

That feeling of déjà vu

The feeling of déjà vu surrounding last week's attempt on the life of Presidential candidate Gov. George C. Wallace (D-Ala.) has rekindled interest in the 1969 report of the National Commission on the Causes and Prevention of Violence. The accuracy of its predictions is striking.

The commission's report on Assassination and Political Violence said: "The best single predictor of whether a nation will experience assassination attempts is whether that nation experiences high levels of other forms of civil strife. Turmoil in general seems to be a factor which releases, creates or signals tendencies to assault the President with mentally unbalanced individuals in the population. Although there may be other factors, the key element in each Presidential assassination appears to be the state of mind of the potential assassin." The state of mind of past assassins has been diagnosed as "schizophrenia, in most instances a paranoid type."

The method of attack is predictable. Seven of nine attacks on Presidents or Presidential candidates were committed with hand guns, usually from point-blank range while the intended victim was in a public crowd. The attackers were usually ambivalent with respect to their victim, having had several opportunities to act. And, "in every instance the assassin felt no remorse."

"Although we cannot unravel the significance of the similarities between the assassins," the report continues, "we could make this statement: We could predict after President Kennedy's assassination that the next assassin would probably be short and slight of build, foreign born and from a broken family—most probably with the father



CBS News via ESS

Arthur H. Bremer: Accused of assassination attempt.

either absent or unresponsive to the child. He would be a loner, unmarried, with no steady female friends, and have a history of good work terminated from one to three years before the assassination attempt by a seeming listlessness and irascibility. He would identify with a political or religious movement, with the assassination triggered by a specific issue which relates to the principles of the cause of the movement. Although identifying with the cause, the assassin would not in fact be part of or able to contribute to the movement. Not every Presidential assassin has had every one of the foregoing traits, but some combination of the above has characterized them all."

Can matter meet antimatter peacefully?

Antimatter has a hard time existing on earth. The local abundance of ordinary matter (sometimes called koinomatter) guarantees that any antiparticle that appears will quickly meet its corresponding koinoparticle and be annihilated. Nevertheless accelerator experiments produce sizable numbers of antiparticles of various kinds, and experimenters have used antiprotons and antineutrons to build up antinuclei—as large as antihelium according to a Soviet report.

To make an antiatom, to fit out the antinucleus with the proper cloud of positrons that corresponds to the electron cloud of an ordinary atom, is a much more difficult step and has not yet been done in the laboratory. But antiatoms may exist somewhere in the universe. In fact the basic laws of physics imply that there should be antiatoms in numbers equal to koinoatoms, and some cosmologists believe in anti-stars and antigalaxies.

The chemistry of antimatter is thus of a certain interest, and two koino-physicists at the University of Pittsburgh, B. R. Junker and J. N. Bardsley, have calculated one important case of the chemistry of antimatter, the reaction of hydrogen and antihydrogen.

This is cosmologically the most interesting reaction because hydrogen is by far the most abundant element in the cosmos, and antihydrogen would be expected to be equally abundant. The intriguing question was whether the electromagnetic interaction between the positron of the antiatom and the electron of the koinoatom would provide a barrier that would retard or perhaps prevent the coming together and annihilation of nucleus and antinucleus. If it did, it would provide a mechanism whereby koinomatter and antimatter could coexist peacefully without eventually annihilating the universe and turning everything to gamma rays.

Although there has been much speculation about how such a reaction would go, "as far as we know," says Bardsley, "these calculations are unique." Unfortunately they don't give the universe any such out. The electron-positron interaction does provide a certain energy barrier but not enough to seriously retard annihilation in the hydrogen-antihydrogen case. Junker and Bardsley speculate, however, that for heavier antiatoms the barrier might be serious. This, they suggest, could support the contention that ball lightning is a lump of antimatter that has somehow invaded the earth's atmosphere and is being annihilated only slowly. □

Rapid changing Seyfert: Problems for theorists

In very-long-baseline interferometry, radio telescope signals taken simultaneously thousands of miles apart are combined. This provides information about the structure of radio sources that is impossible to determine with a single telescope. Application of the technique to two quasars (3C 273 and 3C 279) over the last year or so has shown changes in their appearance that caused something of a stir in astronomical circles because one possible explanation is that those quasars consist of two components flying apart at speeds greater than light (SN: 12/18/71, p. 405).

Since astronomers do not like to entertain such a gross violation of the basic laws of physics if they can help it, other explanations that fit the data have been forthcoming. The observation, might, for instance, be either a geometric or visual illusion.

But a similar change in radio appearance of a Seyfert galaxy, 3C 120, is now reported by D. B. Shaffer and M. H. Cohen of California Institute of Technology, D. L. Jauncey of the Cornell-Sydney University Astronomy Center and Kenneth I. Kellermann of the National Radio Astronomy Observatory. The observation was done with