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ANTICIPATING THE ATOM: POPULAR PERCEPTIONS OF ATOMIC POWER BEFORE HIROSHIMA

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ANTICIPATING THE ATOM: POPULAR PERCEPTIONS OF ATOMIC POWER

BEFORE HIROSHIMA

A Thesis

by

JACQUES-ANDRE CHRISTIAN D'EMAL

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

August 1994

Major Subject: History
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August 1994

Major Subject: History
ABSTRACT

Anticipating the Atom: Popular Perceptions of Atomic Power before Hiroshima.

(August 1994)

Jacques-André Christian d'Emal, B.A., University of Utah

Chair of Advisory Committee: Professor Roger Beaumont

Before Hiroshima made the Bomb an object of popular concern, possible implications and applications of atomic physics had been discussed in the public forum. The new science of X-rays and radium promised the possibilities of unlimited energy and the transmutation of elements in the two decades leading up to World War I. During the twenties, as scientific method struggled to keep pace with atomic theory, discussion centered on the feasibility of atomic disintegration as an energy source and the many uses of radium. The 1927 case of the New Jersey Radium Dial Painters, who sued their employers for compensation after contracting radium poisoning, revealed a dark side to the new science, that, along with the development of artificial radioactive isotopes by the Joliot-Curies in Paris, and, in Italy, Enrico Fermi's neutron bombardment experiments, sobered attitudes toward the ever-increasing probability of atomic power. When Otto Hahn finally split the atom in 1938, it opened the way to the practical industrial use of atomic fission, and stimulated a flurry of newspaper and magazine articles before World War II brought about censorship.

Popular entertainment through 1945 reflects the extent to which atomic power had entered the public awareness. Atomic themes and motifs appeared in English language fiction as early as 1895, as did discussions of the social implications of the new science. Such popular culture imagery, including motion pictures and comic book superheroes,
that presented the atom to mass audiences provide insight into the popular perceptions at the time, and to the shaping of attitudes toward the Bomb after Hiroshima.
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ANTICIPATING THE ATOM

The 7 August 1945 headline of the New York Times, "First Atomic Bomb Dropped on Japan; Missile is Equal to 20,000 Tons of TNT; Truman Warns Foe of a 'Rain of Ruin'," shocked the nation. That day's editorial noted the bomb's "implications for good or evil are so tremendous in so many directions that it will take months before our minds can really begin to envisage them," and another the following day by Anne O'Hare McCormick declared the bomb "has caused an explosion in men's minds as shattering as the obliteration of Hiroshima....The Earth is no longer solid. Out of the forces that hold it together human genius has summoned the forces that tear it apart."¹

Americans, in the following days, struggled to understand what the atom bomb was and what it would mean. Time and Newsweek described, with journalistic detachment, how the bomb worked, who built it and how, and what it did to Hiroshima. The following Sunday, the twelfth, the War Department released, the Smyth report, their official story of the bomb's development. Life magazine waited until their August twentieth issue to report the news but their editorial summarized the situation as well as any by noting that "the atomic bomb answers no questions...it rearranges the questions...and throws on all of them a blinding new perspective."²


Contrary to current perceptions, and despite some initial sense of shock, few were surprised by news of the bomb's development. For half a century, the open discussion of its implications and uses, for war, power, and medicine, had placed atomic physics in the public eye. In fact, dramatic developments had been visible well before World War I. In December 1895, William Roentgen announced his accidental discovery of X-rays to the world, and in Paris the following February, Henri Becquerel noticed that the uranium salts in pitchblende produced similar rays. His student, Marie Curie, earned her doctorate by describing the phenomena as radioactivity. Ernest Rutherford, in London in 1898, discovered that radiation consisted of two different types of rays which he named alpha and beta rays. While, Marie Curie and her husband isolated minute quantities of a miraculous element, radium, that seemed to spontaneously generate light and heat.

Theory chased research after the turn of the century. Rutherford and his partner Frederick Soddy, in Montreal in 1902, noticed that the heaviest radioactive elements were slowly changing into lighter elements, throwing off pieces of themselves, as alpha and beta rays, as they disintegrated. Three years later, although seemingly unrelated at the time, Einstein published his first paper on relativity and posited the equivalence of matter and energy. Meanwhile, the indivisible atom had fallen apart and in 1911 Rutherford described its internal structure as a positively charged nucleus orbited by negatively charged electrons, like a star orbited by planets. As the Great War began in 1914, atomic physics was established as an independent field of science, and the literate world knew of


its mysterious rays, radium, and ever-changing atom.

The products of the new physics, especially radium, quickly entered the public eye and captured the general imagination. In 1903 a journalist felt confident enough to write, "The average man ... knows as much about radium as do the most advanced physicists, and [research] is watched with interest by the well-informed newspaper reader..." In fact, physicists wrote for the popular press. For example, the distinguished Cambridge professor, J.J. Thomson contributed an article summarizing the state of atomic physics to *Harper's Monthly Magazine*, Rutherford published several pieces describing his work, and Sir William Ramsey frequently promoted the new science, alluding to the potential transmutation of the elements. Even Madam Curie contributed an article that appeared alongside the first installment of Jack London's "The Sea-Wolf" in *The Century Magazine*.

The public became most aware of the new science through reading descriptions of its medicinal applications. Doctors began using X-rays as a diagnostic tool immediately, and soon after began experimenting with radium. Articles described research into the effects of radium rays on small animals, their effects on a variety of cancers, and as a stimulant to plant growth. The experiment of J. Butler Burke, in which he combined an apparently (but not actually) sterilized bouillon with radium to produce a culture showing evidence of life, made front page news and generated speculation on the connection

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between radiation and the genesis of life. Some scientists even tried radium as a treatment for insanity, which was the subject of the film *By Radium Rays* in 1914.  

Radium also promised to revolutionize industry as a source of power. By 1903, authorities such as Professor William Crookes could state that, "one gram [of radium gives off enough energy] to lift the whole British fleet to the top of Ben Nevis," or that four pounds could propel a fast liner across the Atlantic. More importantly, in 1908, the final chapter of Frederick Soddy's *The Interpretation of Radium*, a collection of six free popular lectures given at the University of Glasgow, speculated on the possibility of controlling the rate of atomic disintegration, resulting in the transmutation of elements and the harnessing of the released energy, which Soddy considered the world's wealth.

Concurrent with the growth of atomic physics and directly responsible for the public's awareness of it was the growth of the popular magazine. Before 1890, "quality magazines" sold for 35 cents and catered to a well-to-do, conservative, and literary audience. With the coming of widespread literacy and national advertising, as manufacturers as well as retailers began promoting their products, low-priced magazines proliferated, and after 1890, magazines such as *Century, Harper's*, and *Scribner's*

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lowered their price to 25 cents. In January 1891, *The Strand Magazine* debuted in England selling for sixpence and gained lasting popularity by printing six Sherlock Holmes stories later that year, while imitators, priced at 10 cents, such as *McClure's, Cosmopolitan,* and *Munsey's,* followed quickly and found great success. While in 1885, four general interest magazines in the United States with a circulation of over 100,000, and a combined readership of 600,000, by 1905, there were twenty with a circulation of over 100,000, and combined sales of 5.5 million. These popular ten-cent magazines were well illustrated, printed fresh nonfiction covering a variety of subjects and contemporary issues, and featured new inventions and major world events.  

Typical of the popular magazines interest in progress was the "future war" genre of fiction. Popular in Europe since the publication of George Chesney's "The Battle of Dorking" in *Blackwood's Magazine* in 1871, such works examined the effects of new technology on war, and usually urged preparing for the next war from a heroic and aggressively nationalistic viewpoint. Not surprisingly, such stories featured the new atomic science as a plot device. Atypical among these for its very unromantic tone, Frank Stockton's *The Great War Syndicate* speculated on the effects of an incredible new weapon, similar to an atomic bomb, and concluded war would be reduced to mass slaughter and thus would become impossible. The atomic disintegration and radium bombs of George Griffith's *The World Peril of 1910* and *The Lord of Labour* merely escalated the level of destructive inventiveness. In Roy Norton's *The Vanishing Fleets,* a radioactive metal defied gravity giving America a weapon with which to enforce world

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peace and revolutionizing transportation. Similarly, a radium-powered flying machine, the "Miracle," in J.U. Giesy's _All For His Country_, saved the US from conquest by Mexico and Japan.⁸

Stories about scientists and inventors proved more enduring than the "future war" fictions. The "slapstick inventor" genre, also a favorite of the popular magazines, focused on absent-minded scientists whose impractical inventions had comic results. Julian Hawthorne's "The Uncertainty about Mr. Kippax" anticipated the new science when its inventor worked on the forces holding atoms together, and disappeared as a result. William Alden's Professor Von Wagener used radium to restore his lost youth but became radioactive with fatal consequences.⁹

The heroic adventurer-scientist, however, dominated the formative field of speculative fiction. Garrett Serviss' scientists traveled to Venus in an uranium-powered rocket and used atomic power to rebuild civilization after a world-drenching flood. Similarly, Professor John Silver built a radium-powered rocket ship in Stacey Blake's "Beyond the Blue." Such heroic scientists were not always the "good guys," and sometimes went outside the law to achieve noble ends. The renegade scientist in Hollis Godfrey's _The Man Who Ended War_, in order to force world disarmament, used a radioactive gas to destroy the world's battleships. In "The Man Who Rocked the Earth,"

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PAX utilized his atom-powered flying ring to force an end to World War I. 10

Other fictional scientists had evil motives, such as Robert Cromie's nihilistic villain who planned to destroy the world with an explosive that released the energy frozen in matter, and the more mundane villain of Edward Crosby's *Radiana*, who used a formula to manufacture radium to get rich. 11

While other writers were content to fight wars with radium bombs and fly in atomic rocket ships, only H.G. Wells speculated on the direct social implications of atomic physics. Wells dedicated *The World Set Free* to Frederick Soddy and borrowed heavily from the final chapter of *The Interpretation of Radium* as the basis for his vision. 12

Wells' atomic motors revolutionized industry, transportation, and economics, stratifying society into those who could afford the benefits of the new technology and the masses who could not. War followed, and after atomic bombs, a term first used by Wells, destroyed the world's cities, an authoritarian world government stepped into the resulting chaos, giving mankind a chance to reorder its social institutions to fit the new technology.

While the Great War halted atomic research, physicists served their countries by working on more practical war-related efforts, like poison gas. Throughout the 1920s, scientists developed research methods and tools to test the boundaries of their theories, and to explore the atom's nucleus and its bonds. Public fascination with the atom continued despite the slow pace of research, and general interest periodicals, like *The

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American Magazine, continued to print stories detailing the latest findings of science. In September 1923, the BBC broadcast on all channels Rutherford's presidential acceptance speech before the British Scientific Association as he described the internal structure of the atom but expressed doubts regarding the practical utility of atomic energy. Later that year, the New York Times reported Neils Bohr's Yale lectures in detail, and Edward Free attempted to explain Bohr's quantum theory to the readers of The Forum.¹³

Several scientific authorities had continued to speak of the promise of atomic energy. Although Sir Oliver Lodge, in 1919, saw an inexhaustible supply of energy in the atom and predicted an end to the use of coal, Rutherford cautioned against such speculation, pointing out that only heavy elements such as uranium held such potential and there was too little available to be practical. Hopeful speculation persisted, nevertheless. Both Dr. James F. Norris, in a presidential address to the American Chemical Society, and Dr. Arthur Goodspeed, in a University of Pennsylvania commencement address, predicted the use of atomic energy in the near future, while Dean G.L. Wendt of Pennsylvania State College School of Chemistry and Physics promised light without heat. At the same time, Popular Mechanics advised their readers that transmutation was inevitable.¹⁴


The public was most especially made aware of radium's uses, both practical and bizarre. Its medical applications had been professionalized by 1920, and newspapers and magazines explained where the magic element was found, how it was processed and utilized, and safety precautions required in its handling. On the bizarre side, the planned opening night of the Ziegfield Follies in 1922 was ruined when another show first used gowns made luminous by radium. *Scientific American* placed glowing radium spots on mediums to detect fakery during seances, while in Britain, Mr. Grindell-Matthews attempted to sell a radium-powered ray that he claimed could cause automobile and aircraft motors to seize up.\(^{15}\)

During and after the war, atomic physics appeared in a broad variety of popular entertainment. Movies picked up the war theme and extremely powerful explosives were portrayed in such films as *War O'Dreams, The Greatest Power* with Ethel Barrymore, and *The Eleventh Hour*. Atom-powered death rays appeared in *The Intrigue, The Invisible Ray, Story Without a Name, Laughing at Danger, The Code of the Air*, and *The Last Hour*. The discovery of radium on his land provided a lucky rancher the means to go to the big city in *Broadway or Bust*. Many authors also used the atom in their works, and previously unpublished works by Mark Twain and Upton Sinclair found their way into print. Best-selling romance novelist Marie Corelli treated atomic power in spiritual terms in *The Secret Power*. Detective author Eden Phillpotts, writing as Harrington Hext, depicted a terrorist using atomic inventions in *Number 87*, while Hercule Poirot foiled a

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plan to conquer the world with an atomic explosive in Agatha Christie's "The Man Who Was Four." And, explorers found Atlantis had survived by using atomic power in Sir Arthur Conan Doyle's "The Maracot Deep." 

New authors also picked up old themes. The renegade scientist, in Swiss playwright Noelle Roger's *The New Adam*, created a superman who destroyed himself and his creator in an atomic blast. Mystery writer E. Charles Vivian had his benevolent, gold-producing scientist killed by threatened Jewish financiers in *Stardust*, while mystery writer Rufus King's scientist dematerialized his girlfriend in *The Fatal Kiss Mystery*, and detective writer Arthur Reeve's heroic scientist saved America in an economic war with Europe by inventing atomic power in *Pandora*. Terrorists planned to blow up New York, Paris, and London with an atomic explosive in travel writer Ganpat's *The Three R's*. Atomic weapons enforced world peace in Victor MacClure's *The Ark of the Covenant* and Reginald Glossop's *The Orphan of Space*. Pierrepont Noyes used his unique perspective as US Rhineland Commissioner to write *The Pallid Giant* warning against the development of advanced weapons while men are still ruled by fear. 

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Authors of higher literary standing also used atomic themes. While German satirist Alexander Moszkowski linked heart and mind in *The Isles of Wisdom*, renowned Czech playwright Karel Capek conjoined the destructive power of an atomic explosive to human sexuality in *Krakatit*, then released God from its prison in matter with an atomic engine in *The Absolute at Large*. In a more distant view, atomic power was depicted as merely one stage in long cyclical evolutionary history of man in English philosopher Olaf Stapledon's *Last and First Men*.

While books and general interest magazines continued to feature such speculations, atomic physics came under increasing focus in the pulp magazines, the first all-fiction variants of which, like *The Argosy* and *The Black Cat*, appeared before the turn of the century. They stressed action and adventure in an outdoor setting, and before World War I had begun to focus on specific genres like western, detective, romance, and adventure. Since their writers were paid by the word and had to write thousands of words a day to make a living, most wrote to a formula. None did this better than Edgar Rice Burroughs, who shrewdly and deliberately analyzed the pulp fiction market and wrote stories to a formula that appealed to the widest possible audience by adding a more-than-casual love interest and highly exotic settings to typical adventure plots. His first story, "Under the Moons of Mars" in 1912, which mentioned radium bullets, led pulp writers to use atomic motifs in their stories after the Great War, for example, Bertram Russell's "The Bat-Men of Thorium." An atomic explosive prevented an European invasion of


America in Fred MacIsaac's "World Brigands." And, in Otis Adelbert Kline's "Maza of the Moon," a scientist, using atomic weapons, started and ended a war with the moon. 19

Atomic physics also provided the most exotic of settings. Because atoms were then seen as resembling small solar systems, some authors concluded adventurers might visit tiny worlds orbiting nuclear suns. Ray Cummings first described such a visit to a microcosmic world in "The Girl in the Golden Atom" in 1919, and less than a year later with "The People of the Golden Atom." Austin Hall reversed the situation and had travelers from a sub-microscopic world visit Earth in "People of the Comet." A chemical experiment in a macroscopic universe tore the Earth from its orbit in Clare Winger Harris' "A Runaway World," and a sub-microscopic world fought a macroscopic world using Earth for a battlefield in Edmond Hamilton's "The Atomic Conquerors." 20

The most important "real world" industrial use of radium, apart from medicine, was in luminous paint, which as early as 1909, was used to illuminate watch dials. By the beginning of World War I, half the radium produced was used by luminous paint companies. During the war, such paint was applied to aircraft instruments, ship's compasses, and gunsights. These demonstrations of utility showed that radioactivity was more than just a novelty, and raised popular consciousness of atomic power at a practical level, but in the Spring of 1927, the darker side of its effects were dramatized when five


women brought suit against the United States Radium Corporation in New Jersey. Several of those who worked as watch dial painters during and after the war and had suffered or died from a number of ailments variously diagnosed as syphilis, angina, or anemia. Since the women had shaped their brushes to a sharp point with the tips of their tongues, evidence pointed to radium as the source of their troubles. The courtroom drama unfolded in the papers as bodies were exhumed to test the levels of radium in their bones and the court ruled the statutes of limitations did not apply. A year later, the plaintiffs settled out of court, each receiving roughly $10,000 and three husbands receiving nominal sums for the loss of their wives’ services.

Public concern did not vanish with the settlement, and industrial safety experts sought ways to prevent any further cases. Although the Curies and other researchers endured radiation burns and sickness as an unavoidable hazard of their work, but such hazards in the public domain was a different matter. As children of afflicted women came down with symptoms of radium poisoning, and women continued to die or tell the public of their plight, radium lost some of its luster.

As the twenties drew to a close, a new attitude toward science began to appear in fiction. Eric Temple Bell, a distinguished mathematician, under the pen name John


Taine, published *Green Fire* in 1928. Its central character, the all-too-human mad genius Javic, attempted to destroy the universe as a monument to his own greatness. The same year, a bored dilettante undid creation when he split an atom and started a chain reaction in William Gerhardi’s *Jazz and Jasper*. The atom had found its way into stories of the dark side of science, balancing the promise of enormous benefits in energy and medicine against the potential for great harm.²³

Thus, during the thirties, the mood had already changed as science began its assault on the atom and scientists rapidly closed on their goal of unlocking its power. The turning point came in 1932 when Chadwick identified the neutron, a heavy uncharged particle that shared space in the nucleus with protons. After physicists began using the new Cavendish accelerator and cyclotron to throw neutrons at atoms, in Paris, the following year, Irene Joliot-Curie, the daughter of Marie Curie, discovered that when some atoms caught neutrons in their nucleus, they changed character, thus creating the first artificial radioactive isotopes. With transmutation more possible than ever, in Italy, Enrico Fermi systematically followed up Joliot-Curie’s experiment by bombarding each element in turn and recording the results. The heaviest element, uranium, reacted strangely, producing an odd combination of elements, none of which should have been there. Fermi called these transuranic elements and from 1934 to 1938, Joliot-Curie in Paris, and the team of Otto Hahn and Lise Meitner in Berlin raced to discover their true nature.²⁴

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The public was kept abreast of these developments in science. In 1931, the Columbia radio network carried Sir Oliver Lodge's speech to the British Association for the Advancement of Science in which he described the evolution of atomic theory. Cockroft and Walton's experiments with the new Cavendish accelerator made front page news promising atomic energy. William Lawrence and his cyclotron became minor celebrities and appeared in newspaper and magazine articles throughout the thirties. Radioactive isotopes returned the Curie name to the papers, and everyone knew when Fermi created a new element.²⁵

More exotic consequences also continued to be reported. Dr. Goodspeed found exposure to radium rays caused abnormal growth and "damage to hereditary material" in tobacco plants. Naval inspectors found flaws in cast parts of warships by using radium to X-ray them, while physicians employed the cyclotron "death-ray" to treat leukemia.²⁶

As science neared its target, stories using atomic plot devices reached a relatively small audience. The increasing specialization of the pulps led to the creation, by Hugo Gernsback, of a magazine that carried nothing but science fiction. He had been running short fiction - what he called "scientifiction" - in his popular science magazines, *Science and Invention* and *Electrical Experimenter*, and in 1926 he decided to publish a magazine

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wholly dedicated to science fiction, *Amazing Stories*. After it met with some success, imitators soon followed, most importantly *Astounding Stories of Super-Science* in 1930. Although after this, atomic fiction appeared mainly in the science fiction magazines there were some notable exceptions. In the off-Broadway play *Wings over Europe* in 1929, a special cabinet committee in England was forced to decide what to do with the gift of an atomic explosive. In 1932, in *Public Faces*, a diplomat and future member of Parliament, Harold Nicholson, decided such a weapon should enforce universal disarmament. The last-second discovery of an atomic rocket allowed a handful of humans to escape certain doom in *When Worlds Collide*, published in 1933 and later made into a Hollywood movie. An atomic explosive in the hands of a small Balkan country threatened to upset the European balance of power in Eric Ambler's 1936 spy thriller *The Dark Frontier*, and a fanatic cult planned to end mankind's futile existence in an atomic blast in J.B. Priestly's *The Doomsday Men*.27

The August 1928 issue of *Amazing Stories* defined the science fiction magazine genre. It contained the first installment of “The Skylark of Space,” and the first appearance of Buck Rogers. Edward "Doc" Smith's *Skylark* series extended the boundaries of the adventure story. His heroes rocketed about the galaxy in an atom-

powered ship, fighting monsters and villains on dozens of different planets at a breakneck pace, overcoming every new obstacle with a feat of scientific wizardry. Phillip Nowlan's Buck Rogers saved America in the twenty-fifth century after awakening from a radiation-induced slumber, and appeared daily as a newspaper comic strip for almost thirty years and in a film serial in 1939.\(^{28}\)

As science fiction magazines expanded and evolved, the writers reworking old themes increasingly relied on an atomic motif. The sub-microscopic story gained in popularity with stories such as "Beyond the Vanishing Point," Out of the Sub- Universe," "Prisoners on the Electron," and "Microcosmic Buccaneers." Captain S.P. Meek's "Submicroscopic" and its sequel, "Awlo of Ulm," epitomized the type as his hero journeyed to a land within an atom and braved a series of adventures to win the hand of the heroine, Awlo. In contrast, the scientist in Donald Wandrei's "Colossus" sought refuge from war on Earth by expanding himself into a macrocosmic universe, while Henry Hasse condemned his protagonist to an eternal existence of shrinking through one universe into the next in "He Who Shrank."\(^{29}\)

Some authors depicted atomic weapons. Disintegration bombs kept the world at peace until the Soviet Union developed a defensive screen in "The Red Peril" of 1929. In "The Triple Ray," an atom-destroying twin-ray ended a European war, but a new triple-


ray destroyed the world. The hero of Charles Diffin's "Holocaust" used tritonite bullets to save America from a Soviet invasion, while in Carl Spohr's "The Final War," World War I was refought in the twenty-first century, ending with atomic bombs destroying civilization. In Nat Schachner's "The World Gone Mad," when the next war started, both sides had radite bombs, and aliens used a radioactive gas that drove people insane to conquer Earth in Jack Williamson's "Legion of Space."³⁰

In the early 1930s, atomic energy usually provided a means to attain a greater end. In "Atomic Fire," it saved the Earth when the sun died. In "The Power Planet," a renegade country attacked the world's energy sources - orbiting solar energy converters - confident they could survive without them since they had just discovered atomic energy. In "Power," the discovery of atomic energy by an underclass technician ended the power monopoly of the ruling caste, resulting in social upheaval. Aliens gave atomic energy to man in "Emissaries of Space," but at the price of becoming a vassal state. An atomic-powered ship carried human colonists in "Proxima Centauri," but, in Nat Schachner's "Orb of Probability" man had grown dependent on atomic machines which provide for every need and want.³¹

In view of the frequent references to transmutation in popular science, it is not surprising that authors explored the possibilities of turning lead into gold. In "The Stolen Element," a scientist discovered the secret only to be killed by a greedy businessman who


stole it, while in a similar situation, the scientist in "Gold" used an alpha ray floodlight to kill the gangsters seeking his secret.\footnote{Paul Ernst, "The Stolen Element," Astounding, September 1934. H.L. Gold, "Gold," Astounding, June 1935.}


By 1935, the science fiction magazine genre was well enough defined for writers to engage in self-parody. Isaac Nathanson's "World Aflame" began with a slightly mad scientist destroying a building with an uncontrolled atomic experiment. The hero, the scientist's research assistant, married the scientist's beautiful daughter and later saved the world. Meanwhile, spies stole the scientist's notes and, to end the war, built an atomic
bomb that acted like those in *The World Set Free*, but worse. Missing its target, New York City, it sat burning and ignored in the Catskills until it burned a hole through the Earth's crust causing worldwide disaster. Fortunately, the hero's new atomic rockets allowed humanity to colonize Mars and Venus.³⁵

Movies carried some of the magazines' themes to a broader audience. Boris Karloff used radium rays to kill his enemies in *The Invisible Ray*. When Atlantis attacked America using an atomic disintegrator ray, in *Undersea Kingdom*, Crash Corrigan saved the day. Bela Lugosi threatened a city with disintegrating gas in *SOS Coast Guard*. Dr. Cyclops appeared in the theaters and a magazine simultaneously, and most notably, Universal Pictures made *Buck Rogers* into a serial starring Olympic swimmer Buster Crabbe.³⁶

Arguably the most important individual in the history of science fiction magazines was John W. Campbell, Jr. An early reader of *Amazing Stories*, he began submitting stories while still a physics student at MIT. In his early works, he copied the style of "Doc" Smith with whom he developed a friendly rivalry as each tried to outdo the other in their next story. Early on, Campbell was enthusiastic about atomic science. In "When the Atoms Failed," a scientist defeated a Martian invasion with superior atomic science, and it was the first story to make a clear distinction between controlling the energy released in atomic disintegration and that released in the complete and instantaneous conversion of matter to energy. An atomic motor, controlling the latter sort

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of energy, allowed a scientist to save New York from destruction in "Beyond the End of Space." Campbell even brought a new twist to the submicroscopic world theme, in "Atomic Power," by having an atomic power generator save the earth from being the atom consumed in a macrocosmic atomic generator.37

As Campbell matured, he found a desire for a more adult style of science fiction. Realizing his audience expected a certain kind of story to follow his name, he adopted the pen name "Don A. Stuart," derived from his wife's maiden name, Donna Stuart, and began writing stories designed to evoke a mood. In "Twilight," a time traveler visited the distant future and found mankind dying a lingering death, its spirit smothered by a dependence on atomic-powered machines that provided for every need and want. In "Blindness," a scientist lost his sight while perfecting atomic power near the sun, only to return to an Earth that didn't need or want his life's work. By the mid-thirties, Campbell and "Stuart" were two of the magazines' most popular authors.38

Campbell became, in December 1937, editor of Astounding, and the prime shaper of magazine science fiction until his death in 1971. Recruiting and shaping authors to write more mature stories, he included an increasing number of scientific articles, especially those related to rocketry and atomic physics, and he wrote editorials explaining his vision of science and science fiction. When in 1938, he wrote that he felt confident that, "the discoverer of the secret of atomic power is alive on Earth today," he didn't

Atomic science and technology progressed rapidly from the winter of 1938 to August 1945. After Hahn's experiments with uranium and transuranic elements produced curious results, his old partner Lise Meitner had a hunch. After she conferred with her nephew Otto Frisch at Christmas time in Copenhagen, they checked their findings with Neils Bohr, and found that the numbers held, proving Meitner's insight correct, that uranium atoms, when bombarded with neutrons, split into smaller atoms, a process Frisch named "fission".

World events now engulfed science. Jewish physicists, driven from Central, Southern, and Eastern Europe by fascism, who saw atomic fission's destructive potential and, feared it would be used by Hitler, and worked feverishly in Britain and America to urge those countries to develop it first. In England, in May 1940, Sir Henry Tizard formed the M.A.U.D. Committee, a subcommittee to the Committee for the Scientific Survey of Air Warfare, to deal with the problems presented by uranium. A year later, Churchill appointed Sir John Anderson to head the new Tube Alloys Directorate and work toward an uranium bomb. In the United States, The Advisory Committee on Uranium, formed in response to Einstein's famous letter to President Roosevelt, first met on 21 October 1939. The National Defense Research Committee was formed in June 1940, with Vannevar Bush as Chairman, and began coordinating and consolidating research efforts under its authority. Two years later, the Army Corps of Engineers received authority to oversee the research and development of uranium, and in September 1942 General Leslie Groves was given command of the Manhattan Engineer District.

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When Enrico Fermi oversaw the first self-sustaining atomic reaction at the University of Chicago on 2 December 1942, he overcame the last major hurdle in the development of the atomic bomb.

Leo Szilard, a Hungarian-born physicist and an important figure in the development of the bomb, provides an excellent example of the interconnection of science, popular entertainment, and politics. His early recognition of the serious possibility of an atomic weapon was due to his having been an avid fan of H.G. Wells. *World Set Free* sensitized him to the potential consequences. Szilard and his fellow Hungarian physicists, Edward Teller and Eugene Wigner, all witnesses of the anarchy following the collapse of the Austro-Hungarian Empire after World War I and the cruelty of a fascist government, pushed for voluntary secrecy in atomic research, and convinced Einstein to write his letter to Roosevelt. Having seen the potentially disastrous consequences of Soddy's work through Wells' vision, and hoping to prevent them, Szilard inadvertently helped bring some of them about.

In January and February 1939, news of the splitting of the atom excited the press. As newspapers and magazines reported the event, and attempted to explain it to their readers, some science writers, like Waldemer Kaempffert of the *New York Times*, wondered whether a chain reaction might destroy the world. A year later, scientists generally recognized that only the separating of the U-235 isotope from normal uranium U-238 was needed to make atomic power a reality. In May 1940, William Laurence explained this in the *New York Times*, noting U-235's explosive potential, and warning

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that the Nazis were working toward a solution. Popular magazines, like Harper's, Collier's, and The Saturday Evening Post, ran long articles explaining the possible uses and abuses of atomic power. Popular Mechanics told its readers how the heat given off by a uranium reaction could be used to drive a steam turbine, and the Independent Woman noted the coming of the atomic age, and expressed concern about research in Germany and Japan. 41

With the war came censorship. John O'Neill, the President of the National Association of Science writers in an address to the Housatonic Valley Conference in August 1941, charged that scientists had discovered a means of making a U-235 bomb and that the government was censoring the laboratories. While such censorship was then self-imposed, the government had begun to censor publications, and very little appeared in print the next four years. The Fortnightly made note of the uses of radioactive tracers in medicine, as did The Nation. Newsweek reported the destruction of the Ryuken electrochemical plant in Norway in 1943, and noted that the Germans might be using its heavy water production to build an atomic bomb. And, in November 1944, Time printed a report from London that the Nazis might be working on a V-2-like rocket carrying an

atomic bomb, that would use an implosive charge to compress uranium until it blew up, much like the one dropped on Nagasaki.  

In spite of censorship, everyone who could read had some idea that atomic power was imminent partly due to popular culture. The comic strip character Superman had burst into the public eye just as Hahn split the atom, creating a new form of entertainment, the fantastic superhero. Comic books became increasingly popular during the war, and during 1944, publishers printed 25 million copies a month. One out of four magazines shipped to servicemen overseas was a comic. The atom quickly made its way into the genre since they were mostly written by pulp-writers. One diminutive hero called himself the "Atom," the American Crusader gained his powers in an accident with an atom-smashing device, and even Superman had X-ray vision.

In the popular culture arena, however, atomic physics was most openly and intensively examined in Campbell's Astounding, including his editorials "Jackpot," "Isotope 235," and "Atomic Power vs. Coal," until censorship prevented it, and he encouraged his writers, in their fiction, to focus on both the social implications as well as the technical aspects of the atom. 

Unlike previous visions, writers no longer saw atomic energy as a panacea for speculative worlds. Theodore Sturgeon saw Earth becoming desperately dependent on


Mars for U-235 to power their reactors in "Artnan Process." In A.E. Van Vogt's "The Weapon Shop," the Automatic Atomic Motor Repair Company embodied the impersonal automated corporate world that crushed the spirit out of the individual. Atomic energy, in Clifford Simak's "City" series, freed man from the drudgery of daily existence and the threat of war, and from the bonds, both good and bad, of society and community. The responsibility of controlling an atomic reactor, which could explode at any second, taking thousands of people with it, slowly drove technicians, and the psychologists assigned to work with them, mad, in Robert Heinlein's "Blowups Happen."  

More often, writers described atomic weapons. In "Fifth Freedom," a Central European country attacked America using atomic rocket planes carrying highly radioactive bombs, while atomic wars brought on a new dark age and super-science enforced general ignorance lest wars return in "Gather, Darkness" and "Renaissance." Cleve Cartmill, in "Deadline," described an atomic warhead design close enough to one being developed at Los Alamos, which led the FBI to investigate Campbell and Cartmill. And, in "Solution Unsatisfactory," Heinlein described the difficult political problems of keeping the workings of a new weapon secret, of keeping the peace in a world where everyone had atomic weapons, and of resisting the temptation to misuse the weapon by a sole possessor.  


Writers also took an increasing interest in biological implications. A scientist, in "The Blue Giraffe," refused to have children after being exposed to radiation and seeing its effects on animals. Lester del Rey focused on the medical dangers of an accident at a plant making artificial radioactives and how one radioactive could prevent poisoning by another, in "Nerves." Exposure to the radiation of an atomic weapon mutated unborn children who grow up to be the ruling class in "With Flaming Swords." Similarly, in the "baldy" series, atomic radiation spawned a sub-race of mutant telepaths who had to fight the prejudices of normal humans and their own renegades to survive.

Although the news of 6 August 1945 shocked the publics of the major industrialized nations, they had been well prepared. Even before William Roentgen saw the bones in his hand, writers like Cromie had dreamed of the explosive power within the atom. Atomic physics began in an era in which an increasingly literate society fed its fascination for things new and scientific with popular magazines. Writers picked up the new science, with its rays and radium, and assimilated it into existing fiction genres, giving it a vague, non-rational, but real place in popular consciousness. Yet, during the Great Depression, as scientists methodically worked closer to their goal and fiction magazines targeted narrow audiences, the atom fell away from the general public's view to the more limited realms of science and relatively sophisticated enthusiasts. Hahn's

splitting of the atom brought the old impressions back to the forefront of the public's consciousness, but only momentarily. Enthusiasts, speculating in *Astounding* before and during World War II on the possibilities of an atomic age, shaped a new, atomic genre, contributing to the post-war nuclear discourse. In spite of the impressions of many since then, many literate Americans had been anticipating the harnessing of atomic power for half-a-century, and Hiroshima was far less a surprise to them than to the general public.
The annotated bibliography is divided into four sections. The first, and most extensive, a bibliography of English-language fiction published before August 1945, deals with the possible uses and implications of atomic physics. The criteria for inclusion in the bibliography are subjective. Early works, such as Frank Stockton's *The Great War Syndicate*, which makes no direct reference to atomic physics but to a weapon that acts like an atom-bomb, are included, while later stories with a similar plot device are excluded. Entries are arranged alphabetically, by author, with each's publications in chronological order. Biographical information, when available, is provided for each author along with any pseudonyms. Two sources proved invaluable in the compilation of the bibliography: Paul Brians' *Nuclear Holocausts: Atomic War in Fiction, 1895-1984*, which deals specifically with atomic weapons in literature, and Everet Bleiler's *Science Fiction: The Early Years*, without which the pre-1930 fiction would have been inaccessible.

The second is a chronological checklist of the works included in the bibliography.

A chronological bibliography of English-language films, premiering before August 1945, with an atomic element comprises the third section. Again, inclusion is subjective, with criteria for entry being much looser than in the fiction bibliography. This list is not intended to be comprehensive, only to demonstrate how broad an audience was exposed to atomic themes. Mick Broderick's *Nuclear Movies* and Donald Willis' *Variety's Complete Science Fiction Reviews* provided most of the information here.

The final section is a list of those comic book "superheroes" that debuted before
August 1945, which featured atomic themes, arranged alphabetically by character and followed by a publishing history. Like the film list, criteria for inclusion is subjective and intended to demonstrate the breadth of exposure to atomic themes. The publishing information is drawn from Mike Benton's *Superhero Comics of the Golden Age*. 
Annotated Bibliography of Atomic Fiction

**Abernathy, Robert.** (1924-) Linguist, Ph.D. Harvard 1951, Professor at University of Colorado.

   Harsh conditions on Mars have reduced the first human colonists to small tribes living by a warrior code. Rockets using atomic bombs and death rays remove the tribes clearing the way for a new wave of colonization. The Martians' strong martial spirit compares favorably with the soft people of Earth who conduct push-button war.


   One of a series of "slapstick invention" stories featuring Professor Van Wagener of the University of Berlinopolisville (later the U. of New Berlinopolisville, Illinois). The Professor discovers radium and radioactivity twenty-nine years before the Curies. After his wife divorces him for neglect, Van Wagener experiments with radium as an elixir of youth. He begins to glow in the dark, emit heat, and his clothes rot on his body. Finally, he disappears in an explosion that destroys his lab.


Hitler, after winning the war in Europe, turns his attention, in 1945, toward the U.S. announcing his scientists have developed a process for isolating pure, weapon grade U-235 from ordinary uranium. But, the United States, having already secretly developed the technology, beats Hitler to the punch, creating a world order through a monopoly of the bomb.


Engineer's apprentice and advertising copywriter. Served in Royal Artillery 1940-1946. Author 1936-present; credited with creating modern spy story with his series of pre-WWII novels. Best known works include The Mask of Dimitrios (1939) which was filmed by Warner Brothers in 1944 with Sidney Greenstreet and Peter Lorre, and The Light of Day (1962) which United Artists filmed as Topkapi in 1964.


A physicist is caught in intrigue as an arms manufacturer attempts to steal an atomic explosive secret from a genius in the small Balkan country of Ixania, where corrupt politics has the peasants on the edge of revolution. His device can
shift one thousand tons of rock with a charge the size of an ordinary grenade. The physicist, helped by an American reporter, destroys the secret, preventing it from upsetting the balance of power and starting a European war.

**Bacon, Edgar Mayhew.** (1855-1935) Teacher and writer. Best known for illustrated regional guidebooks.


After a flood washes away their home, a hill country family awakes to find a new house washed aground where their old house stood. The house's master bedroom contains a huge wooden frame bed with a picture of a saintly woman gazing heavenward hanging from its headboard. Spending a night in the bed rejuvenates the grandmother, curing her of minor ailments. As word of the miraculous bed spreads and people come from miles away to use its miraculous healing powers, a local doctor visits the house and immediately recognizes it as one he lost to the flood. Experimenting with the restorative properties of radiation, he lined the bed frame with radium. Satisfied, he leaves without disturbing the locals.


Two planets have entered the solar system on a collision course with Earth. Arks, propelled by atomic disintegration engines, carry human colonists to the smaller intruder. The larger planet destroys the Earth, leaving the smaller, with its human survivors, in Earth's orbit.

**Bartel, Philip Jacques.** pseudonym of M.M. Kaplan

The Earth, faced with disaster as carbon-based fuel sources near exhaustion, sends a representative to the Solar Congress on the Moon to ask Lia, Chieftainess of the Helites, for the secret of inter-atomic energy. He wins the secret and the love of Lia.

**Bartlett, Landell.** Editor and author.

8. **The Vanguard of Venus: Presented with the Compliments of Amazing Stories.**
Venusians plot to conquer Earth. Their agents infiltrate important positions and prepare for invasion, and reveal their plans to a captured scientist whom they then release, knowing he will be considered crazy.

The Venusians use venusite, a highly radioactive element, to power spaceships and atomic explosives.

This booklet was distributed as a subscription premium for Amazing Stories.


A Thirtieth Century government has maintained stability with the prognostications of an integrating machine that derives the most probable future from all available data. When it predicts an atomic experiment a thousand years hence will destroy the universe, technicians trace events leading up to the experiment to an innocent conversation later that day.


A scientist has found a way to use atomic energy to drive a steam engine and generate electricity ten times more efficiently than coal. After sending in a patent application, he dies in an explosion.

The patent agent, grasping the device's potential, steals the application, and sells copies to a business firm and an Oriental power. Atomic Power Inc. upsets Western economies with cheap power, and the Orientals depopulate Seattle with an atomic death-ray.

The scientist had foreseen the potential problems and left an instrument with a friend that simultaneously destroys all atomic devices in large explosions.

**Blake, Stacy.** British writer of boys' thrillers.


Professor Johnathan (John) Silver discovers a small planet orbiting the earth that maintains a position directly between the earth and the moon and that had previously been mistaken for a feature of the moon. Criminal intrigues disturb efforts to build a radium-powered ship to visit the new satellite.

**Burroughs, Edgar Rice.** (1 September 1875-19 March 1950) Born in Chicago, Illinois.

Son of a distiller and battery manufacturer. Attended the Michigan Military Academy 1891-1895. Began writing in 1911 after failing in his other career
choices. Best known as the creator of Tarzan.


Trapped by hostile Indians, John Carter finds himself mysteriously transported to Mars. There, he has a series of adventures with the local people and romances the Princess Dejah Thoris.

Martian rifles fire radium projectiles which explode on impact.

The story was published unedited, in book form, and under his own name as A Princess of Mars (Chicago: McClurg, 1917.). Burroughs continued writing Mars stories for thirty years.


"The Warlord of Mars." All-Story, December 1913-March 1914.

"Thuvia, Maid of Mars." All-Story, 8-22 April 1916.

"The Chessmen of Mars." Argosy-All Story, 18 February-1 April 1922.


"A Fighting Man of Mars." Blue Book, April-September 1930.


"The City of Mummies." Amazing Stories, March 1941.

"Black Pirates of Barsoom." Amazing Stories, June 1941.

"Yellow Men of Mars." Amazing Stories, August 1941.

"Invisible Men of Mars." Amazing Stories, October 1941.


13. "When the Atoms Failed." *Amazing Stories*, January 1930, 910-925, 975. Martians invade Earth using atomic energy to propel their spaceships and to power heat rays, and atomic bombs. A scientist defeats them with superior science, then imposes world disarmament and inter-planetary cooperation while allowing industrial use of his technology. His calculating machine performs the calculus necessary to derive the ultimate equation of matter, giving him complete control of matter and energy resulting in: a ship that moves by warping space; atomic bullets; the transmutation of matter; and the complete conversion of matter into energy.

14. "The Black Star Passes." *Amazing Stories Quarterly*, Fall 1930, 492-523, 574. An ancient declining race on a wandering black star depends on atomic power to provide the radiant energy their star lacks. A miscommunication while passing near a yellow star leads to war with its inhabitants. Defeat at the hands of the Terrans rejuvenates the ancient race.

In the far future, man has built machines as intelligent as himself. "Outsiders" invade the solar system, all but wiping out man in the first attack. The machines fight back, building even more intelligent machines. The next to last evolution of machine uses the energy of annihilated matter for power and creates the last machine, a being of pure energy.


A scientist invents an atomic power generator that completely converts matter into energy. While the scientist journeys beyond space, an unscrupulous businessman steals the patents and attempts a military takeover of the U.S. with atomic weapons. The scientist returns before New York is destroyed and saves the day.


A time traveler lands in Nevada in the thirties. Hitching a ride into Reno, he tells the driver of man's twilight. Atomic powered machines, far in the future, provide for all human needs. Humanity, its inquisitive spirit lost, dies a lingering death.


To explain the decrease in gravity, a scientist postulates that a macrocosmic
atomic generator has the solar system in its breach. The scientist finds a way to counter the mysterious effect with his own atomic generator. Oddly, some atoms in his generator refuse to break down, causing the generator to stop.


An atomic-powered machine comes to Earth and provides for all man's needs, then leaves after ten generations, forcing man to relearn how to provide for himself.

(Part one of "The Teachers")


A scientist spends three years in close orbit around the sun, blinding himself, to fulfill his life's work on atomic power. He returns to an Earth that doesn't want or need atomic power. A thermal conductor he developed for his ship provides energy cheaply and abundantly.


The Tharoo land on Earth 3,500 years after the departure of the machine, disturbing the idyllic society that has developed. Tharoo eugenists breed efficient, docile human slaves to support the new colony.

(part two of "The Teachers")
The Tharoo teach their slaves too well, becoming dependent on them. A human
eugenist secretly breeds a highly intelligent type that leads the rebellion.
Atomic energy powers the society and acts as a weapon and digging tool.
(part three of "The Teachers")

Humanity uses atomic bombs to defeat the first Granthee invasion fleet, but only
two million people remain. The survivors prepare for a second invasion fleet.

Heisenberg's uncertainty principle confounds a human scientist working on
atomic power until he turns the uncertainty upon itself. His breakthrough allows
humanity to use atomic power to repel a Sthar invasion fleet. The two races
decide to work together peacefully.

A Pareeth exploration vessel, propelled by atomic engines, lands on Rhth. A
member of a nearby pastoral community gives the explorers a tour of the
abandoned great city of the City-Builders. The guide tries but can't explain the
secrets of the city. The Pareeth decide to colonize Rhth but the guide sends their
colony ships across five light-years of space in a few seconds. His people have
forgotten the secrets of the city as the Pareeth have forgotten how to start a fire
with two sticks.

The Sarn conquered Earth using atomic power and bombs. After four thousand years, humanity tires of its subservience. Only the appearance of a figure of blackness, called Aesir, saves the rebellion from being crushed.

An Arctic expedition finds an alien frozen in the ice. The alien thaws, revives, and begins replacing members of the expedition with duplicates. While the expedition attempts to learn which of its members are human and which are not, the alien builds a portable atomic generator to aid his escape to the outside world.

Sequel to "Out of Night."
Aesir, with his cloak of anti-energy that absorbs atomic energy, leads the human rebellion against the Sarn.

**Capek, Karel.** (9 January 1890-25 December 1938) Born in Male Svatonvici, Bohemia.
Son of a Physician. Studied in Prague, Paris, and Berlin. Received Ph.D. in Philosophy from University of Prague. Internationally renowned for his 1921 play *R.U.R.*, which introduced the world to the word "robot".

An explosives chemist develops a formula for an atomic explosive. The plot revolves around his relations with a series of women and his efforts to prevent weapon manufacturers, heads of state, and revolutionary anarchists from learning his secret. In the end, a single explosion destroys a village of 5,000 and the chemist forgets the secret.


Originally published in 1922 as "Tovarna na absolutno" in 30 weekly installments of the *Lidove noviny* newspaper.

A scientist invents a "Karburator" that completely transforms matter into energy. An industrialist hurries them into production and they soon power all manner of machines. However, conversion of matter to energy releases "the absolute", or "God". An air of religious fervor surrounds each engine, as small groups claim their engine the one true earthly manifestation of God. As the long dormant "absolute" needs a release for its creative energies and finds it in industrial production, factories produce round the clock, without human aid or supervision, using raw materials rent from the earth. Economic chaos follows overproduction and religious zealotry, then, a war, like the Thirty-Years war, begins. Private armies wander the globe, fighting for their "absolute", against someone else's
"absolute", against the "absolute" in general, or just to fight. Eventually, after all "karburators" are destroyed, people forget why they were fighting and life continues as if "karburators" never existed.


31. "With Flaming Swords." *Astounding Science-Fiction*, September 1942, 109-130. A major war ends when a single L-ray shot from an electron cannon causes terrible destruction over a large area. People nearby have their germ plasm mutated and bear sons with a glowing aura. In the anarchy following the war, the mutant children found the Religion of the Saints, establish a theocracy, and rule benevolently for centuries using advanced science to reinforce their divine authority and enforce their will. One Saint scientist discovers the truth of their origin and reveals it to the world.

32. "Deadline." *Astounding Science-Fiction*, March 1944, 154-178. The Seilla develop a method for separating the U-235 isotope knowing that it can produce an explosive, but, fearing a world-ending chain reaction, refrain from using it in their war against the almost beaten Sixa. Learning that a Sixa scientist is building an atomic bomb, the Seilla send a spy to stop him.
Chamberlin, Phillip D.  Phillip Dennis Chamberlin.

A macrocosmic atomic experiment destroys the sun. Earth scientists see the end coming and use atomic rockets to move the planet to another solar system.

Chambers, Dana. pseudonym of Albert Leffingwell. (1895-1946)

Nazis attempt to negotiate a peace by demonstrating an atom smashing ray.
American witnesses see through the hoax.

Chapin, Ernest K.

An international crisis brews in the Pacific and the world prepares for war.
Suddenly, a mysterious Captain Ray begins disintegrating the world's navies with an atomic beam, then threatens to destroy their armies. Faced with this threat, the world's governments agree to his demands and outlaw war.


Hercule Poirot outwits a gang of four international villains planning to dominate the world with an atomic explosive.

**Corelli, Marie.** (pseudonym) (?-24 April 1924) Best-selling British romance author, books sold over 100,000 copies per year from 1886-1900. Of mysterious origin, possibly illegitimate, probably born Mary Mackey in 1855.


Two scientists, one male and one female, work on the secrets of radioactivity. The woman's research, filled with a mystical reverence for creation, leads to spiritual knowledge, the building of an aircraft that flies at 300 mph by using its radioactive muscles to flap its wings, and entry into the fabled Brazen city of St. John. The man's research, and an arrogant and hubristic desire to master nature, leads to personal madness and an earthquake that kills thousands.


In 1000 BC, Atlantis has atomic power and an Egyptian High Priest wants it. After a series of intrigues, the Egyptian learns the secret and uses it on the Atlantean palace defenses. Ignorant of its true power, he causes island to sink,
taking him with it.

**Cromie, Robert.** (1856-1907) Belfast banker. Turned to journalism and writing in his forties.

   Set in the year 2000, a nihilistic villain and his secret organization plot to destroy the world by releasing the energy frozen in matter. A hero intervenes and the villain only succeeds in blowing up himself, his followers, and an island in the South Pacific.

**Crosby, Edward Harold.** (1859-1934) Massachusetts author.

   A shady character has developed a formula for manufacturing radium which he uses as a power source for his submarine, and as an elixir of youth. After much criminal intrigue, the villain blows himself and his formula up, leaving his now wealthy daughter free to marry the hero.

**Cummings, Ray.** Raymond King Cummings (30 August 1887-23 January 1957) Born in New York City. Attended Princeton. Worked on a Puerto Rican orange plantation, on Wyoming oil wells, and as an editor for Thomas Edison before turning to pulp writing.

A chemist develops a microscope that allows him to look inside an atom where he finds a complete world. He develops a shrinking serum and has adventures in the microscopic world.

In the twenty-first century, a radium-powered motor promises to revolutionize the automobile industry. Earthmen struggle with criminal Martians for control of a massive radium deposit on the moon.

The hero travels to a planet in an atom of gold to rescue his girlfriend. The villain's radioactive drugs shrink or enlarge his minions.

**Curry, Tom.**

A scientist mines an incredibly rich deposit of radium. Finding that small animals and insects near the mine are greatly increased in size, he experiments on larger
animals with mixed results. An accident in the mine leads to hundreds of huge critters spilling out of the mine shaft and overrunning the camp.


An electronic tube emanates short-wave radiation that mutates the animals in a South African wilderness park. The researcher who shuts the machine off doesn't have children for fear his exposure to radiation will produce monstrous offspring.


Atomic bombs, followed by a plague, a green mist that induces a slow death of
violent cramps and vomiting, wipe out mankind. Intelligent dogs, created through
breeding, surgery, training, and X-ray mutation survive to rebuild.

A failed experiment with a cyclotron produces a radioactive tar. When stuffed
into a miniature rubber gargoyle and mixed with alcohol, the tar becomes sentient.

After an explosion, a scientist working on atomic power is given a mechanical
body.

In a world of atom-powered cars, two scientists, one populist and egalitarian, the
other selfish and exploitive, race to build a rocket ship capable of traveling to
Mars.

An accident at an artificial isotope manufacturing atomic reactor facility produces
an isotope that rapidly and violently decays into a highly explosive isotope. If
unchecked the explosion will destroy the facility and the nearby city. The nearby
swamp provides a convenient place to dump the radioactive material and arrest
the process.

During the crisis the plant's medical staff provides emergency treatment for
radiation injuries, often using one isotope to treat poisoning by another.

During World War II, an independent scientist develops a process for isolating U-235 and uses it to power a spaceship on a trip to the moon. When he doesn't return, his wife inherits the patent and outright ownership of atomic power. Thirty years later she finances an expedition to the moon to find her husband.

Centralia launches a surprise attack on the United States using atomic rocket planes and atomic bombs that use light elements rather than uranium. Radiation is the primary killer.
Events persuade a conscientious objector that the right not to fight is worth fighting for.

Political intrigue in a totalitarian dictatorship threatens to start a war. The development of an atomic pistol and its use on a schemer helps secure the power of the dictator and peace for the state.

After war eradicates man, three atomic-powered robots recreate mankind.

**Diffin, Charles W.**


A student, seeing the promise of freeing man from labor, demonstrates his method for releasing the energy in the atom to his old professor, who quickly modifies the device into a death ray and advises the student not to publish. The device would be used to destroy, not create.


The U.S.S.R. destroys Paris with radio-controlled flying bombs and threatens New York and Washington. "Paul" intervenes on behalf of the U.S., persuading the Soviet Union to allow the U.S. to turn their government over to the Central Committee. Then, to demonstrate his power, he destroys the White House with a bullet tipped with one grain of "tritonite", the key element to atomic power. The Soviets betray Paul and invade North America killing his beloved. Enraged, he destroys the Russian air armada, but is killed during the battle by a stray shell. After the war, the world puts Paul's atomic power to good use.

**Doyle, Sir Arthur Conan.** (22 May 1859-7 July 1930) Kt., M.D., LL.D. Born in

A scientist and his cohorts descend into the Atlantic in a diving bell. A giant crayfish cuts the line to the ship above. They drop into a three mile-deep gorge, and find Atlantis has survived using atomic power.

**Ernst, Paul.** Paul Frederick Ernst (1899-1985) American pulp writer.

A scientist bombards lead with neutrons transmuting it successively into gold, uranium, then element 93. The highly radioactive product returns to lead, regressing one step every thirteen and one-half minutes.
A businessman kills the scientist, transmutes a bar of lead, and sells it as gold, but the radiation reacts with living tissue, turning his arm to gold.

**Fearn, John Russell.** John Francis Russell Fearn (8 June 1908-18 September 1960)

A fair-skinned subatomic race invade and conquer Mars, render it uninhabitable to punish a rebellion, then colonize the virgin third planet.

**Fezandie, Clement.** Ernest Clement Fezandie (1865-1959) New York educator, writer, and playwright.

61. "Dr. Hackensaw's Secrets." *Science and Invention.*

A series of 43 short stories appearing irregularly from May 1921-September 1925, which feature a brilliant scientist and inventor loosely modeled on Edison and expound on possible technology.

#2, "The Secret of the Atom." July 1921: The Doctor develops a microscope that allows him to look at the structure of an atom.


#17, "The Secret of the Walking Radiobile." June 1923: The Doctor builds an erector set like vehicle powered by radium.

#30, "The Secret of the Flying Horse." July 1924: The Doctor builds a radium powered flying horse.

#39, "The Mystery of Atomic Energy." May 1925: The Doctor drives a canal from the sea to the Sahara using an atomic energy device. A villain steals the device, tries to extort money from the U.S., and fails, but part of New York's Central Park is blown up.
#40-43, "A Journey to the Center of the Earth." June-September 1925: As the Doctor uses atomic energy to tunnel through the Earth, atomic pistols save him from subterranean perils.


A nebula threatens to engulf the sun ten million years in the future. A scientist works on atomic energy in hopes of saving humanity. As the sun goes out and the earth begins to freeze, the scientist starts an atomic fire that burns out of control. The scientist flings it into space, it strikes the moon, setting it on fire, creating a new sun.

Scientists build a device to read the history imprinted upon an atom's structure and learn the truth about Atlantis.

A lunar plant transmutes aluminum into radioactive rocket fuel giving off energies that threaten the intelligent Hexagon Lights that live nearby.
**Ganpat.** pseudonym of Martin Louis Gompertz (1886-29 September 1951) Anglo-Indian soldier and writer. Officer in Indian Army. Wrote travel books and articles about India.


An international organization bent on mischief plans to destroy New York, London, and Paris with an atomic explosive developed by a Russian chemist. An English explorer and a French Secret Service agent foil their efforts to gain control of the large radium deposit needed to manufacture of bombs.

**Gerhardi, William.** William Alexander Gaerhardie (21 November 1895-15 July 1977)


Lord de Jones, an English socialite and amateur scientist, splits an atom and all matter begins slowly dissipating into free energy. Learning that Eva, his adulterous lover, is pregnant he blows a portion of the Italian Tyrol free from the Earth and "vaccinates" it against dissipation. There, he, Eva, and a few friends start a new world.
Gernsback, Hugo. (16 August 1884-19 August 1967) Born in Luxembourg. Son of wine wholesaler. Attended the Ecole Industrielle of Luxembourg and the Technikum in Bingen, Germany. Emigrated to U.S. in 1904, owned electrical supply business, started first mail-order radio house, published a number of popular science magazines to which he contributed articles, and promoted using fiction to speculate about new technology. In April 1926 began publishing Amazing Stories, the first all-science fiction magazine.

The two entries are from a series of thirteen stories about the scientific adventures of Baron Muenchusen.

Muenchusen learns the history of the Martians including their use of radioactive solar rays as a power source along with atomic power.

Atomic power drives the Martians' excavating ray machine.


68. "All For His Country." Cavalier, 21 February-14 March 1914.
A scientist offers the U.S. government a radium-powered anti-gravity flying machine but an unscrupulous Congressman schemes to have it rejected. After Japan and Mexico invade and nearly conquer the U.S., the scientist's son builds the machine, "The Miracle," and saves the day.


Just before dying, a tenth century Chinese alchemist discovers atomic power. He gives the knowledge to the Earth spirit, who takes it and promises to return with it in one thousand years, then dies.

In 1935, good and evil scientists compete for knowledge and mastery of the Earth. The Earth spirit returns and gives the secret to a good scientist and promises to concentrate the evil of the world in Moscow where the scientist can destroy it in an atomic explosion. Cleansed of evil, the Earth becomes a paradise, no longer an orphan in space.


An inventor forces peace on the world by destroying, one by one, the world's
battleships with an intensely radioactive gas that dissolves metal into its
component electrons. The world disarms but the inventor, hiding on a submarine
and oblivious to events, continues to destroy the ships. Finally, his task complete,
he destroys the secret of the gas and commits suicide.

Gold. H.L.  Horace Leonard Gold (26 April 1914–) Born in Montreal, Quebec, Canada.
Moved to Bronx, New York at age 2. [Read The Wizard of Oz, E.R. Burroughs,
and Amazing Stories as a youth.] Free-lance writer 1934-1939. Editor of various
science fiction magazines 1939-1961.

A reclusive scientist working on atomic energy finances his research by
transmuting lead into gold and selling it on the black-market. When confronted
by gangsters wanting his secret, he turns an alpha ray floodlight on them, killing
them and blowing up the laboratory.

Hall.

An Arctic expedition finds a valley lit and heated by a perpetual nimbus of clouds
reflecting the rays of an extremely large open vein of radium. The valley contains
a city of Hebraic dwarves who use the radium to transmute base metals into gold
and use hand-held tubes that emit concentrated X-rays with painful effects.


Son of a country clergyman. As popular and influential in England in his time as H.G. Wells.


In a war of Anglo-American and Franco-German alliances, the latter invade England using a bomb that destroys molecular cohesion, but the former counter with their own new technology, radio-controlled bombs. The war ends when a runaway comet threatens the earth and the powers must cooperate to avert disaster.


(Griffith dictated this, his final story, on his deathbed.)

In a war between Germany and England a German inventor develops a ray that demagnetizes metal, reducing it to dust. An English machine shop owner organizes a private citizen's Craftsman's Army and counters the German ray with wire-controlled drone planes which drop radium-helium bombs of stupendous explosive power.

**Hale, Stephen G.**

A scientist builds tunneling machines that dig subway tubes by using atomic energy to fuse the earth as they burn their way through. One of the "metal worms" gets out of control and digs an ever expanding tunnel around the globe causing serious geologic catastrophes. Eventually it repeats upon its course and splits the globe in two.


In this sequel to "The Laughing Death", one of the survivors uses a "metal worm" to push the two halves of the Earth back together, but misses.

Hall, Austin. (ca. 1882-1933) Newspaperman and author. Prolific writer of pulp westerns in the 1920's.

77. "People of the Comet." Weird Tales, September 1923; October 1923, 32-37, 84-89.

An astronomer receives a surprise visit from two people from a sub-microscopic universe, who explain every solar system is merely an atom in a larger universe proceeding from the infinitely small to the infinitely large, with each level differing only in its moment in time relative to the others. The visitors use an atomic-powered vessel to travel through space.

1930-1933 under Harry Bates. Continued under F. Orlin Tremaine until being promoted to editor of *Mademoiselle*.

A government agent attempts to steal a scientist's method for expanding and contracting atoms. The disillusioned scientist, after killing the agent, turns the device upon himself. He rapidly grows out of existence confident that immature men won't have his knowledge.

**Hamilton, Edmond.** Edmond Moore Hamilton (21 October 1904-1 February 1977)
Born in Youngstown, Ohio. Son of a newspaper cartoonist and a school teacher.

A macrocosmic race saves the Earth from an invasion by a microscopic race.

A biologist uses concentrated cosmic rays to accelerate evolution. Experimenting on himself, each fifteen minute exposure advances him fifty million years along the path of human development. Each stage produces a greater brain capacity until he is nothing but brain, then, finally, formless protoplasm.
Happel, R.V.


Dr. Raymond's "twin ray", which disintegrates matter by separating electrons from the nucleus, ends a European war. In its first test, his new "triple ray" blows the top off a mountain. After a few more experiments, the Doctor finds the ray is self-sustaining, consuming all the matter it chances upon as it speeds through space. The horrified Raymond determines that the ray will eventually return to earth as it travels through curved space.

Harris, Clare Winger. (1891-1968) The first woman to publish in the 1920's adventure pulp magazines.


The Earth's solar system is an atom used in a chemical experiment. The chemical reaction rips the Earth and Mars from their orbits and hurls them through space where they find a new sun.

The story follows the efforts to survive of a small group huddled in an observatory and using atomic energy for heat.


A mad scientist injects his assistant with "shrinx", causing him to spend eternity shrinking through one atomic universe after another.

Hawkins, Willard.


A twentieth century physicist, seeking atomic power, bombards light elements with neutrons, inadvertently inventing a device that converts ordinary dirt and rock into an useful material, plastocene. A century later, the leisure class depends entirely on the plastocene converters for its sustenance, including food. The continued conversion and consumption reduces the earth to the size of the moon by the eleventh millennium.

Hawthorne, Julian. (22 June 1846-14 July 1934) Born in Boston, Massachusetts. Son of writer, Nathaniel Hawthorne. Trained as an engineer. Author and editor from 1871.


A sealed room mystery in which a scientist disappears while demonstrating a method for removing the inter-atomic forces holding matter together.


An atomic plant, called "the bomb," uses two tons of uranium-235 undergoing a controlled and sustained chain reaction to provide power. The reaction requires constant surveillance and one slip could cause an explosion capable of devastating the surrounding Southwestern American desert and possibly the planet. The strain of tending the reactor and being monitored by psychologists leads to problems among the technicians. The situation becomes increasingly untenable but the plant is too important economically and politically to be shut down.

A new combination of artificial isotopes provides a solution. They react with each other, producing energy, without the threat of explosion, to power rockets capable of moving "the bomb" into space.


Six men in a secret research facility in the Rocky Mountains lead the resistance, after the Pan-Asians conquer the U.S., by organizing a new religion around the magical powers of a new technology, the "Leadbetter effect," which allows secret communication, transmutation, the ability to cure disease, and a race-specific
death-ray.


In 1940, with war raging in Europe, the U.S. government gathers all the atomic scientists together to conduct their research in secret. Atomic bombs and rockets to carry them prove impractical, but, in 1943, a German-Jew refugee perfects a technique for manufacturing artificial radioactives. In 1945, the project, under Col. Manning, develops a lethal radioactive dust.

The President informs the world of the discovery and tells Germany and Britain to cease fighting or else. Germany refuses and, after repeated warnings, the U.S., with British help, dusts Berlin, killing Hitler's successor and everything else in the city. The rest of the world quickly agrees to surrender its uranium and aircraft, and accept the American-enforced peace.

The Eurasian Union, under Stalin's heir, plays for time, and launches a sneak attack on the U.S. using its own dust. The resulting war ends quickly, with luck and better preparation favoring America.

Afterwards, the Committee for World Safety, under Manning and with the cooperation of the President, is formed to enforce world peace with a Patrol of jannissary-like pilots loyal only to the Committee. After the President dies in 1951, the new President seeks to use the Committee for U.S. profit, forcing Manning to impose a world military dictatorship until the Patrol becomes a self-sustaining, benevolent organization.
**Hext, Harrington.** Pseudonym of Eden Philipotts. (4 November 1862-29 December 1960) Indian-born British author with a long career, produced 250 regional, detective, and historical novels.

89. *Number 87* New York: Macmillan, 1922.
Mysterious acts of terrorism and political assassination are connected to appearances of a very large bat-like creature. Detectives unmask "The Bat" as a scientific genius who has discovered element 87, an easily split atom that releases enough energy to transmute metals, disintegrate objects, and power the bat-like flying machine. The scientist realizes that assassinations are counterproductive, worse men take their place. He destroys his notes and equipment, and flies off into space.

Turned to writing after cancer forced retirement.

The General Atomics Company attempts to synthesize element 101 using a cyclotron resulting in a highly radioactive atom that grows rather than decays. The atom grows out of control damaging the countryside with radiation. Fortunately, a heroic inventor develops an atomic rocket fuel in time to save the day by grabbing the atom and hurling it into space.

Professor Jameson preserves his body aboard an Earth-orbiting satellite that uses radium fuel to reach space, and "radium repellent rays" to fend off comets. Twenty million years later, cyborg explorers find it circling a dead world and place Jameson's revived brain in an android body giving him the immortality he sought.

Jones, Raymond F. (1915- ) Born in Salt Lake City. Writer, best known for his serial "This Island Earth," (Thrilling Wonder Stories 1949-1950) which was filmed in 1954, also wrote a companion novel to the TV series Voyage to the Bottom of the Sea (1965).

A group of scientists, after a long devastating war, go underground to protect knowledge from the popular anti-technology sentiment. Finding a method of moving between parallel dimensions, they plant a colony, Kronweld, in one. Using the general fear of technology, they construct an automatic "selector" that sends artistically and scientifically gifted infants to Kronweld, hoping they will
someday return to Earth with their wisdom.

After a millennia, the people of Kronweld are sterile, religious taboo restraining them from investigating the mystery of the origin of life. The "selector' has bred all creativity and imagination out of the people of earth and new children arrive in Kronweld in smaller numbers.

A political group on Earth, the Statists, learn of Kronweld and drain it of its knowledge to insure their own power. Fearing the Kronweldians' return, Statists plan to destroy it after they learn its secret of atomic power.

The hero learns the truth, saves Kronweld and Earth, and solves the problem posed by the ancient scientists: the secret of government is to teach and administer, not govern.

Kateley, Walter.

93. "Beings of the Boundless Blue." Amazing Stories, May 1931, 130-141, 173. A scientist working on enlarging the atom with ultra short wave vibrations accidentally enlarges himself. He spends some time visiting the people of the larger universe before reversing the process.


Warlords fight interplanetary wars using uranium power. Four mercenaries meet one night over a fire. They fear for their livelihood as the uranium supply is almost exhausted, but one may know the location of an uranium asteroid.

**Keller, David H., M.D.** David Henry Keller M.D. (23 December 1880-13 July 1966)

Graduate of University of Philadelphia Medical School. Physician, psychiatrist, journalist, and writer. Worked on "shell-shock" following W.W.I.


As man becomes increasingly dependent on machines, legs atrophy and people take to personal automobiles. Eventually, Pedestrians, people who have legs and use them, are seen as a menace to the lazy, socialist society of the Automobilists. Three generations after the last of their number was thought killed, a small colony of Pedestrians hiding in the Ozarks use an electro-dynamic ray that removes atomic energy and turns off all power. The Automobilists, unable to move, die slowly of hunger and thirst.


Writer of science fiction 1931-1975, non-genre fiction and political histories 1935-present.
Earth and Mars argue over a valuable radium deposit on Mars' moon Deimos.

King, Rufus. Rufus Frederick King (1893-1966) American mystery novelist.

A scientist, while working on stretching electronic bonds, accidentally knocks his love into a beam that renders her immaterial and invisible. He tries to bring her back, but one false step could cause an atomic explosion.


When a scientist shoots an atomic-powered projectile at the moon to win a prize, an ancient underground Lunar civilization declares war on Earth. Fortunately, the scientist has invented atomic motors to power an interplanetary battleship armed with degravitor guns that negates the binding forces within atoms.

Kummer, Frederic Arnold, Jr. (1873-1943)

Grom, leader of United Europe after the war of 1940, kidnaps the world's greatest scientists and coerces them into developing war machines to further his plot of world conquest. Coale, an American scientist, has the secret of separating u-235 and harnessing its power. Grom wants him to build atomic-powered rockets that carry atom bombs. The scientists revolt and an atomic explosion kills Grom and destroys his engines of war.

**Kuttner, Henry.** (7 April 1915-13 February 1958) Born in Los Angeles, California. His father, a book dealer and seller, died when he was 5. His mother worked odd jobs to support her three sons. Began reading science fiction at age 12. Full-time writer 1936-1958. B.A. University of Southern California 1957.

100. "Dr. Cyclops." *Thrilling Wonder Stories*, June 1940, 14-32.

As an experiment, a German scientist in a South American rainforest shrinks a small party of scientists by using radium radiations to compress their molecular structure. He plans to shrink German soldiers allowing them to infiltrate any defense.

The short story was accompanied by photos from the soon-to-be-released film of the same name.

**Kuttner, Henry and C.L. Moore.** Catherine Lucille Moore (24 January 1911-1987)


On Earth, two hundred years in the past, atomic power spreads out of control like a flame, melting the continents and eventually rendering the planet into a small star. On Venus, the undersea domed keeps prosper by hiring mercenary Free Companions to settle their disputes without damaging the keeps.

During one battle, Starling's mercenary outfit uses outlawed atomic pistols.


In the "Blowup", atomic bombs release hard radiations introducing a mutation into succeeding human generations. Hairless mutant telepaths come in three types, the first, completely insane and institutionalized; the second, "Baldys," who attempt to blend with non-telepathic society by wearing wigs and refraining from reading non-telepathic minds; the third, Paranoids, fear persecution and believe that telepaths, obviously superior should rule the world.

In this first "Baldy" story, a Paranoid broadcasts entertaining but thinly veiled propaganda over a thought broadcaster to brainwash young "Baldys".

In the second "Baldy" story, Paranoids finding they have a thought band "Baldys" can't sense, use it to organize, and plan sabotage and disinformation to provoke war between the decentralized human cities.

An insane telepath warns the "Baldys" who quickly kill a small group of Paranoids.

104. Lewis Padgett (pseud.). "The Lion and the Unicorn." Astounding Science-Fiction, July 1945, 144-178.

In the third "Baldy" story, a telepath appears among the Hedgehounds, rustic tribes living in the wilderness between cities. His telepathic children by a normal mother show the mutation is genetically dominant. Also, a "Baldy" scientist finds a way to mask thought from other telepaths without Paranoids learning of it.


Son of a Shakespearean actor. Ph.B. in psychology and physiology at the University of Chicago, 1932. Attended graduate school and worked in his father's road company before becoming a writer in 1939. Editor and drama teacher.


The Golden Age ends in an interplanetary war between the Earth and the colonies
using atomic weapons. Scientists form the Hierarchy, a theocracy based on Great God worship, using scientific magic to inspire faith in a medieval society. Now, 360 years later, an underground of rebel scientists uses a witchcraft cult to overturn the Hierarchy.


In 1900, a man finds the key to an alien space-time probability machine and enlists seven others to help him operate it outside the space-time stream. They manipulate Earth's future, creating multiple divergent time-paths striving for the best possible world.

Development of subtronic power leads to three possible worlds. In the first, the government suppresses the technology, causing a world catastrophe when the power is accidentally unleashed without proper controls. The government of the second world monopolizes it to support a totalitarian state, and the last and best world government releases the knowledge to all, creating a happy distopia of purposeless individuals. A crisis occurs when the second world plans to invade the third.


An artificial planet near the sun transmits solar energy back to earth providing most of its power. A renegade nation kidnap a scientist who has discovered atomic power, then secretly makes war on the world. Relying on the scientist's secret for energy, the nation sends a warship to destroy the unarmed power planet.


Earth sends an atomic-powered colony ship on a seven year journey to Proxima Centauri. The natives, highly intelligent carnivorous plants that obsessively crave animal matter, seize the ship and plan to pillage Earth. When the colony ship captain demonstrates the atomic reactors on the Proximan home planet, an uncontrolled and unshielded reaction consumes the planet and its inhabitants.


While exploring the Crab Nebulae, an atomic powered expeditionary ship from Earth chances upon an alien vessel on a similar mission. After establishing communications, both crews realize their predicament. They must learn as much as possible about their opposite and return that information to their home without revealing the location of their home for fear of surprise attack.

Leitfred, Robert H.

An atomic ray machine shrinks a scientist and his girlfriend into a dinosaur-populated submicroscopic world.


Strange blots of negative matter strike the Earth after a small cinder star passes through the solar system. The mingling of the negative matter with the Earth's core creates new matter. While investigating, a scientist is cured of radium poisoning.


112. Menace from the Moon. London: Jarrolds, 1925.
A seventeenth-century expedition that secretly colonized the moon calls for help. The messages become increasingly hostile, threatening then using a deadly heat ray. Suddenly, the messages end. An Oxford physics professor deduces since the messages took one year to travel to the Earth through the ether, and the last and largest heat ray followed exactly one year after a bright flash seen on the moon's surface, the Lunar colonists have destroyed themselves in an atomic explosion.


An old professor, working in a Louisiana bayou, builds a device for releasing atomic energy. Thieves steal the device, use it to commit crime, but while being pursued on a river, they mishandle it causing a huge waterspout to rise up and kill them.


Economic rivalry drives Europe to the brink of war in the early 1930's. A daring band raids large banks around the world, stealing gold and destroying securities and bank records, and after five months reduces the world economy to chaos. When the raiders reveal themselves to be The League of the Covenant, seeking to outlaw war, world leaders gather in Washington D.C. to negotiate a disarmament treaty to be enforced by the League, whose leader, a scientific genius, has unlocked the secrets of atomic transmutation giving him the power to reduce any element to a lighter element. He builds ray guns that can disable electrical engines, detonate artillery ammunition, and disintegrate small islands, possibly
the whole world.

**MacIsaac, Fred.** (22 March 1886-5 May 1940) Born in Cambridge, Massachusetts.
Attended Harvard.


In 1940, Europe fears bankruptcy from paying its war debt to the United States. A faction of business leaders prefers waging war on the nearly defenseless U.S. to receivership to American financiers. An American businessman prepares a complex bluff to scare the Europeans. Fortuitously a young chemist discovers a way to cause atomic explosions and make the bluff a reality. Demonstration of the explosive convinces the Europeans that invasion would be suicidal, and they agree to accept a few more loans and reorganization of their governments by American businessmen.

The secret test site is built in the Nevada desert by a General Groves and the description of the explosion strongly resembles the Trinity test.


The Soviet Union declares war on the world relying on a new defensive screen against the world's weapons; radite, vecite, and uranite which use atomic disintegration with varying effects. The Russian airfleet drops bacteriological bombs on New York and threatens to bomb other major cities if their governments don't capitulate. An American scientist devises a means to circumvent their defenses and destroys the Russian airfleet. Soon after, the corrupt Soviet government collapses.


A decade after the war in "The Red Peril", the exiled Russian leaders return with a new plan for world conquest. They plan to detonate several "solvite" bombs that poison the air with a substance that dissolves everything it touches. One solvite bomb's poison carried on the wind will destroy mankind in two years. The villains plan to repopulate the world by growing new people from tissue samples. Once again, the American scientist saves the day.


A scientist uses an "electronic vibration adjuster" to shrink himself by compressing the particles in his atoms. He finds the Kingdom of Ulm on a submicroscopic world.

The scientist continues his adventures in Ulm, seeking to rescue his bride, Awlo.


A recluse smashes an atom, devastating a valley and driving himself insane.

**Moszkowski, Alexander.** (1851-1934) German satirist, poet, and editor.


[Die Inseln der Weisheit. 1922]

In an imaginary voyage through an archipelago, where each island represents a philosophical extreme, the first island visited mimics Plato's *Republic*, the second is Buddhist and the third a paradise of sexual hedonism.

The highly mechanized Isle of Sarragalla uses atomic energy for all sorts of mechanical marvels. The people, extreme workaholics, have developed a synthetic speed language to conserve time when communicating. The Isle of Vorreia, a land of Rousseauian individualists, posses the sole source of the
radioactives, thorium and uranium, that fuel Sarragalla's atomic power plants. A minor dispute severs trade between them and threatens the collapse of the excessively mechanized society.

Nathanson, Isaac


Professor Mendoza succeeds in accelerating atomic disintegration but can't control it. The resulting fire destroys his research building and ends his university funding. Years later, the Association of Central and Southern Nations, or ACSN, in Europe and the Japanese Empire go to war with the world. Only the Soviet Union remains neutral. ACSN agents steal Mendoza's research notes and their scientists use them to build an atomic bomb. In a desperate attempt to win the war, the ACSN fires an atomic bomb from Europe at New York City, hitting the Catskills. The second shot detonates before firing leaving a two thousand foot diameter crater.

The bomb, a large mass of disintegrating matter giving off enormous amounts of energy, burns untended sinking deeper into the earth and spreading slowly outward. Tomlinson, the late Mendoza's assistant and son-in-law, warns of the danger, but is ignored by his colleagues and every level of government. One year later, the war over, the bomb blows the top off a mountain creating a volcanic eruption that spews radioactive matter. The bomb spreads out of control causing
earthquakes and floods.
World disaster imminent, Tomlinson, backed by the wealth of the United States, perfects an atomic engine for space flight. Humanity colonizes Venus and Mars while the Earth dies.


A three act play first performed in December 1928.
The nephew of the British Prime Minister, a reclusive scientist, announces to a special cabinet committee that he controls the power locked in the atom, and he can make or unmake things as he likes. He offers his knowledge to them and gives them one week to form a plan of action. The committee decides that it would be best if the knowledge were lost, since humanity isn't ready for life without want. Their decision shocks the scientist who gives them one day to reconsider or he will destroy England. He returns the next day, thoroughly disillusioned, and says he plans to destroy the world in fifteen minutes, at noon. He parts for a final walk in the park near #10 Downing Street leaving the ministers to make their peace. Just before noon, a lorry strikes and kills the young
man. The ministers determine that the man's watch remotely controls the destructive instrument and that the world is safe.

Then, a telegram arrives from a group of scientists in Geneva. They too have the secret of atomic power and airplanes loaded with atomic bombs now fly over the world's capitals. Governments will recognize the authority of the scientists or be destroyed. The play ends with one of the ministers grabbing the watch and racing off to Geneva.


A British minister imposes universal disarmament with rockets carrying atomic bombs.


As war brews between the United States and Japan, an inventor offers the U.S. government a new metal alloy. After the offer is accepted, the inventor's
manufacturing of the alloy causes a mishap that creates a highly radioactive metal which, properly configured, defies gravity.

When war comes, the President seals the U.S. borders and dissolves Congress to keep secret the power of the new radioplanes being constructed at a secret, purpose-built, city. The Japanese, sensing U.S. weakness, send an invasion fleet toward the West Coast. after it promptly disappears, mounting tensions in Europe along with curiosity lead the British to send a fleet across the Atlantic as a show of force, which also disappears. Soon after, the King of England and the German Kaiser are abducted by American agents and given an explanation for the vanishing fleets: the radioplanes fly over a vessel, attach themselves to its superstructure, and literally lift it from the sea and carry it away. At one point, a radioplane, under cover of fog, drops the H.M.S. Dreadnought into the Thames. Realizing their helplessness, the world powers make peace and set up an international tribunal to resolve disputes with U.S. backing. As radioplanes, owned and operated solely by the U.S. government, revolutionize transportation, railroads continue to operate but at little profit to their excessively wealthy owners.


Note: the following two stories became the basis of the "Buck Rogers" newspaper comic strip which ran daily from 7 January 1919 to 8 July 1967.

When in 1927, a mine shaft collapse traps Anthony Rogers, an American Radioactive Gas Corporation employee, he is overcome by the gasses he came to investigate, and a gust of fresh air awakens him, perfectly preserved, in the year 2419.

While he slept, Mongols conquered the world using airships equipped with a disintegrator ray. Americans fight back relying on their synthetic elements, ultron and inertron, and Roger's knowledge of W.W.I battle tactics.


Continuing the adventures of Anthony Rogers, the Americans lead a world wide rebellion against the Mongols who are revealed to be aliens.


Three minor functionaries at the Paris Peace Conference find an ancient book in the mythical "Grotte Glorieuse" while exploring the prehistoric cave dwellings of the Aurigniac region of France. The book, written by the last man on Earth, tells of an ancient race which discovered a "death-ray" that kills by breaking down
living atoms into their component particles. The Sra nation, discoverers of the ray, use it, out of fear, to annihilate all other nations. Then, internal dissent sets competing groups to destroy one another until only one man remains.

Meanwhile, one functionary is the contact for an American chemist who spied on the Germans as a double-agent for the British, during the war, and now aids French monitoring of German progress on a "death-ray". In the final scenes the spy seeks refuge in the United States. The French have discovered the "death-ray" and he fears they will kill him to keep it secret.

The story draws its title from a passage in the ancient book:

If man unsheathe too far that flaming sword-

The power of life and death-

The Pallid Giant Fear will seize

And plunge its blade into man's breast.


129. "The Revolt of the Atoms." Amazing Stories, April 1929, 6-17, 37.

A German scientist starts an atomic reaction producing an "atomic vortex" that slowly increases in size. Giving off all manner of radiant energy, the vortex grows to an enormous size. Carried on the wind, it destroys much of Europe. All efforts to contain it prove futile. Finally, it causes a volcanic eruption in Italy, creating a typhoon that ejects the vortex from the Earth's atmosphere and into
orbit.

**Peril, Milton R.** pseudonym of Francis A. Jones.


Martians invade Earth with ships powered by a super radioactive element.


Three men follow separate mysteries; a beautiful woman, a missing physicist, and a fanatic cult, to the California desert outside Barstow where three brothers plot to end mankind's futile existence with an atomic blast. An act of self-sacrifice prevents the explosion from doing more than destroying the brothers.


Centrania, a European power, wages a covert war on the U.S. They begin by
subsidizing jazz musicians and the well-meaning American Liberal Party. Later, they disseminate birth control (abortion) information. Centranian synthetol, a mass-produced synthetic chemical, a cheaper and more efficient fuel than gasoline or coal, useful in making textiles, renders oil and coal worthless wrecking the U.S. economy.

A Centranian agent has seduced and holds enthralled America's only hope, a young chemist. Pandora, his childhood sweetheart, persuades him to give up his lover, his jazz music, and his home-brewed hooch, and go to work for the benefit of the country. Within days he develops atomic energy which renders synthetol obsolete. In the final scene, his atomic device, pocket sized and powered by a flashlight battery, destroys the headquarters of the Centranian spy ring in a huge explosion.

**Roger, Noelle.** pseudonym of Helene Dufour Pittard (1874-1953) Swiss writer and playwright. Worked with the Swiss Red Cross in France during W.W.I.


[Le Nouvel Adam 1924]

A doctor saves a man's life by transplanting an experimental combination of glands into the man's brain, artificially stimulating his intelligence. Now a genius, the man works single-mindedly on scientific research and doesn't hesitate to experiment on people. He causes an earthquake by atomically exploding a small bit of lead, then plans to set off a larger explosion in the Netherlands. The doctor
plans to shoot the man but the man's atomic process explodes the lead bullets in his pistol. The atomic blast kills them both.


Moved to America during W.W.I.


The controlled release of atomic energy allows for travel through the fourth dimension and time. The hero must rescue his fiancé from an evil scientist in the past.

Russell, Bertram.


A professor explores the bottom of the Pacific in a special submarine. A strong current hurls the vessel down a passage into a huge cavern where bat-winged humans use atomic power.


In the midst of the depression, the "Emissaries", immaterial beings from beyond space-time, give an unscrupulous businessman insight into the building of an atomic generator. After the businessman sets up a Power Council using the generator to establish economic and political control over the Earth, a golden age dawns built on cheap, abundant energy.

The "Emissaries" demand a price, too high for some. After much fighting and scheming, all the generators are destroyed and the "Emissaries" leave the Earth in peace, forever. From the collapsing civilization comes a new and more promising golden age.


Atom-powered machines in the ninety-seventh century tend for humanity's every need. A young man overcomes the unimaginative inertia of the time and relearns all science. He builds an orb that extends Heisenberg's indeterminacy theory to a universal scale, causing random improbable disturbances, and altering the flow of time.


Sixty years after the Great War, the world thinks itself too civilized for war, its weapons too terrible. When war comes, however, past horrors are forgotten, for the same reasons and with the same results. New weapons include radite bombs, one of which can destroy a city.

An Alexandrian Greek, finding himself stranded in Central America, hibernates in a pyramid using a radium gas. An American adventurer finds his way into the pyramid's central chamber and, trapped there, joins the Greek in slumber. The two awake eight thousand years later in Hispan, a self-contained city, with a rigid caste society divided into "olgarchs," technicians, and workers, that runs on atomic power. They find a kindred spirit in a disillusioned "olgarch" and escape the hostile city.

**Serviss, Garrett Putnam.** (24 March 1851-25 May 1929) Studied science at Cornell and law at Columbia. After passing the bar went into journalism. Wrote and lectured extensively as a popularizer of science, especially astronomy.


An inventor kidnaps his friends and takes them on a trip to Venus in a spherical ship that travels through space at 20 miles per second powered by an uranium-fueled atomic engine.


In a retelling of the flood myth, a scientist builds an ark to preserve life on the planet. A Romanian scientist's theoretical work on inter-atomic forces helps rebuild civilization after the flood subsides.

142. "Lobby." Astounding Science-Fiction, April 1944, 144-158.

When political and economic means fail, the power lobby sabotages the one experimental atomic reactor to prevent its development and protect their economic empire. The World Committee, an international body similar to the League of Nations formed after World War II, uses evidence of foul play to blackmail the lobby into opening the way for cheap atomic power for all, under the control of the Committee, which uses its monopoly to create a scientifically organized world government.


The World Committee's atom-powered planes and helicopters, which allow anyone to commute over a great distance, combined with hydroponics, which renders farming obsolete, allow people to move out of the cities and into cheap country estates. Ironically, dispersion ends the threat of atomic war, since cities are the only good targets of atom bombs, yet the threat of war alone wasn't enough to drive people from the cities.

Five generations after the move out of the cities, the idyllic life made possible by cheap atomic power and robot servants leads to intense agoraphobia in the aging.


The dispersion and individual isolation of the human population leads to the loss of the social instinct and an increase in mutant genius which was previously suppressed by social conformity.

Also mentioned is an atomic sidearm capable of lighting a cigarette, or killing a human.

**Simonton, Russ.**


A terrorist, calling himself Hercules, controls atomic energy sent over telephone lines and threatens to destroy New York City. The terrorist, a prominent scientist, has trained Hercules, an ape, to carry out his plan.

147. *The Millennium: A Comedy of the Year 2000*. Pasadena: Upton Sinclair, 1929. The preface claims the story was written as a four-act play in 1907 and sold to David Belasco but never produced.

A professor discovers a new element, more radioactive than radium, that emits a virulent gas. After he isolates in a jar an amount sufficient to kill all humans on the planet, he goes insane, and before he can be stopped, breaks the container releasing the gas with predictable results. Fortunately, a group sought refuge high in the atmosphere in a superplane.

**Skidmore, Joseph W.** Joseph William Skidmore.


Posi, a proton, romances Nega, an electron, by explaining the nature of the atom.


Posi explains human nature to Nega from a subatomic perspective.


The romantic couple adventures in the ocean then, with the help of other protons and electrons, kill a mad scientist to prevent him from completing an atomic disintegration device.

The pair spend time in a diamond, then in an ant exposed to radium.


The hesitant lovers fight a bacterium while in a white blood cell. Later, hydrofluoric acid attacks their silicon atom.


A fortuitous accident leads to the release of intra-atomic energy useful for interstellar travel, industrial power, and explosives. An amoral scientist kidnaps the scientist hero's fiancée to learn the secret, leading to a chase across the galaxy.


The scientist hero and his friends have more interstellar adventures attempting to keep the secret of element "X" from the amoral scientist.

155. "Skylark of Valeron." *Astounding Stories* August 1934, 8-33; September 1934,

The heroes save the universe from a warlike race.

**Spohr, Carl W.** German artillery officer in W.W.I


In the twenty-first century, political, business, and military interests divide the world into two armed camps, despite a lack of ideological or economic difference. During routine military maneuvers, a bomb falls on the wrong side of the lines, killing some citizens. War begins.

Both sides' attempts at quick victory fail and the war settles into a stalemate with stagnant fronts. After three years, both sides stage large air raids to destroy enemy cities. After six years, a scientist develops an atomic explosive. Enemy agents steal the secret, leading to an exchange that destroys civilization. Reduced to small tribes, survivors struggle for existence.

From tens of millions of years in the future, one of the Last Men communicates to one of the First Men, in the early twentieth century, an overview of the long future history of man. Man discovers and forgets the secrets of the atom many times in civilization's periodic cycles of growth and decline.

In the near future, with Europe and the United States preparing for war, a Chinese scientist discovers a method of starting and controlling a chain reaction of atomic annihilation. He arranges a demonstration for a group of scientists in which he destroys a small island off the English coast with an explosion that includes a fireball and a mushroom cloud. The scientists beg him to destroy his knowledge, fearing man is too immature to use it wisely. Just then, a fleet of American bombers flies overhead. The Chinese scientist destroys it at the urging of his comrades, then commits suicide. Europe is only temporarily saved from destruction.

Thousands of years later, the American-led world state collapses when it exhausts its energy resources and science can't duplicate the efforts of the legendary Chinese scientist. A few millennia later, the Patagonian civilization discovers the secret and puts it to industrial use. A mining labor dispute accidentally sets off an atomic explosion causing a chain reaction of explosions around the world destroying their civilization.

Starzl, R.F. Raymond Frederick Starzl (10 December 1899-1976) Iowa newspaper
publisher and writer.

A scientist shrinks his daughter and son-in-law assistant into a sub-atomic universe using cosmic rays. Moments later, he reverses the process but brings back several hundred of his very remote descendants. His children had populated a sub-atomic world and thousands of generations had passed in the blink of the scientist's eye.


A dispute over fishing in territorial waters leads the United States and Britain to war. A syndicate of American businessmen offers to prosecute the war quickly and favorably, for a price. The U.S. government agrees and the syndicate puts their new weapons to use. After several demonstrations, the British military, government, and citizenry realize the futility of resistance and come to terms. The syndicate attacks Britain at sea with two types of vessels. The "crab" travels just under the surface and disables ships with its crablike pincers by pulling off their screws and rudders. The "repellor", with its impenetrable armor, carries a
gun that fires "instantaneous motor" bombs, which have an effect similar to the shock wave of an atomic blast.

The novel has a decidedly unheroic and anti-military tone. The unnamed, but numbered, syndicate vessels carry scientific advisors and refuse to recognize military conventions. The only developed human character, the captain of the H.M.S. Adamant, exhibits foolish pride and tenacity fitting his vessel's name. The syndicate even refuses to harm anyone, causing some initial difficulties as the British can't understand why, if the syndicate is causing these tremendous explosions, it doesn't simply destroy the British fleet.

In coming to terms, the U.S. and Britain form an alliance, charging all war making functions to the expanded Anglo-American syndicate. The militaries of both states futilely resist. Now war threatens battles of annihilation without glory, guaranteeing peace.


Kidder, a biochemist, creates miniature intelligent life forms, the Neoterics, using their accelerated life span to solve scientific problems, including atomic
disintegration of uranium and a power generator that uses the forces that create
suns and crush atoms. Kidder's greedy banker wants the power generator for
himself and tries to kill the biochemist. The Neoterics save Kidder with an
impenetrable screen of force.

Mars controls Earth through a monopoly on uranium power. The people of Artna
supply the Martians with uranium fuel in return for Earth's boron. Both Earth and
Mars want to learn the Artnan's secret to break their monopoly.

**Taine, John.** pseudonym of Eric Temple Bell (7 February 1883-20 December 1960)
Born in Aberdeen, Scotland. M.S. University of Washington 1908. Ph.D.
Columbia University 1912. Professor of Mathematics at California Institute of
Technology. President of American Mathematical Society.

Javic, a scientific genius, seeks world domination by controlling energy. After
making a fortune with his own discoveries, he lures promising scientists into his
employ with exaggerated salaries and freedom to research. Soon he controls the
scientific brain power of the world.
Not content, Javic works on controlling atomic energy. The solution to the
complex mathematical formulae, however, eludes him and, out of haste and
arrogance, he makes an error in his experiments. He disintegrates a single atom,
beginning a chain reaction that spreads, wavelike, from a starting point at a far edge of the galaxy, converting all matter in its path into energy. He delights in his accomplishment, the destruction of the material universe.

A Scottish mathematical genius who refused to work for Javic solves the formulae at the last moment and saves the Earth. The wave, however, has already destroyed much of the Milky Way and severely damaged the Earth.

[A long section of Soddy's eleventh chapter is quoted, the inspiration is obvious]


A Scandinavian technician, Neils Bork, accidentally exposes himself to the hard radiation produced by a two million volt X-ray tube. Physically and mentally transformed, he loses all knowledge of his former life. Searching for a clue to his identity, he enters a diner. Disgusted by the stupidity, he finds there, he resolves to elevate man or destroy him.

Supremely intelligent, he quickly learns all currently known science and gains a position with his prior employers. Within six months, he revolutionizes industry with cheap power transmission and makes himself wealthy. Next, he works on the atom, quickly learning to tap its power and transmute the elements. Completely contemptuous of humanity, he plans to transmit radiation around the globe, mutating the unborn into reptilian evolutionary throwbacks.

Before he completes his preparations, another accident exposes him to hard radiation and he slowly reverts to his former self. At the last moment, his plan is discovered and thwarted.

A woman marries one of two scientist friends who love her.  The spurned man creates a duplicate of the woman, then dies in an explosion while working on atomic power.


When Dr. Gunderson announces he has perfected an atomic power machine, a mob of laborers, fearing for their jobs, attack his lab.  A compromise between the Doctor and the labor leader sets things right with the promise of an end to poverty and depression.

In July of 1915, the war has spread throughout Europe, Asia, and Africa with casualties averaging 1000 a day. While new inventions render battlefields little more than slaughterhouses, and the strain has forced abdication of Europe's monarchs and crippled the world's economies, no state is willing to offer peace to end the stalemate.

The United States receives a mysterious message from an individual calling himself PAX, who threatens great destruction if the world doesn't disarm. He uses atomic energy to power a flying ring, in which he travels effortlessly about the globe, and a disintegrating ray. Individuals indirectly exposed to the ray suffer no immediate harm but die days later of internal burns. As a show of force, he slows the rotation of the earth by five minutes, then diverts the Mediterranean sea through the Atlas mountains flooding the Sahara. The warring states begin to disarm but not quickly or obviously enough for PAX, who tilts the Earth on its axis, exchanging the positions of the poles and the equator, then mysteriously dies.

After disarming, the world unites into a loose confederation with free trade, open borders, and great prosperity as governments spend their money on butter rather than guns. Soon, everyone forgets their nationality.


In this sequel to "The Man Who Rocked the Earth", a scientist finds and uses PAX's flying ring to divert the path of an asteroid on a collision course with Earth, creating a second moon.

**Twain, Mark.** pseudonym of Samuel Clemens (30 November 1835-21 April 1910) Born in Florida. Raised in Hannibal, Missouri. Major American writer and humorist.


A failed businessman contacts Satan with the usual proposition. During their polite conversation, Satan reveals that his body is pure radium coated in polonium. The businessman quickly calculates the stunning cash value of Satan's carcass. Impressed by this display of business acumen, Satan reveals the location of a large deposit of radium and explains that scientists will soon learn to control the energy in radium that has powered Hell for an eternity.


For centuries telepathic mutant humans or Slan, non-telepathic Slan, and normal
humans have struggled for political dominance. A Slan scientist, before dying, entrusts his nine year old son with the secret of true atomic power, that unlike commonly-used atomic bombs, is constructive.

A highly patriotic small town craftsman has his motor repair business swindled away from him by a government-owned bank and sold to his automated competitor, the Automatic Atomic Motor Repair Company. He finds help at the local Weapon Shop. Under their slogan, "The Right to Buy Weapons is the Right to be Free," the Weapon Shops sell guns, only usable in self-defense, and provide an idealistic balance to the corrupt Isher Monarchy.

The Immortal founder of both the Isher Dynasty and the Weapon Shops reappears and forces the reluctant Empress to release the secret of an interstellar drive, allowing social pressures to be directed toward colonizing space rather than revolution.


A scientist and his assistant use the fourth dimension to alter their time-space relationship and visit a microcosmic planet. They aid the human inhabitants there in a rebellion against evil telepaths.


The authoritarian Power Syndicate controls a highly stratified society through its monopoly on cosmic ray energy. An underclass scientist develops atomic fusion power, overturning the social structure and instituting a meritocracy. Leftover "needle guns" from the last war use atomic energy projectiles that burn and induce paralysis.


A saboteur threatens the first atomic power plant which uses the heat from an uranium oxide atomic chain reaction to drive steam-powered electric generators.


An eccentric scientist succeeds in splitting the atom, allowing the disintegration of matter with an N-ray and the creation of any element from pure energy. Deciding to solve the world's ills, he mass produces gold, hoping to upset the world economy. Jewish financiers poison him and his secrets die with him.

Japan begins a world war by launching huge radio controlled bombs at New York. Britain joins Japan in a war against the Soviet Union and the United States, which is described as an industrial capitalist socialist dictatorship where the unfit are retired, the insane euthenized, and criminals sterilized. A scientist fears for the world and his mind snaps when the initial attack kills his lover. He flees the Earth in a vessel that draws on the surrounding radiant energy and accelerates to millions of times the speed of light. Distorting space and time the vessel stretches itself until it bursts out of the universe into a larger one where it comes to rest on a microscope slide.

An inventor demonstrates a teleportation device seeking a prize for the wireless transmission of matter. The machine bombards objects with neutrons disintegrating them, then captures the loose atoms in a reintegrator. The scientist falls into the disintegrating chamber and reintegrates as a dark bloody pudding.

The Earthly refugee of "Colossus" is caught in the middle of an interstellar war
that ends when the ultimate monatomic force destroys the superuniverse. Again he escapes by expanding out of the universe but this time finds himself trapped in a universe at the moment of its birth.


After development in 1953 of a small, cheap, efficient radioactive engine, atomic power transforms the world. Airplanes become the preferred means of personal transportation, railroads use atomic traction engines, atomic smelting revolutionizes the steel industry, and atom-powered electrical generators produce practically free power. However, atomic engines doom the oil and coal industries and the new, highly efficient machinery leaves the unskilled and underskilled unemployed. Cheap transportation and low cost of building materials de-populate cities. The sudden abundance of gold, a waste product of the atomic engines, upsets securities and currencies leading to bank failures and a stock crisis. Violent crime sharply increases as classes become even more stratified. In 1958, Europe goes to war for indeterminate causes. The Germans drop the first atomic bomb on the French War Control building in Paris. A large mass of carolinum, a normally inert metal which when caused to
decay is intensely radioactive, the bomb gives off great quantities of light and heat. It imbeds itself in the earth and the extreme heat causes soil, rock, and water around it to melt, boil, spit, and flow with an effect resembling a volcano. With a radioactive half-life of 17 days, the carolinum continues to cause damage indefinitely.

In a state of panic, nations go to war in order to use their bombs before their enemy. By 1959, most large cities in the world have been attacked and are the center of atomic volcanoes. World industry and economy have collapsed and entire nations starve.

The bombs cause a "moral shock" and realization of the incompatibility of old social systems with the new power of science. Ninety world leaders meet and form a world republic with a monopoly on carolinum. Atomic machinery helps rebuild the depopulated cities and feed the masses. The unemployed and unemployable are given busy work and the young are given a paid education. The redistribution of wealth and lack of scarcity make economy and politics anachronistic. The new prosperity, however, doesn't alter sexual inequalities, the next problem to overcome.


A technician hunts for a thief stealing radium from a plant that extracts minerals from sea water.

Tommy Sonofagun stumbles into the future and returns with pea-sized atomic bombs, just right for his slingshot.


An author couple, tired of the comforts of the twenty-fifth century civilization, long for a return to nature. Learning of a new means of transportation, the "Cosmic Express", that converts matter into energy, sends it across space, and reforms it into matter at its destination, they bribe its operator to send them to Venus, where they quickly learn the hardships of survival. The management retrieves them from their predicament thinking it a gross error and begging their forgiveness.

Scientists create a miniature world with a ray that compresses and decompresses atoms, and observe its rapid evolution.

A thief murders a scientist and steals his secret of atomic annihilation that spreads like fire. The thief holds the interplanetary government hostage until he is found out.

Prospectors in the asteroid belt use controlled atomic explosions to propel their personal rockets.
One miner finds a derelict spaceship whose crew has been hunted and killed by an unseen alien.

Only one person knows the secret of the superweapon AKKA that has kept peace in the solar system for three centuries. The alien Medusae kidnap the individual and bombard the earth with an insanity inducing radioactive dust.

The hero invents an atomic converter that generates enough power to look and travel through time. Looking into the future alters the probabilities of one future over another and the scientist must fight to prevent a destructive autocracy from becoming inevitable rather than a possible utopia.


Levin, the Eurasian totalitarian leader, and his Yellow Guard conquer the world using uranatomic bombs. Technicians in Pantechnicon, a hidden American colony in Antarctica, use uranatomic energy, powering a time machine to alter the past. When they first kill Levin as a boy, the Eurasians lose the war, but a killer virus wipes out mankind. Returning again to the crucial moment, the technicians save Levin, who escapes to America rather than being imprisoned in Eurasia, preventing his rise to power, the founding of Pantechnicon, and the discovery of time travel.


The Interplanet Corporation politically controls the inhabited planets through their monopoly on uranium power, and suppresses all innovation or expansion that might threaten their position.

A scientist, Drake, seeking a safe place to build a lab for research on contraterrene matter, with his partners catches an unclaimed asteroid on a collision course with a terraformed asteroid, moves it into a stable orbit, and name it Freedonia.

Drake, Jr., seeking money to save Freedonia from the tax collector, finds diamonds on an asteroid moving in negative time to pay the taxes and finance the construction of his father's lab.


Representing Earth in the High Space Mandate government, the Interplanet Corporation monopolizes uranium power, keeping a tenuous peace between Earth, the Martian Reich, the Jovian Soviet, Venusian orientals, and Free-Space Asterites. Drake's contraterrene research threatens the monopoly and the Mandate's authority.

A drifting contraterrene artifact draws competing forces eager to learn its secrets.


Earthly spectators conclude the release of intra-atomic energy destroyed Mars.

Three radium-powered egglike vessels fall from the sky carrying children. Years
later, the two male Martians fight over the Martian female with atomic weapons, killing all three.
Chronological Checklist of Atomic Fiction

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Mark Twain "Sold to Satan" *Mark Twain, Europe and Elsewhere*

1924  Noelle Roger *Le Nouvel Adam*
Victor MacClure *The Ark of the Covenant*
Alexander Moszkowski *The Isles of Wisdom*
Agatha Christie "The Man Who Was Four" *The Sketch* January-March

1925  Karel Capek *Krakatit* (Czech 1924)
Bohun Lynch *Menace from the Moon*
E. Charles Vivian *Stardust*

1926  Arthur Reeve *Pandora*
Reginald Glossop *The Orphan of Space*
Clare Winger Harris "A Runaway World" *Weird Tales* July

1927  Karel Capek *The Absolute at Large* (Czech 1922)
Pierrepont B. Noyes *The Pallid Giant*
Isabell C. Crawford *The Tapestry of Time*
Sir Arthur Conan Doyle "The Maracot Deep" *Strand Magazine* October-February
Edmond Hamilton "The Atomic Conquerors" *Weird Tales* February

1928  William Gerhardi *Jazz and Jasper*
John Taine *Green Fire*
Rufus King *The Fatal Kiss Mystery*
Landell Bartlett *The Vanguard of Venus*
David H. Keller M.D. "The Revolt of the Pedestrians" *Amazing* February
Bertram Russell "The Bat-Men of Thorium" *Weird Tales* May-July
Fred MacIsaac "World Brigands" *Argosy-All Story* June-August
R.F. Starzl "Out of the Sub-Universe" *Amazing Stories Quarterly* Summer
Phillip Francis Nowlan "Armageddon 2419 A.D." *Amazing* August
E. E. Smith "The Skylark of Space" *Amazing* August-October
Robert Nichols and Maurice Brown *Wings Over Europe*

1929  Upton Sinclair *The Millennium*
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P.F. Nowlan "The Airlords of Han" *Amazing* March
V. Orlovsky "The Revolt of the Atoms" *Amazing* April
Cpt. S.P. Meek "The Red Peril" *Amazing* September
Harl Vincent "Microcosmic Buccaneers" *Amazing* November
Otis Adelbert Kline "Maza of the Moon" *Argosy* December-January
1930  Martin Louis Gompertz (Ganpat) *The Three R's*
Olaf Stapledon *Last and First Men*
John W. Campbell Jr. "When the Atoms Failed" *Amazing* January
Francis Lynde "The Earthquaker" *Popular Magazine* February
Victor Rousseau "The Atom Smasher" *Astounding* May
Ray Cummings "Brigands of the Moon" *Astounding* March-June
Tom Curry "Giants of the Ray" *Astounding* June
Charles Willard Diffin "The Power and the Glory" *Astounding* July
Cpt. S.P. Meek "The Last War" *Amazing* August
E.E. Smith "Skylark Three" *Amazing* August-October
Robert H. Leitfred "Prisoners of the Electron" *Astounding* October
R.V. Happel "The Triple Ray" *Amazing Stories Quarterly* Fall
John W. Campbell Jr. "The Black Star Passes" *Amazing Stories Quarterly* Fall
Jack Williamson "Cosmic Express" *Amazing* November

1931  Ray Cummings "Beyond the Vanishing Point" *Astounding* March
Raymond Z. Gallun "Atomic Fire" *Amazing* April
Stephen G. Hale "The Laughing Death" *Amazing* April
Edmond Hamilton "The Man Who Evolved" *Wonder Stories* April
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Murray Leinster "The Power Planet" *Amazing* June
Neil R. Jones "The Jameson Satellite" *Amazing* July
Cpt. S.P. Meek "Submicroscopic" *Amazing* August
Cpt. S.P. Meek "Awlo of Ulm" *Amazing* September
John Taine "Seeds of Life" *Amazing Stories Quarterly* Fall

1932  Harold Nicholson *Public Faces*
Harl Vincent "Power" *Amazing* January
F.M. Kelly "The Radium World" *Wonder Stories* February
Jack Williamson "The Pygmy Planet" *Astounding* February
Carl W. Spohr "The Final War" *Wonder Stories* March-April
S.G. Hale "Worlds Adrift" *Amazing* May
J.W. Campbell "The Last Evolution" *Amazing* August
Joseph W. Skidmore "The Romance of Posi and Nega" *Amazing* September
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Jack Williamson "The Electron Flame" *Wonder Stories Quarterly* Fall
Desmond W. Hall "A Scientist Rises" *Astounding* November

1933  Phillip Wylie *When Worlds Collide*
Jack Williamson "Salvage in Space" *Astounding* March
J.W. Campbell "Beyond the End of Space" *Amazing* March-April

1934  P. Schuyler Miller "The Atom Smasher" *Amazing* January
J.W. Skidmore "Adventures of Posi and Nega" *Amazing* January
Donald Wandrei "Colossus" *Astounding* January
Donald Wandrei "The Atom-Smasher" *Astounding* April
Jack Williamson "The Legion of Space" *Astounding* April-September
E.E. Smith "Skylark of Valeron" *Astounding* August-February
Paul Ernst "The Stolen Element" *Astounding* September
J.W. Campbell "Twilight" *Astounding* November
J.W. Campbell "Atomic Power" *Astounding* December
D. Wandrei "Colossus Eternal" *Astounding* December

1935  H.L. Gold "Gold" *Astounding* January
Philip D. Chamberlin "The Tale of the Atom" *Amazing* January
Isaac Nathanson "World Aflame" *Amazing* January
J.W. Skidmore "The Epos of Posi and Nega" *Amazing* January
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J.W. Campbell "Rebellion" *Astounding* August
Nat Schachner "The World Gone Mad" *Amazing* October
J.W. Skidmore "A Legend of Posi and Nega" *Amazing* October

1936  Eric Ambler *The Dark Frontier*
Frank Belknap Long Jr. "The Roaring Blot" *Astounding* March
J.W. Campbell "Frictional Losses" *Astounding* July
Henry Hasse "He Who Shrank" *Amazing* August
J.W. Campbell "Uncertainty" *Amazing* October-December

1937  John Russel Fearn "Worlds Within" *Astounding* March
J.W. Campbell "Forgetfulness" *Astounding* June
Ray Gallun "Dawn-World Echoes" *Astounding* July
Nat Schachner "Past, Present, and Future" *Astounding* September
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1938  J.B. Priestly *The Doomsday Men*
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Jack Williamson "The Legion of Time" *Astounding* May-July
J.W. Campbell "Who Goes There" *Astounding* August
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Otto Binder "The Atom Smasher" *Amazing* October

1939  John W. Campbell "The Cloak of Aesir" *Astounding* March
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Fred Allhoff "Lightning in the Night" *Liberty* August-November  
Robert A. Heinlein "Blowups Happen" *Astounding* September  
Frederic Arnold Kummer Jr. "Blitzkrieg-1950" *Amazing* September  
A.E. Van Vogt "Slan" *Astounding* September-December  
Arthur R. Tofte "The Power and the People" *Future Fiction* November

1941  
R.A. Heinlein "Sixth Column" *Astounding* January-March  
Theodore Sturgeon "Microcosmic God" *Astounding* April  
R.A. Heinlein "Solution Unsatisfactory" *Astounding* May  
Theodore Sturgeon "Artnan Process" *Astounding* June  
Jack Williamson "Backlash" *Astounding* August

1942  
J.E. Kelleam "The Eagles Gather" *Astounding* April  
Alfred Bester "The Push of a Finger" *Astounding* May  
Robert Moore Williams "The Incredible Slingshot Bombs" *Amazing* May  
Jack Williamson "Collision Orbit" *Astounding* July  
L. del Rey "Nerves" *Astounding* September  
Cleve Cartmill "With Flaming Swords" *Astounding* September  
L. del Rey "Lunar Landing" *Astounding* October  
Jack Williamson "Minus Sign" *Astounding* November  
A.E. Van Vogt "The Weapon Shop" *Astounding* December

1943  
Dana Chambers *The Last Secret*  
Jack Williamson "Opposites-React" *Astounding* January-February  
A.E. Van Vogt "The Weapon Makers" *Astounding* February-April  
Henry Kuttner and C.L. Moore "Clash by Night" *Astounding* March  
L. del Rey "Fifth Freedom" *Astounding* May  
Fritz Leiber "Gather Darkness" *Astounding* May-July

1944  
Malcolm Jameson "The Giant Atom" *Startling Stories* Winter  
Cleve Cartmill "Deadline" *Astounding* March  
Clifford D. Simak "Lobby" *Astounding* April  
Clifford D. Simak "City" *Astounding* May  
Clifford D. Simak "Huddling Place" *Astounding* July  
Raymond F. Jones "Renaissance" *Astounding* July-October  
Clifford D. Simak "Census" *Astounding* September
1945  H. Kuttner and C.L. Moore "The Piper's Son" *Astounding* February
Robert Abernathy "When the Rockets Come" *Astounding* March
Fritz Leiber "Destiny Times Three" *Astounding* March-April
L. del Rey "The One-Eyed Man" *Astounding* May
Murray Leinster "First Contact" *Astounding* May
H. Kuttner and C.L. Moore "Three Blind Mice" *Astounding* June
H. Kuttner and C.L. Moore "The Lion and the Unicorn" *Astounding* July
L. del Rey "Into Thy Hands" *Astounding* August
Chronological List of Atomic Films

X-rays. Directed by G.A. Smith. 54 feet. G.A. Smith, 1897.
   An X-ray machine shows the skeletons of lovers embracing.

   A fleet of invading airships is destroyed by an aerial torpedo.

   Radium is used as a cure for insanity.

War O'Dreams. Directed by E.A. Martin. 2 Reels. Selig, 1915.
   A scientist withholds the formula for a powerful explosive from the War Department after dreaming of its horrible effects.

   A spy drama revolving around an aerial torpedo.

   An aerial torpedo saves America from an invasion in 1920.

   An American inventor has an X-ray gun with a 25 mile range.

   Ethel Barrymore plays the assistant to a chemist whose new explosive can destroy an entire village.

The Craving. Universal 1918.
   War, lust, drink, and hypnotism plague a chemist who develops a high explosive.

   An adventure about a supertank.

   A criminal syndicate seeks a lethal atomic ray.

The Eleventh Hour. William Fox, 1923.
   Spies vie for the formula for the most powerful explosive in history.

Story Without a Name. Paramount, 1924.
   A scientist invents a radio death ray.
*Broadway or Bust.* Universal, 1924.
A rancher strikes it rich when he finds radium on his land.

*Laughing at Danger.* Directed by James W. Horne. 6 reels. FBO, 1925.
A death ray nearly destroys the Pacific fleet.

A melodrama concerning an atomic-powered engine.

Desert bandits use a death ray to bring down passing airplanes.

*The Last Hour.* Directed by Walter Forde. 75 minutes. Nettleford Films, 1930.
A foreign prince steals death ray plans and attempts to send them to the continent.

*Danger Island.* Universal, 1931.
Radium is discovered on an island off Africa.

*Chandu the Magician.* Fox, 1932.
The villainous Roxor, played by Bela Lugosi, plans to conquer the world using a death ray.

*The Tunnel.* Directed by Kurt Bernhardt. Bavaria Film, 1933.
A 50 foot "radium drill" digs a transatlantic tunnel. Simultaneously filmed in Munich in both French and German, the French version starred Jean Gabin. The film was later remade in England (Gaumont, 1935).

*Gold.* Directed by Karl Hartl. 80 minutes. UFA, 1934.
Scientists use atomic reactor to transmute lead into gold.

Agents fight for a motor-interrupting ray.

Gene Autry fights off crooks who want his radium mine, and finds underground civilization.

*Queen of the Jungle.* Directed by Robert Hill. Serial, 12 chapters. Screen Attractions, 1935.
The eyes of an African jungle idol emit radium rays.

*Ace Drummond.* Serial, 12 chapters. Universal, 1936.
The villains use atomic ray guns.

*Ghost Patrol.* Directed by Sam Newfield. 58 minutes. Puritan, 1936.
Western crooks use a radium ray to stop the engines of mail planes.

A scientist, played by Boris Karloff, is contaminated by a new isotope of radium, goes insane, then uses the radium to kill his rivals. The film also features Bela Lugosi.

Crash Corrigan saves America from the evil Unga Khan of Atlantis and his atomic disintegrator ray.

Bela Lugosi stars as the mad inventor of a disintegrating gas, ten 2 to 3 pound bombs of which can destroy a large city.

*Flight to Fame.* Columbia, 1938.
A villainous pilot uses a death ray to kill his rivals.


*Q Planes.* Columbia, 1939.
Spies on a salvage vessel use a ray to disable aircraft engines. The film stars Ralph Richardson and Laurence Olivier, and was released in the U.S. as "Clouds Over Europe".

*Dr. Cyclops.* Directed by Ernest B. Schoedsack. 75 minutes. Paramount, 1939.
A mad scientist uses radium rays to shrink animals and humans.

Axis spies plan to steal Gotham City's radium supply.

*Madam Curie.* MGM, 1943
A biography of the famous Polish/French scientist.
Atomic Superheroes in Comic Books

The American Crusader


A science professor gains Superman-like powers after exposure to the rays of an atom smasher.


The Atom

*All-American Comics* 19. DC Comics, October 1940.

A physics professor, taunted as "Atom Al" for his short stature, trains himself to top physical condition to win the heart of his girlfriend, and after rescuing her from villains takes up costumed crime fighting.

*All-American Comics* 19-46, 48-61, 70-72; 10/40-4/46.

*All-Star Comics* 3-26, 28-35, 37-57; Winter 40-2/51.

*Big All-American Comic Book* 1; 12/44.

Blue Bolt

*Blue Bolt* 1. Novelty Press, June 1940.

A college football player is struck twice by lightning and saved from death by a scientist's radium treatment all of which combine to give the football player lightning powers.

*Blue Bolt* 1-27; 6/40-8/42.
Captain America

*Captain America* 1. Marvel Comics, March 1941.

A sickly delivery boy volunteers to be turned into a super soldier by taking a secret serum and exposure to "vita-rays".

*Captain America* 1-74; 3/41-10/49.

*All-Winners Comics* 1-19,21; Summer 41- Winter 46.

*Young Allies* 1-5; Summer 41-Fall 42.

*USA Comics* 6-17; 12/42-Fall/45.

*All-Select Comics* 1-10; Fall/43-Summer/46.

Captain Future


A scientist gains superpowers whenever he exposes himself to crossed gamma and infrared waves.

The Comet

*Pep Comics* 1. MLJ/Archie Publications, January 1940.

A chemist discovers a gas fifty times lighter than hydrogen, injects it into his bloodstream, and gains the ability to leap great distances and shoot beams from his eyes which disintegrate objects.

*Pep Comics* 1-17; 1/40-7/41.

Cosmo Mann

The scientist hero invents a "G Ray" which dissolves whatever it hits.

**Doc Strange**


A physician gains amazing strength from the drug Alosin, a "distillate of sun atoms".

*Thrilling Comics* 1-64.

**The Human Bomb**

*Police Comics* 1. Quality Comics Group, August 1941.

In order to prevent its theft by enemy agents, a physicist swallows the capsulized formula to a new super explosive. Immediately he begins to glow and whatever he touches explodes.

*Police Comics* 1-64.

**Miss America**

*Military Comics* 1. Quality Comics Group, August 1941.

The Statue of Liberty grants the heroine the ability to alter the shape of matter at will.

*Military Comics* 1-7.

**Miss America**

*Marvel Mystery Comics* 49. Marvel Comics, November 1943.

An electrical overload caused by a thunderstorm gives the heroine superman-like
powers, including X-ray vision.


*Miss America* 1-2; 1944-11/44.

**The Ray**


During a balloon accident in the upper atmosphere, a reporter gains light-based powers through exposure to intense radiation.

*Smash Comics* 14-40.

**Starman**

*Adventure Comics* 61. DC Comics, April 1941.

An amateur astronomer develops the gravity rod/cosmic rod which harnesses infra rays/cosmic rays enabling him to fly, create solid energy fields, and fire beams of star energy.

*Adventure Comics* 61-102; 4/41-2/46.

*All-Star Comics* 8-23; 12/41-Winter/44.

**Sub-Zero Man**

*Blue Bolt* 1. Novelty Press, June 1940.

While flying in an atom powered ship, a crew of Venusians are quick-frozen in a collision with an asteroid of frozen mist. Crashing on Earth, the lone survivor struggles
to the nearest building where he is thawed by a scientist working with gamma radiation.

The alien takes up crime fighting with his ability to instantly freeze things.

*Blue Bolt* 1-37,39,44.

**Superman**

*Action Comics* 1. DC Comics, June 1938.

The orphan from the planet Krypton has X-ray vision and eventually he is said to gain some of his powers from solar radiation.

*Action Comics* 1-; 6/38-.


*Superman* 1-; Summer/39-.

*World's Finest* 1-; Spring/41-.

*All-Star Comics* 7; 10/41.

**TNT**

*Star Spangled Comics* 7. DC Comics, 1942.

TNT and his kid sidekick Dynamite fight crime wearing gloves and boots which radiate explosive atomic energy.

*Star-Spangled Comics* 7-23.

**White Streak**

*Target Comics* 1. Novelty Publications, February 1940.

An android, created by an ancient South American civilization, has X-ray vision and
fires electron beams from its eyes that can both create and destroy solid objects.

Target Comics 1-22.
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