls of the vessel retained the neutronium which gathered on the bottom of it. The deposit was only a slight discoloration but it weighed many tons. The fact that the table collapsed the moment that Mr. Jones was beneath it was a strange coincidence but may have been due to the extra vibration caused by his fall. Once the tremendous weight started in motion, it was almost resistless.

Mr. Jones was not a scientist, he was only an experimenter of short experience; hence he left no accounts of his experiments. It would have been interesting had he done so.

Some of my friends have found difficulty in accepting my explanation. They have questioned me until I am sick and tired of answering them; perhaps because I am uncertain of the right answer. Why did the cold not dissolve the walls of the vessel as it did the iron? Why would no other substance but iron disappear? Why did the table suddenly collapse instead of sagging

gradually? Why were the pieces of glass, mingled with his remains, not too heavy to lift?

These were the simplest questions put to me.

Iron is a conductor of heat and electricity to a degree that nonmetallic substances do not approach. That has been my answer to the first two questions.

The table was of very heavy material and the weight must have borne directly down on one leg of it. When Philander struck it, the slight deviation from the vertical made it snap under the weight, leading to the collapse of the whole table and the subsequent disaster.

And when I have said that, I tackle the last with a cheerful heart. Why were not the fragments of glass mingled with his remains too heavy to lift? I said that the only reason the neutronium had remained in the first place was that the glass was chilled to the lowest degree of cold possible. When the vessel was broken and away from the cooling action of the hydrogen, it became warmed and the neutronium atoms slipped through the loose molecules of the structure.

So let me triumphantly say that I have answered them all. Accordingly I lay down my pen.