“Origins: Back to the Beginning” is an hour-long NOVA film that discusses the history of the study of the big bang, supported by background information on astronomy and the universe. The program begins with the well-known story of Robert Wilson and Arnold Penzias, who in 1964 at Bell Laboratories, New Jersey, discovered mysterious microwaves emanating from deep space. The two showed their findings to researchers at Princeton University, where Robert Dickie had recently theorized the microwaves to have originated from the big bang. There existed a problem, however. The present universe is clearly non-uniform; that is, it is largely an empty void with concentrated centers of matter such as galaxies. The microwave static that Wilson and Penzias had discovered was far too smooth and even to represent the situations in the very early universe. Theoretically, the static should contain denser regions of microwaves that signify the areas of the universe where matter started to accumulate and coagulate, so NASA constructed the Coby satellite to investigate the issue. Its purpose was to gather microwave images of outer space from orbit rather than on the Earth surface. Although its results were fuzzy, the microwaves showed the clear blotchy pattern of dense and thin regions as was expected.

Although highly successful, the Coby satellite was unsatisfying in its imaging. Among the various researchers eager to discover more was Chuck Bennett, who led a NASA team in the building of the WMAP satellite in 1996. The device followed a three-month journey to an area in fixed orbit between the Earth and the Sun, and seven years after its initial design, incredibly detailed images of the big bang microwaves were relayed to Earth. Another such scientist was Tony Readhead. In 1999, he began researching this fascinating field with the Cosmic Background Imager in the Andes Mountains of Chile. It too retrieved precise pictures of the early universe. From this information, facts such as the age of universe, the number of atoms, the speed of big bang expansion, and the composition of the cosmos were easily deduced. Surprisingly, a related question the program poses is whether life is sustainable in any of the 100-billion galaxies present in the universe. Astronomers at the Keck Observatory in Hawaii are currently examining this issue. The massive telescope scans the galaxies of outer space to observe them as they were billions of years in the past, much like the microwave imaging. Through spectrography, thousands of galaxies have already been discovered to contain exactly the same elements present in the Milky Way, so it can be assumed that life has potential anywhere in the universe.

The film concludes with at least two theses based on the information given. One argument is that after twenty years of scientific research, we now know the origin of the universe, the universe of present day, and every piece in between. It is apparent that we have made huge progress in this field, but we still have a superficial understanding. The second point made is that the conditions for life on Earth are simply the result of fourteen billion years of cosmic evolution. The case for this is stated quite well. What supports this argument the best is the background information given about the elements and their formations in the stars. Through the processes of atomic fusion and supernovae, all the elements, including those required for life,
have accumulated and interspersed. The film does achieve its purpose, and that is to be informative with basic facts that are interesting and comprehensive, such as those mentioned above. Throughout the program, however, there was an inconsistency in focus, depth, and formality with poor transition. For example, after discussing the WMAP satellite, the topic shifted to miscellaneous information about the big bang and then to facts about atoms forged inside stars. After this, the focus was again changed to a rather inconclusive metaphor comparing the mingling of elements to a chef’s making of a rich soup. Finally, the program begins to briefly discuss the Eagle Nebula in the Milky Way before returning to studies in the Keck Laboratory.

Although it is structurally questionable, the program certainly does convey accurate and current information in an engaging manner. Neil DeGrasse Tyson narrates the film enthusiastically, and his script is comprehensive. The information itself requires little beforehand knowledge of the subject matter because sufficient explanation is given in every instance. The presentation of the subject is thoroughly unbiased; the sources of information are interviews of numerous respected researchers and professors from a variety of universities. The program contains no new information because it is mainly informative and historical in its purpose. As noted earlier, the arguments made at the end of the film are larger issues of insight related to the general information.

Overall, I could say that the scientific film was informative and captivating. To most viewers, the information would be mainly new knowledge. I have seen many documentaries and short scientific programs pertaining to astronomy, the big bang, etc., but I certainly learned some great facts myself from Origins: Back to the Beginning. For instance, I found the discussion of the smoothness of the microwave hiss discovered by Wilson and Penzias and its relationship with the very early universe to be intriguing and extraordinary. As for the style and format, I still say that it is distractingly unorthodox. There is just no transition between, for example, the inappropriate culinary metaphor and the sudden topic of the Eagle Nebula; however, I believe the narration does make a great effort to conclude the film by relating every topic mentioned. Tyson states that it is all “a chain of connections that links birth of the universe to us – right here, right now.” Also in the final scenes is a clever metaphor relating man’s infinite fascination with the cosmos to the heavens and the gods. This, in my opinion, is something worth pondering for everybody. As the program puts it, the study of cosmic origins tells the story of a lively and multifaceted universe that has arisen very naturally with all these connections. I would say that the program makes this point and conveys the necessary information in an intelligent and successful way.

The NOVA was originally aired in September, 2004, and it can be viewed at http://www.pbs.org/wgbh/nova/.