

# TECHNOLOGY

## The assassination: Final footnote?

Can computer analysis techniques used to reconstruct lunar photographs help clarify the argument pertaining to films taken of the Kennedy assassination, which purport to show a man with a rifle on a hill just behind the President's car? Yes, says the man who has been custodian of two of those films, Maurice W. Schonfeld, writing in the July/August *Columbia Journalism Review*.

In 1963, Schonfeld was the managing editor of UPI Newsfilm, entrusted with protecting two 8-millimeter films made by eyewitnesses in Dallas. Working with persons skeptical of the Warren Report, he began what was eventually to become a 12-year investigation of a shadowy figure on a grassy knoll that might possibly have been another assassin—though the pictures were so blurred that the shadow might only have been “a brown cow grazing.”

In 1967, a computer analysis was made of the image, by Itek Corp., which specializes in analyzing aerial reconnaissance photos. By triangulation, clearing some shadows and producing a contour reconstruction showing depth and contrast, Itek specialists concluded that the figure lacked depth and was thus only a shadow.

The matter was dropped until Schonfeld found that Itek President Franklin T. Lindsay had been a Central Intelligence Agency operative involved in counterrevolutionary activities and that Itek got some 60 percent of its business from the Government—much of it in analyzing photographs shot for intelligence purposes. Eventually this coincidence, and new revelations about supposed CIA involvement in political assassinations, worried Schonfeld enough that he decided to try once more, to be certain.

This time he approached Caltech professor Kenneth Castleman and Alan Gillespie of the Jet Propulsion Laboratory, who examined the results of a new computer image of the film, processed by graduate student James Latimer. They concluded: “No errors were found in the Itek report and its conclusions remain the most likely.” Because of the extremely poor quality of the film, however, “a grassy knoll assassin cannot be positively ruled out.”

## Air bags found safe but costly

After 100 million miles of on-the-road experience and proper functioning in more than 1,000 crashes, air bags have proved their technical feasibility, according to a special *Status Report* by the Insurance Institute for Highway Safety. The main obstacle to their further deployment is “the auto industry's current economic condition.”

The National Highway Traffic Safety Administration is expected to issue new rules on air bags and other “passive restraints” sometime next year, according to the report. Two insurance companies have already promised a 30 percent discount on medical and bodily injury coverage for owners of air-bag-equipped cars. But the new systems are expected to cost anywhere from \$139 to \$358, with even greater replacement costs.

Without air bag.



With air bag.



# ASTRONOMY

## The uncertain nature of 3C 48

One of the best known quasars and one of the first to be identified as such is 3C 48. Observations of it have figured, and continue to figure, in much of the controversy about the nature of quasars. The latest are reported in *ASTROPHYSICAL JOURNAL LETTERS* (198:L49) by E. Joseph Wampler and Lloyd B. Robinson of the Anglo-Australian Telescope Board in Epping, Australia, E. M. Burbidge of the University of California at San Diego and Jack A. Baldwin of the Lick Observatory.

The work was done with Lick's image-tube scanner, an optoelectronic device that can derive information about faint objects that is difficult or impossible to get by other means. One question addressed was whether the redshifts in the quasar's light are due to gravitational causes or whether they are cosmological, due to location at the far reaches of the universe. The four observers say the results rule out gravitational redshift for this object.

Another, very controversial point, is whether the nebulosity surrounding the quasar is a galaxy, indicating that quasars are events that happen in the centers of galaxies, or whether it is something else. Says the present report: “We have no evidence concerning the presence or absence of a galaxy of stars associated with 3C 48.”

So, they say, there remain three possibilities for the nature of 3C 48: It is at a cosmological distance and is embedded in a galaxy whose stellar radiation is masked by scattered emission from the quasar and therefore invisible to these observations. It is at a cosmological distance and not associated with a galaxy. Or it is a local object emitting nonthermal radiation and thermal radiation from a hot gas.

## The heaviest interstellar molecule

Although sulfur dioxide has only three atoms, it is the heaviest molecule so far discovered by radio astronomers in the dust clouds of interstellar space. It is also the only nonlinear triatomic molecule that does not contain hydrogen. The discovery is reported in *ASTROPHYSICAL JOURNAL LETTERS* (198:L81) by L. E. Snyder and J. M. Hollis of the University of Virginia, B. L. Ulich of the National Radio Astronomy Observatory, F. J. Lovas and D. R. Johnson of the National Bureau of Standards and David Buhl of the NASA Goddard Space Flight Center.

The sulfur dioxide appears in two celestial locations—the Orion nebula and the cloud called Sagittarius B2. Features of the profile of the sulfur dioxide emission from the Orion nebula indicate a two-component structure for the substance there: a dense envelope, probably surrounding a star, and a warm (414 degrees K.) galactic cloud component.

The observations were done with the NRAO 36-foot antenna at Green Bank, W.Va.

## A Russian opinion for a black hole

The first black hole to come under astronomic observation may be the X-ray source in the binary star system Cygnus X-1. The observed X-rays have been interpreted as a flux from a disk of matter surrounding and falling into a black hole. Sharp controversy has arisen with prominent astrophysicists saying yes or no to the black-hole interpretation.

Now comes a voice from the Soviet Union, that of D. Ya. Martynov, director of the Sternberg Astronomical Institute of Moscow. Writing in *INTERNATIONAL ASTRONOMICAL UNION CIRCULAR* 2793 (June 25), he says that results of observations of Cyg X-1 made by E. Shaffer and E. Moskalenko from the Salyut 4 space station “conform to the model of a disk accretion onto a black hole.”