

# Cortisone in Popular Culture: Roueché, Ray, and Hench

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## Abstract

In this article, the authors offer a new perspective on how the administration of Compound E (ie, cortisone) to a volunteer Mayo Clinic patient with rheumatoid arthritis and the patient's subsequent miraculous improvement led not only to a major, successful clinical trial but also a Nobel Prize. The early and late side effects as an undesirable outcome of treatment of corticosteroids would soon follow. Corticosteroid side effects became known in popular culture, first through an in-depth article in *The New Yorker* by medical journalist Berton Roueché, and later through a major fiction film, *Bigger than Life*, directed by Nicholas Ray. The film used cortisone as a plot device to “unmask” what the filmmaker perceived to be the lie of middle class prosperity in America of the 1950s. *Bigger than Life* is also a cinematic argument against the use of cortisone. Dr. Philip Hench was also connected to *Bigger than Life*, and the Ray-Hench connection is further explored based on newly found material. The discovery of “wonder drug” cortisone and its potential side effects—all carefully described in the Roueché article but exaggerated in Nicholas Ray's film in the 1950s—show how medicine can be portrayed in popular culture.

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Berton Roueché, a journalist by trade, created a new genre of medical writing and a regular column in the *New Yorker* entitled *Annals of Medicine*. This became a series of medical detective stories inspired by mystifying medical histories that could be seen by any physician and, thus, avoiding esoterica.<sup>1,2</sup> According to Lerner, “his writings introduced not only laypersons but also future generations of physicians to the art of medicine.”<sup>3</sup>

On September 10, 1955, Roueché published the case history *Ten Feet Tall* about a teacher who would go into a manic psychosis after taking a large dose of cortisone. This article was well timed because it coincided with a major development in the history of treatment of rheumatologic diseases. In 1935, after many attempts over many years, Mayo biochemist Dr Edward Kendall, along with Professor Tadeusz Reichstein at the University of Basel, succeeded in isolating cortisone from adrenal cortical extracts prepared from animal glands. Several frustrating years of struggle among researchers and pharmaceutical companies finally yielded a synthesis in 1948 that made it possible to

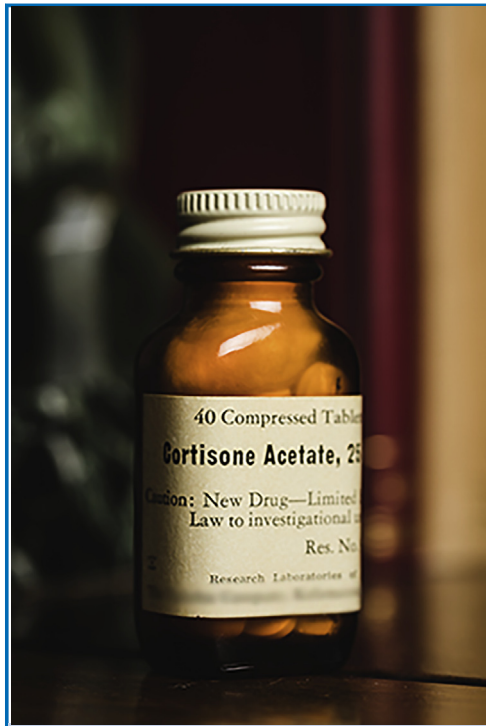
produce cortisone commercially. Later in the same year, Drs Hench, Slocumb, and Polley administered compound E to a volunteer Mayo Clinic patient who had rheumatoid arthritis; this resulted in a miraculous improvement and led to a larger clinical trial with similar results (Figure 1). A year later, Hench and colleagues published their landmark work that would earn him the 1950 Nobel Prize—shared with chemists Kendall and Reichstein.<sup>4</sup> The time from clinical testing to acceptance of a major medical breakthrough was less than 2 years.

*Ten Feet Tall* became the inspiration for a film directed by Nicholas Ray and produced by James Mason, who also played the feature role. Film scholars have considered *Bigger than Life* a classic of 1950s American Cinema.<sup>5</sup> We found that this film on cortisone was connected to Hench and provides insight in how medical discoveries find their way in the movies.<sup>6-8</sup>

## THE ARTICLE AND THE FILM

*Ten Feet Tall* (an idiom for feeling great) tells the story of a school teacher Robert Laurence, based on a patient with a different name from New York State, who developed periarteritis

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**FIGURE 1.** Experimental cortisone used in original Mayo Clinic study. Used with permission of Mayo Foundation for Medical Education and Research. All rights reserved.

nodosa. The disease was considered incurable by conventional treatments, and the patient would have likely died except for the newly available “miracle drug” cortisone. His clinical course, however, would not be straightforward, and “his escape was accomplished at a truly hair-raising price.”<sup>1</sup>

The article opens by extensively describing the studies of Mayo Clinic’s Hench and Kendall on the effects of cortisone before investigating in even greater detail the clinical course of the patient. The initial effects of the drug seemed promising; soon after treatment was started, the patient stated: “I felt as bright as a button—capable of anything. It was really extraordinary. It was almost as though I’d never been fully awake before.”<sup>1</sup> The effect was “prompt, positive, and wholesome,” and he felt “everything I did was right and effortless.” However, his behavior started to change after his physician increased the dose of cortisone to ensure there was no lingering inflammation. He became extremely

irritated by trivial matters and began acting more fidgety, often pacing the floor and confabulating (“wild, crazy talk”). His erratic behavior was characterized by purchasing his wife an expensive dress followed by other clothes over the phone. He also began taking cold baths in the middle of winter because he had no patience to wait for the boiler to catch up after washing the dishes. In school, he felt he had to set an example in character and command and, in his grandiosity, told his wife that he had discovered “a new technique that would revolutionize the present methods of teaching.” His so-called new technique was all about discipline, which, parenthetically, he also believed should be applied to running the house. He told his wife not to waste time with menial work like washing and ironing because he would prefer to buy a new shirt every day and discard it at night. His actions became more bizarre; he suddenly traded his old Plymouth for a new Studebaker, and he tried to smash the television because it was “mind numbing.” His wife suspected the abnormal behavior was an effect of cortisone and called their doctor, who first suggested a sedative without much effect. After readmission to the hospital and adjustment of the medication, his “manic-depressant psychosis” resolved, and the periarteritis nodosa stayed dormant.

The article was spotted by the actor James Mason, who asked Cyril Hume and Richard Maibaum to write the script and present it to Nicholas Ray. *Bigger than Life* deviates from the article in many ways, and a much larger story is told with biblical metaphors. According to film critic and director Truffaut, the original script was a Jekyll and Hyde story—normal behavior during the day with a transformation at night, but Ray rewrote it.<sup>9</sup>

Ed Avery (James Mason) is seen with acute neck pain in the very first scene and has increasingly prolonged, severe bouts of stomach pains until he collapses. The diagnosis is eventually determined as periarteritis nodosa; he is told that the prognosis is poor, even fatal, within a year of the first attack if not treated with cortisone. (The film shows a barium test, discussion of a nerve biopsy and bone marrow biopsy, which even then would be a very unusual set of tests to confirm that specific diagnosis.) A critical scene in the film

finds Ed Avery in the hospital writhing in pain while a superimposed chart maps his response to cortisone as the dosage increases, until the caption “No pain” appears. He comes home elated, but his short-tempered behavior erupts on several occasions. Nicholas Ray ratcheted up the violence a few notches. James Mason is continuously irritated, edgy, and a volatile dictator at home. Staying true to the original article, Mason also beautifully displays hypomanic behavior by bringing his wife to an exclusive clothing store, where he buys her a dress they cannot afford. He continues to take more pills (Figure 2), even after the prescribing physician warns him of the side effects. However, he does not listen. In fact, he drives to a pharmacy in another town, where he impersonates a doctor and obtains more pills under a false prescription. He also becomes a constantly demanding father who harasses his disappointingly “average” son. His son, dismayed by his father’s awful behavior, tries to throw away the pills. Avery, seeing what his son has done, believes him to be inherently evil. Inspired by the weekly scripture reading at church, Avery intends to kill his son in a re-enactment of God’s command that Abraham sacrifice Isaac as proof of his faith. He fails when a friend intervenes. The film ends well after a readmission to the hospital, a recovery after sedation, and a family hug.

### HISTORICAL SIGNIFICANCE

The mid-1950s in America in the age of Eisenhower were largely politically restrained



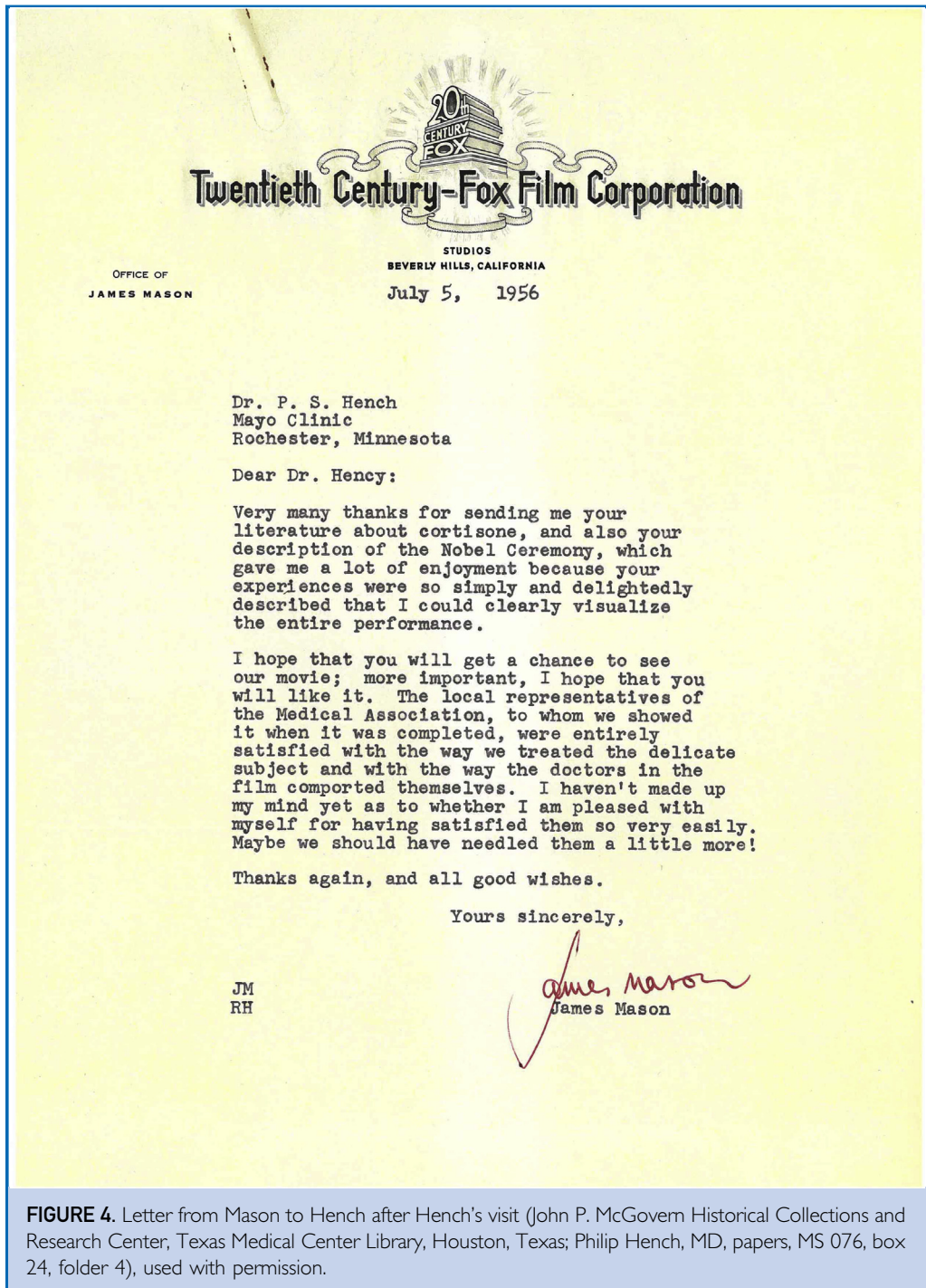
**FIGURE 2.** James Mason in *Bigger than Life*, Moviestore Collection Ltd, Alamy Stock Photo, used with permission.

(certainly compared with the 1960s) and characterized by conformity, growing prosperity, and piety. American prestige was high. Similarly in cinema, this quality of American life was often shown—until *On the Waterfront* challenged this convention. This evasiveness in most produced US films in the 1950s must have also incited Ray, who was less interested in the medical part of the story, to create a film that was metaphorical for Ray’s highly questionable perception of life in American suburbia during the postwar era, a place when men are allowed to speak up and denigrate, women are relegated to secondary positions in times of crisis, and prescription drugs turn average, hardworking Americans into addicts.

American film director Nicholas Ray was best known for *A Rebel Without a Cause* and *Johnny Guitar*—films known to challenge authority that arguably influenced the subsequent 1960s French “new wave” (Jean-Luc Godard, the father of the French “wave,” famously said “Nicholas Ray is cinema.”) *Bigger than Life* unsettled the audience on the use of cortisone—the cinematic transformation of the “Leave It To Beaver” dad to a demonic tyrant must have shocked audiences. Ray posed the question of whether the domestic bliss of the 1950s was a farce and full of fissures and implying that steroids exposed and exacerbated a less-than-idyllic situation or precarious finances.<sup>7</sup> In Ray’s judgment, cortisone removed all



**FIGURE 3.** Mason, Hench, and Ray (left to right) at the film set (John P. McGovern Historical Collections and Research Center, Texas Medical Center Library, Houston, Texas; Philip Hench, MD, papers, MS 076, box 24, folder 4), used with permission.



inhibitions, exposing Ed Avery's urge to rise above his social class and to escape his dull life. In his autobiography, James Mason said that Ray wanted to generate a negative dialogue on the physicians who, in general, failed to realize their wonder drugs were not so wonderful.<sup>6</sup>

According to Truffaut, Ray intended to expose the fallacy of "miracle drugs" because any drug can save and destroy.<sup>9</sup> Cortisone produced problems by destroying the inhibitions that normally would have helped patients to mask their less-desirable traits.

The side effects of corticosteroids have been well recognized and do include mood changes, but the film's grandiosity, psychosis, and transition into a homicidal father were exaggerated and far from faithful to the original article. The moniker "steroid psychosis" has been used in text books, but it remains rare (occurring in less than 5% of treated patients) and resolves quickly after discontinuation.<sup>10</sup> Mania and persecutory delusions are more common than depression, and these mood changes have been found to correlate with reduced activation on functional MRI studies in the emotion-controlling amygdala and parahippocampal gyrus.<sup>11</sup>

Hench and his family (together with his colleague rheumatologist L. Emmerson Ward and his wife) visited the Twentieth Century Fox studio in the summer. Hench (Figure 3) provided articles on cortisone, but despite documents suggesting that Hench was involved with the production, his name does not appear in the film's opening credits. The correspondence of Mason to Hench (Figure 4) also suggested that Mason was concerned about the portrayal of the physicians in the film and asked for advice. Mason's letter whimsically suggested they may have been too cautious in protecting the physicians in the film, but, at least for film critics, the opposite occurred. *Time* magazine's scathing review (August 6, 1956) described the physicians as nothing more than "Latin-spouting hody-doddies" failing to recognize cortisone's side effects.<sup>12</sup> Moreover, the tests shown (incorrectly) to diagnose periarteritis nodosa also did not reflect well on the physicians. The script avoided attributing the side effects of cortisone to overprescription, and the screen writers changed the narrative in order to portray the serious side effects as a result of deliberate increase of the dose by the patient. Hench was acutely aware of these side effects but always felt they were related to higher doses. Mason, in his letter, predicted Hench would like the film. While we can only speculate how Hench would have responded to *Bigger than Life*, we can safely assume he would disagree with the film's sensational exaggeration of the drug's potential side effects. Moreover, Hench became much more concerned—and angry—with later studies

suggesting no effect of cortisone in certain settings.<sup>13–15</sup>

Some of the new drugs in the 1950s (but also vaccines and particularly Salk's vaccine) were transformative and included chlorpromazine (psychiatry), isoniazid (tuberculosis) and methotrexate (cancer). The discovery of cortisone, the Nobel Prize, and the potential for major side effects, all carefully described in the magazine article but exaggerated in Nicholas Ray's classic film, played out in a remarkable way during the 1950s. There was no evidence that cortisone was a "truth serum" to allow underlying personality traits to come to the forefront. One might argue that Ray took unfair advantage of an uncommon reaction to cortisone to use it as a forum to discuss his concept of society of the 1950s.

*Bigger than Life* opened in early August 1956 and was a box office bomb. It also received no awards at the 17<sup>th</sup> Venice International Film Festival, where it premiered in Europe that year. There was no (recorded) protest from the medical establishment because the film was not a smash hit and because typically most physicians in the 1950s deferred commenting on popular culture and likely shrugged it off as irrelevant. Moreover, serious medical criticism on an art form or the film industry for that matter was very uncommon in that era. More speculatively, the audience may have thought twice before using cortisone, and the depiction could have caused bias in future studies. *Bigger than Life* is one of Ray's masterpieces, but the film's taunting meaning for cinéastes remains an open question. Many subjective judgments have appeared since its first screening. Allowing for poetic license, the film's takeaway for physicians is to be wary of unexpected side effects of new, dramatically effective 'wonder' drugs.

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