

I certainly agree with Mr. Carroll that a picture's cost should be compatible with the price for which it can be sold. But I disagree completely with his statement that the high cost of filmmaking today is due to overengineering. No amount of engineering can overcome the practice of paying "stars" a million dollars apiece from gross income. Nor can engineering, per se, control the size of crews, the costs of supporting whole companies on location, or the rental cost of a camera. The difference in rental price of a Mitchell BNC camera and an Arriflex, for example, pales into insignificance relative to the total production budget of a motion picture.

One more point, simply as a matter of fact. Mr. Carroll states in his *Addendum on Anamorphic Projection* that "for mechanical reasons the anamorphoser is placed in front of the objective lens, both in taking and in viewing. But, then, the anamorphoser is in the object space in taking, in the image space in viewing, and cancellation does not take place."

In the original CinemaScope system the anamorphoser was placed in front of a prime lens. But in many of today's anamorphic lenses the anamorphoser is placed at the rear rather than at the front, so that the image recorded by the film has been stretched along the vertical axis rather than compressed along the horizontal axis. This puts the anamorphoser in the image space, both in taking and in viewing, and, depending upon other parameters, should result in circles rather than ellipses of confusion.

August 25, 1972

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Biographical Note



Henry N. Kozanowski

Henry N. Kozanowski retired in January 1972 as Manager of Broadcast Television Advance Development for RCA Corp., a post he had held since 1941. During his career as a scientist specializing in television he received international recognition for his achievements, particularly for his contributions in the field of color.

Unlike many dedicated scientists, but perhaps like the best of them, "Hank" Kozanowski is remembered by his associates for his human qualities, including a great sense of humor, as well as for his professional achievements. A comment by an associate at RCA Corp.'s Broadcast and Communications Products Div.— "Dr. Henry N. Kozanowski combines a record of solid professional achievement with an easy ability to express the thoughts that flow from his busy mind. He responds with no loss of dignity to the sobriquet 'Hank,' for the familiarity is born of quiet respect among his fellows for the man and his accomplishments." (Some informal reminiscences by two of Dr. Kozanowski's long-time friends appear at the end of this Biographical Note.)

A native of Buffalo, N.Y., Dr. Kozanowski was educated at the University of Buffalo where he received the degree of Bachelor of Science in Physics in 1927 and the Master of Arts degree in 1928. He continued his graduate studies at the University of Michigan where he was a Research Assistant. He received the Ph.D. degree in 1930. He began his career in the Westinghouse Research Laboratories where he remained until 1935 when he joined RCA Corp.'s Research Department.

He joined RCA Victor at Camden, N.J., in 1935 where he participated in the development of camera equipment and military television and was responsible for developing the first airborne television transmitter operating in a band around 300 MHz. During World War II, Dr. Kozanowski worked on the development of airborne television cameras which, in conjunction with airborne transmitters, were produced in large quantities for experimental work in surveillance and missile guidance during, and after, the war. In addition to early work with iconoscope cameras, he made major contributions to the first practical camera devices, also airborne, which used the (then) newly developed image orthicon tube. Beginning in 1946, he was associated with RCA Corp.'s advanced development activity in television studio equipment. Among his accomplishments, he was responsible for the early evaluation of alternate approaches to film cameras for television and he was the first to propose using the vidicon for such cameras. He is also credited with many of the developments which transformed color television cameras from laboratory instruments into practical tools for broadcasters. He proposed the use of a 3-vidicon camera for color film pickup at a time when the tide of professional opinion ran almost overwhelmingly in favor of a flying-spot-scanner approach because of the presumed seriousness of the registration problem.

With characteristic enthusiasm, he spearheaded the development of deflection coils and focus coils constructed with a

new order of precision, and proved that the registration problem could be solved by the use of such precision components in association with stabilized circuits. Three-vidicon cameras utilizing his developments are now used for color film pickup in most television stations equipped to originate color.

Dr. Kozanowski has been a member of the Society since 1953. He was made a Fellow in 1956. He has had the unusual honor of receiving two Society Awards. In 1963 he received the David Sarnoff Gold Medal Award "for his engineering accomplishments in the field of television and for his sustained drive to improve the quality and practical operation of television studio and film camera equipment."

In 1965 he received the Herbert T. Kalmus Gold Medal Award. The citation noted that: "Some of the advanced developments in color TV for color film credited to Dr. Kozanowski include 3-vidicon color TV equipment for 16mm and 35mm color film; completely stabilized 3-vidicon color TV film reproduction equipment; demonstration of live pickup separate luminance 4-tube color camera; completely transistorized separate luminance channel 4-vidicon color film chain using modular construction and including transistorized colorplexer and color bar generator; and many others."

Dr. Kozanowski has served as Governor of the Society (1968-1969) and as a member of the Television Committee.

He has published a number of scientific papers. Among those that have appeared in the *Journal* are: "Vidicon Film Reproduction Cameras" (Feb. 1954); "Lighting for Color Opaques on Television" (Nov. 1956); (with S. L. Bendell) "Colorimetry Film Requirements and Masking Techniques for Color Television" (Apr. 1956); and "Infrared Transmission Characteristics of Various Color Release Prints and Their Effects on Color Television Reproduction" (Nov. 1964).

Dr. Kozanowski presently resides at 435 Washington Terrace, Audubon, NJ 08106.

Reminiscences

At the request of the Editor, two of Dr. Kozanowski's friends, Sidney L. Bendell and John S. Donal, Jr., supplied more informal anecdotes and comments. Mr. Bendell was associated with Dr. Kozanowski for many years at RCA Corp. Dr. Donal has known him for almost half a century.

Recollections and Comments by Sidney L. Bendell

In recent years, Hank has taken on an even more active role in professional society activities. Aside from his work for SMPTE, he has been involved with many other things, among them, extensive editing duties in connection with the new *NAB Handbook*.

Hank's terrific sense of humor is legendary, as is his repertoire of stories and anecdotes. To those of us who have worked for him for so many years, this reservoir of humor and humanity served us well in living through our many technical trials and tribulations.

Hank is a voracious reader and an accomplished linguist. He is fluent in at least four languages besides English. A feat of his that never ceased to amaze us was his ability to complete successfully complicated crossword puzzles the hard

way — by using a pen.

Recollections and Comments by John S. Donal

I shared an apartment with Hank Kozanowski in Ann Arbor, Mich., more than 40 years ago (to be exact in 1928, 1929 and 1930). Life with Hank was never dull. To begin with, we worked under a grand old professor who expected us to be at work by 8:30 A.M. and to quit at some time like 5:30 P.M. It was clearly necessary to establish a new principle — so for three years we never appeared before 10:30 or 11:00 A.M. We then worked until 11:00 or 12:00 P.M. At the end of our "day" we assembled a group of students for a "brawl" in our apartment. These get-togethers usually lasted about two hours or more. We thrived on this regimen. The early-rising professor looked a little more discouraged each day — but our theses were accepted. We concluded that the new time schedule had triumphed.

I will pass lightly over the episode in which 10 students carried stage flats two miles to the University and set them up in my office under Hank's direction. The result, aided with overstuffed chairs, was a pretty good imitation of a house of ill fame, circa 1928. Our professor sat at his

desk moaning and shaking a little for a day or two, so we took pity on him and tore the whole mess out in about a week — besides the Drama Club needed the flats for a play.

Hank reached the heights a few weeks before our final oral exams for the doctorate. Two members of our Doctorate Committee were brilliant young theoretical physicists from Holland who later became famous in this country. But this was their first year in the United States and their first Doctorate Committee. Hank conceived the brilliant idea of inviting the professors and their charming wives to a party at our apartment about a week before the examinations. This sort of thing was, of course, *never done* in university circles in this country, but we soothed the professors' qualms by saying that we always had a comparable party before our doctorate examinations.

The professors and their wives came to our apartment and we had a blast that lasted until dawn. A week later we passed our examinations and we'll never know if it was because of or in spite of the party.

These anecdotes represent only a small sampling of the "jests and jollities" of these young days, but it can be plainly seen, as I said in the beginning that: "Life with Hank was never dull."