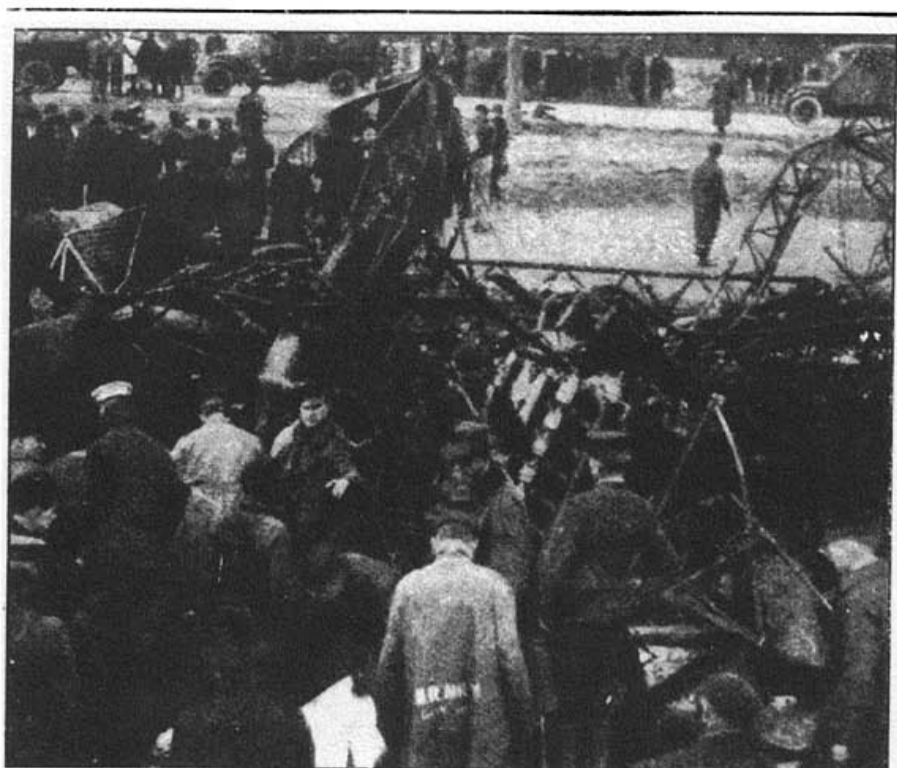


WHAT THE WRECK OF THE "ROMA" SHOWS

THE GREATEST DISASTER that ever befel American military aeronautics—the burning of the semi-rigid airship *Roma* and the loss of thirty-four lives—would have resulted in little or no loss of life, say experts, had the gas-bags of the airship been filled with helium, which is non-inflammable, instead of hydrogen. This inflammable gas, together with gasoline from the crushed tanks of the airship, was ignited either by contact with a high tension electric power wire upon which the vessel fell, or the exhaust of the motors. In army and navy circles, correspondents report from both Washington and Norfolk, near where the accident occurred, the blame for the disaster is placed squarely on Congress for shutting off the production of helium by refusing sufficient appropriations. "Statements that failure of Congress to appropriate funds for helium production and that the lack of helium caused the accident are not based on facts," however, Major-General Patrick, Chief of the Air Service, declared.



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UNDER THE TWISTED FRAMEWORK OF THE "ROMA"
were found the bodies of many victims. Captain Mabry, the chief pilot, was found with his charred fingers gripping the steering wheel.

In one respect, at least, the *Roma's* undoing was similar to that of the Navy's *R-38* (which was to have been christened the *ZR-2* by the United States); it was caused by a structural defect, the breaking of a cable which controlled the elevating rudders at the stern. That box-kite affair, it is said, slewed sideways and dropt down, after which the *Roma* became unmanageable and nosed downward. However, say the experts, this would have resulted merely in a slight shaking up of the crew had not the vessel caught fire. As it was, only eleven of the forty-five members of the crew escaped. In the accident which wrecked the *R-38* in August, 1921, it is now pointed out to the British Air Ministry by the Aeronautical Research Committee, weakness in the design of the *R-38* rather than structural defects were what caused the deaths of forty-four English and American officers and enlisted men. "In other words," notes the Washington correspondent of the *New York Times*, who gained access to the report withheld by Great Britain, "the *R-38* was designed to remain still and not to take the air. She was very much like a dog being wagged by too large a tail and unable to stand the strain on the backbone and ribs." The report of the committee of scientists admits the presence in the *R-38* of a certain amount of softened duralumin, but insists that faulty material did not contribute to the accident.

Air service officers at Washington and at Langley Field, where the accident to the *Roma* occurred, accustomed as they are to taking risks daily, look upon this most recent disaster as incident to the development of aviation. "It is merely a part of the day's work," in the opinion of one of them. On the other hand, civilian aeronautical authorities and newspaper editors call attention to the fact that the *Roma* disaster was preventable through the use of helium. Our failure to extract helium (of which we have a monopoly in the United States) is regarded by

them as constituting a most striking example of the neglect on the part of America to take advantage of its own resources in developing aircraft. As Richard Bishop Moore, in charge of helium work for the Bureau of Mines, says in a *New York Times* interview:

"This country has the only large commercial sources of supply of helium in the world. It is found in natural gas in Texas, Oklahoma, and half a dozen other States. Five hundred million cubic feet are going to waste every year. It can be made available for about ten cents a cubic foot. With additional experimentation this cost can certainly be reduced to three cents and perhaps to two cents a cubic foot."

In another Washington dispatch we are told that the Navy maintains a plant at Fort Worth, Texas, where helium is extracted from natural gas by compressor systems. The dispatch goes on—

"Congress last year appropriated a lump sum for the navy of \$400,000, out of which it could expend money on the development of helium. For the army it appropriated \$250,000 after a long fight. The House first appropriated \$100,000 for the helium development, but Representative Lanham, of Texas, attempted to have it increased to \$400,000. The Senate approved, but in conference the amount was cut to \$250,000."

Both the *R-38* and the *Roma* were bought by the United States Government so that the lighter-than-air forces of this country would have a flying start in construction work. The lessons that were to be learned from them were to be utilized in the building of rigid and semi-rigid dirigibles in America. The *Roma's* carrying capacity was 100 passengers, and her cost approximately \$200,000. She was the largest semi-rigid ship ever built.

The effect of the *Roma* disaster on America's program of airship development is problematical. "It is a serious blow," declares the *New York Evening Mail*, "but it is not a death-blow. It means simply that science has not yet mastered this form of aerial locomotion."

"It would be absurd for Congress to end all experiments with lighter-than-air machines because of the *Roma* accident," thinks the *New York World*. In the carrying out of experiments, however, believes the *New York Evening World*, "men's lives are valued too lightly." This paper and all the others which we have read remind us that the use of helium undoubtedly would save many lives. "Why is it not made in quantities available for large airships?" asks *The Evening World*. "No statement on the high cost and scarcity of helium gas will excuse the use of hydrogen gas in the *Roma*," declares the *New York Herald*. As the *New York Globe* puts it:

"The progress of the race must go on, however many victims are laid on the sacrificial altar. But we have the right to ask that as few lives be lost as possible; there should be no more such needless wholesale murders as in the case of the *R-38* last summer, or the *Roma*."

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The Literary Digest for March 11, 1922

THE BLAME FOR THE ROMA WRECK

THE LIVES OF THIRTY-FOUR ARMY OFFICERS, enlisted men, and civilians is a terrible price to pay for economy, is the conclusion reached by the *Brooklyn Eagle* in the case of the *Roma*, as it becomes apparent that the lack of the non-inflammable gas, helium, was indirectly responsible for a death toll almost as large as that of the *R-38* (*ZR-2*) disaster last August. "Between August and February," notes the *New York Herald*, "all the grim lessons purchased in England at the price of forty-four lives were forgotten." Immediately after that catastrophe *The Herald* declared that "this ought to be a lesson; if we can't afford helium, we can't afford dirigibles." In the case of the *Roma*, points out the *New York Globe*, "as we learn more about the tragedy, the impression that it was a wicked waste of life is deepened." "It cost thirty-four lives," observes the *New York Evening World*, "to concentrate attention on the failure of Congress to recognize the importance of helium gas as a safety factor in lighter-than-air aviation."

According to the Washington correspondent of the *New York World*, "there is in storage in Texas more than enough helium to have inflated the bags of the *Roma*." If that is the case, asks *The Herald*, "why was it not used?" Or "why was the trial flight not delayed until it had been made possible to bring to Norfolk a sufficient supply?" asks the *Albany Journal*. "There was a long delay for the replacement of the Italian motors with Liberty engines," explains this paper. As for helium, "five hundred million cubic feet of this gas goes to waste in the United States every year," we are told by the *New York Globe*, "yet it can be produced for ten cents a foot or less."

"The reason that helium gas was not used in the *Roma* is that the United States Government had not supplied sufficient funds for its manufacture for the Army, and, despite the *R-38* experience, considered that it cost too much," charges the *Philadelphia Bulletin*. "All sorts of excuses have been forced upon the Air Service through the niggardliness of Congress," agrees the *Philadelphia Inquirer*, which goes on to declare that "it would be inhuman to send up any more dirigibles until the helium supply is large enough to fill them." As the *New York Globe* sees the lesson of the *Roma* disaster:

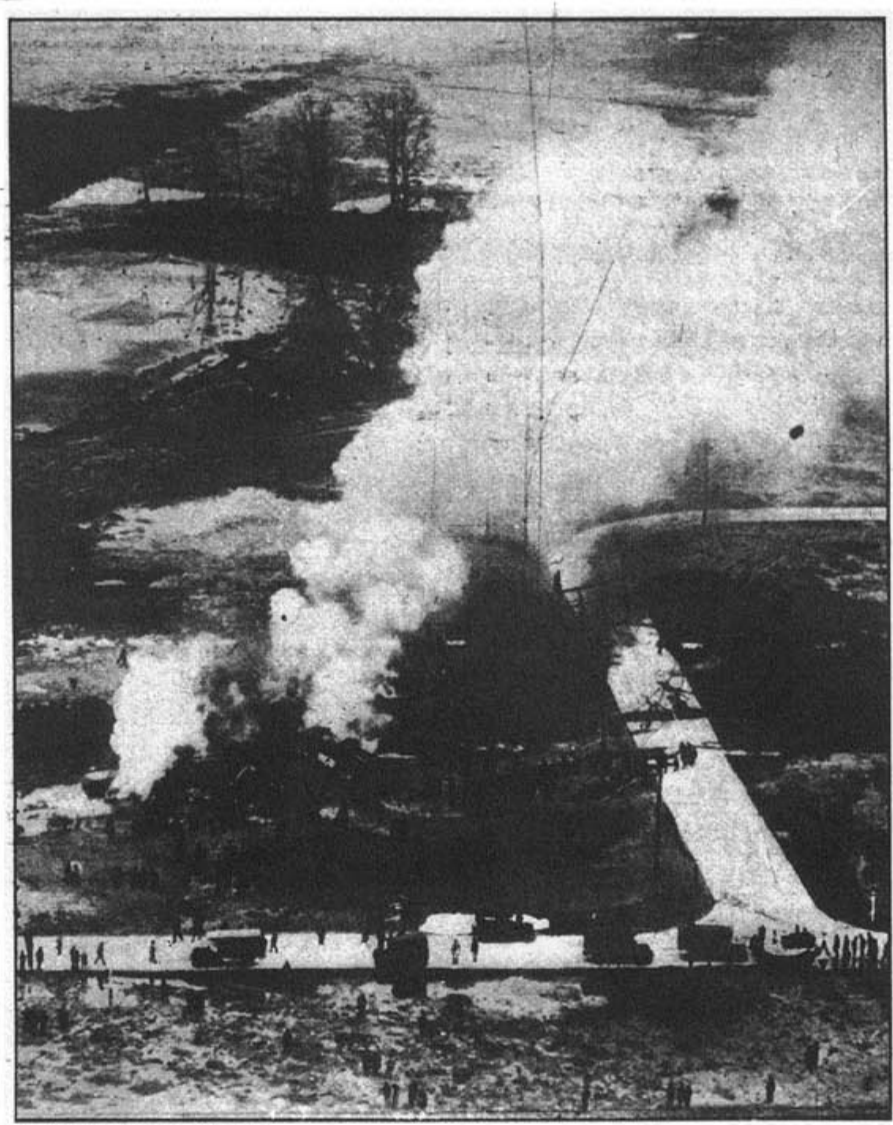
"Obvious to any layman is the folly of using highly inflammable hydrogen gas instead of non-inflammable helium. If the

latter had been employed the loss of life would certainly have been greatly reduced, and perhaps altogether prevented. Congress and the military authorities are busily shifting the responsibility to one another for our failure to develop and utilize our huge sources for this gas. . . . The country has had quite enough needless slaughter of American men through failure to provide a sufficient factor of safety. Experiments with lighter-than-air craft must and will be continued; but we have been paying too dear a price, and needlessly."

Helium, it is pointed out in a Washington dispatch to the *New York Times*, was developed from natural gas during the war. At the Government's plant at Fort Worth—

"The natural gas after passing through a compressor plant becomes a purer illuminating gas than before, when it is then returned to the gas company for commercial use. The natural gas is first passed through lime, which removes carbon dioxide; it is then liquefied, leaving nitrogen and helium gases, which are drawn off and further compressed, thereby liquefying the nitrogen and leaving the helium, which is drawn off and compressed into cylinders and placed in storage for shipment."

"A year or more ago," recalls the *Troy Record*, "the world was hearing about helium as the great agency in aerial navigation; it was to displace hydrogen gas, and there were to be no more accidents to dirigibles in flight." "During these years," maintains the



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THE BURNING WRECK OF THE ROMA.
With Army ambulances in the foreground, as seen from an airplane. Along the curving road may be seen the high-tension wires which are said to have set fire to the dirigible's highly inflammable hydrogen gas and gasoline fuel from the crushed tanks.

New York Tribune, "the enthusiasm for helium has never waned, but the quantity of helium gas apparently has never waxed." More than ever is it necessary to increase the production of helium, believes the *New York Herald*, because the *ZR-1*, now under construction at Lakehurst (N. J.), will be finished in about a year. And while we are about it, suggests the *New York Times*, we should develop a motor that will obviate the menace of gasoline as a fuel. Moreover, say aeronautical experts, we should adopt water for ballast, instead of sand, as it can be discharged instantaneously in the event of an accident similar to that of the *Roma*. The whole question of aerial navigation, as the *New York World* sees it, "is a scientific problem, not a political one, and a Congress of lawyers would be wise to provide the money and let the scientists and army experts solve it." As the *Philadelphia Inquirer* declares:

"If the Army and Navy are going to maintain dirigibles—and they will, because man's conquest of the air is not going to stop because of the *Roma* incident, painful tho it is—hydrogen should be discarded. The Air Service authorities should make their requests to Congress for sufficient money to carry on the Fort Worth helium plants to fill all requirements, and Congress should comply with these requests promptly."

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