Velikovsky: AAAS Forum for a Mild Collision

After 24 years of cosmological debate at a distance, two worlds finally collided at an opening session of the AAAS meeting here—Immanuel Velikovsky's world and almost everyone else's. The collision was just a gentle bump, though, marked as often by flashes of humor as by sparks of anger.

This was the confrontation with conventional science, which Velikovsky, the archcatastrophist, had sought since the early 1950's. When it finally came, the encounter lasted 7 hours, 4 on the morning of 25 February and 3 more in the evening. At the end, each sphere —Velikovsky, and the panel of scientists who volunteered to debate him—declared itself the winner, although many in the audience of more than 500 and most of the reporters present in the grand ballroom of the St. Francis Hotel, seemed to regard Velikovsky as the loser.

It was, in any case, an untidy debate, with loose threads of questions and accusations left dangling from start to finish. It was also probably an impossible debate, ranging as it did from fine points of Babylonian grammar at one moment to fine points of atmospheric absorption spectra the next.

Sociologist Norman Storer of the City University of New York, a panel member whose task was to assess the social context of the Velikovsky controversy, at the end summed up the debate for many with the view that "Scientific controversies will never be resolved in public debate. I don't mean to denigrate this," Storer said, "but it's a show. Nobody's going to say, 'Hey, you're right,' and go home satisfied. But it's been an entertaining experience."

It may have been entertainment for most. But for Velikovsky, now in his 79th year, it was a first opportunity to present to a major scientific forum his controversial concepts of universal, cataclysmic history that raised such a storm of ridicule and protest a quarter century ago. Scientists in general are no more willing to accept his ideas now than they were then, but now they seemed more willing to hear him out—if only in the expectation that such exposure might help lay to rest what they regard as his bizarre notions.

A physician and psychoanalyst trained in Western Europe and Russia, who received his medical degree in 1921, Velikovsky practiced for a number of years in Palestine before moving with his wife and two daughters to New York in 1939. Within 3 years he had begun circulating for comment manuscripts that would eventually blossom on the best-selling lists as *Worlds in Collision, Ages in Chaos*, and *Earth in Upheaval*.

The books' common theme was that numerous ancient legends and myths (including the Biblical tale of Exodus) were more closely related to each other in their time of origin than scholars had thought—and that these ancient myths shared a common inspiration in cataclysmic astronomical events that had battered the earth in early eras of human history. All ancient religions, by Velikovsky's reckoning, thus had an astral origin; collectively the mythology added up to a racial remembrance of cosmic catastrophe.

Describing Catastrophe

By itself, this conception might have been controversial among a narrow realm of academics, but at least it stayed more or less within the bounds of psychoanalysis. Where Velikovsky hit the hornet's nest was in his attempt to describe the nature of the catastrophes that he believed had taken place.

Venus, he argued on the basis of reams of ancient writings, must have burst in the form of a comet from the planet Jupiter; swept close by the earth twice in the time of Moses, which Velikovsky sets at around 1500 B.C.; and collided with Mars, caroming off to settle into its present orbit.

Near-misses by Venus, Velikovsky contended, would have caused immense disruptions of the land, intense heating of the earth and moon, and great electric discharges. Tidal forces parted the Red Sea in time for fleeing Israelites to cross it. From the comet's tail fell hydrocarbons in the form of oil and naphtha and carbohydrates in the form of manna. And there was much more—a near-miss by Mars, for example, in the first millenium B.C.

Velikovsky told the AAAS meeting that he was at first dismayed to find that scientists were not at all interested in hearing such things, even though he proposed tests that might establish the accuracy of his ideas.

"Upon the realization that we are unaware of the most fateful events in human history," the old psychoanalyst told his audience in a richly accented voice, "I had before me the task of explaining this well-known phenomenon of repression."

How it happened that ancient peoples tended to remember such terrifying events in their literature while modern scientists repressed them was a point Velikovsky did not explain at the session, and no one thought to ask. Clearly, though, his "reconstruction" of human history—the term he prefers—tapped a deep pool of emotion.

The Macmillan company agreed in 1947 to publish Velikovsky's first explication of his ideas in *Worlds in Collision*. Released in early 1950, the book was an overnight sensation, due in part to an accompanying spate of articles in *Harper's, Reader's Digest*, and *Collier's*. Screams of protest from the great and not-so-great in the scientific community were quick and loud, though perhaps not out of proportion to the sensation surrounding the book. The spontaneity of this protest is still subject to question, but, in any event, Macmillan soon found itself faced with the possibility of a nationwide boycott of its lucrative textbook business. Before the year was out, Macmillan signed its best-seller over to a competitor with no such interest in textbooks.

The furor over *Worlds in Collision* had roughly the same effect on nationwide sales as the banning of a book in Boston. Even so, Velikovsky has never achieved the kind of civil dialogue with the scientific community that he believes he deserves. And the episode has since become widely regarded as a classic case in the social pathology of science.

In the intervening years, the Velikovsky affair has evolved into the Velikovsky phenomenon. Rightly or wrongly, his ideas seem now to be a semipermanent feature of the American intellectual landscape. His books currently are undergoing a campus revival. And, according to Ivan King, a University of California astronomer and an organizer of the AAAS debate, Velikovsky's following is "large."

Problems of Forbidden Knowledge

With one important exception, the AAAS meeting this year was largely free from disruptions by political dissidents who have plagued association meetings in recent years. AAAS officials said that Harvard psychologist Richard Herrnstein—a central figure in the ongoing debate about race and intelligence—was persuaded by his family to cancel a scheduled appearance at the San Francisco meeting after he received threats against his life. Herrnstein could not be immediately reached to confirm the report.

The symposium he was scheduled to attend on 1 March was entitled "The Social Context of Inquiry: Problems of Forbidden and Discouraged Knowledge." About two dozen youthful protesters from several local radical groups briefly interrupted the session Herrnstein was to have attended, but quiet was restored after the panel moved to a larger room and the session was opened to the public.

AAAS officials also said that the same symposium's chairman on 28 February, San Jose State University's president John H. Bunzel, had received a bomb threat at his campus office. A search of the university administration building reportedly revealed no bomb.

In addition, two dissident scholars in Yugoslavia notified the AAAS that they were unable to obtain permission from the Yugoslavian government to attend the freedom-of-inquiry symposium. Milovan Djilas, once a Vice President of Yugoslavia until he was expelled from the Communist Party in the 1950's, sent his greetings to the conference "in the name of writers and scholars who are forced to remain quiet or to say what they do not believe; in the name of those imprisoned for making a joke or answering criticisms which only yesterday were still allowed; in the name of Marxist humanists who just now are being chased out of Yugoslav universities."

AAAS Council Resolution

Mihajlo Mihajlov, a writer who has criticized the Yugoslav government, said in his message that he hoped the symposium would be successful in "exposing all the spiritual and ideological limitations which represent constraints on scientific research."

The newly elected AAAS council, meeting for the first time on 1 March passed three resolutions expressing concern for the safety and freedom of scholars in the Soviet Union and Chile. One of these resolutions, submitted by Smithsonian anthropologist William C. Sturtevant, said the council was "gravely concerned about the violation of internationally recognized scientific norms in the U.S.S.R." and expressed particular interest in the situations of six Soviet scientists who are said to have been "threatened with prosecution for 'parasitism' although their unemployment is not of their own choosing." The six named were M. Azbel, V. Brailovsky, A. Lunts, K. Plyushch, K. Lyubarsky, and A. Voronel. The resolution instructed the AAAS president, Roger Revelle, to transmit this expression of concern to the Soviet Academy of Sciences.

A second resolution instructs AAAS president Revelle to advise Soviet Academy president Mstislav Keldysh that American scientists "will be hesitant to enter cooperative programs in which scientific freedoms are stultified."

"Intergovernmental agreements for scientific cooperation," the resolution concludes, "will result in little substance unless the scientists of both sides can confidently exercise the freedoms that experience has shown are essential in finding the truth."

After lengthy discussion of a resolution on "the plight of Chilean scholars," the council deleted statements condemning the new Chilean military government for a "massive suspension of civil liberties." Instead, the council resolved to urge the Chilean government to expedite the departure of persons wishing to leave the country.—R.G.

How large is hard to say, although book sales and his speaking schedule give some indication. Velikovsky pointed out that *Worlds in Collision* and *Ages in Chaos* have gone through more than 72 printings; the number actually sold may be on the order of 1 million or less. He is to be the featured guest at three more Velikovsky symposiums scheduled this year, including one at the University of Lethbridge, Alberta, which is giving him an honorary degree. Canadian, Dutch, and British television have prepared documentaries on Velikovsky's career, a number of colleges and universities offer courses dealing in part with his works and the furor they generated, and a new Velikovsky book, *Peoples of the Sea*, is due out this summer.

To some extent the revival has been aided by the publication of a small, not-for-profit quarterly called *Pensée*, headquartered at Lewis and Clark College in Oregon. With a circulation of about 10,000, *Pensée* serves as a forum for Velikovsky's views and those of his supporters and critics. There appears to be no financial connection between the magazine and Velikovsky, but there is a kind of symbiotic relationship—he is good for circulation and circulation is good for him—and Velikovsky has, on occasion, exerted editorial influence. (In an interview, Velikovsky said he gave the editors an "ultimatum" last year to make them publish his response to a critical article in the same issue, not the next one. "I said if they didn't do so, I would never write for them again," Velikovsky said. Faced with a boycott by its leading author, *Pensée* backed down.)

Walter Orr Roberts, a former AAAS president, first proposed a Velikovsky symposium in 1972, but it was the new wave of popularity that provided the final impetus. Cornell astronomer Carl Sagan argued that the AAAS had managed to address the problem of unidentified flying objects in its 1969 meeting without shredding the fabric of science, and that it ought to be possible to do the same with other controversies. The session itself was ultimately organized by Ivan King; Owen Gingrich, a Harvard astronomer and historian of science; and Donald Goldsmith, of the State University of New York at Stony Brook. Gingrich says that pressures were exerted on the AAAS—presumably by irate members—to call the whole thing off, but a commitment to go ahead was nevertheless made last summer.

Velikovsky held himself aloof from the planning, evidently so that he could say that the long-awaited confrontation was not at his instigation. "The astronomers are on the defensive," said Velikovsky, wagging a gnarled finger at an interviewer. "They asked *me* to participate in the AAAS meeting. I did not ask."

The debate began before a hushed crowd on a sour note. King said that no one on the panel believed Velikovsky (not quite accurate), and he said he "deplored" Velikovsky's expressed intention to take at least 10 minutes longer to present his paper than other speakers. Scattered hisses in the crowd revealed a pro-Velikovsky feeling.

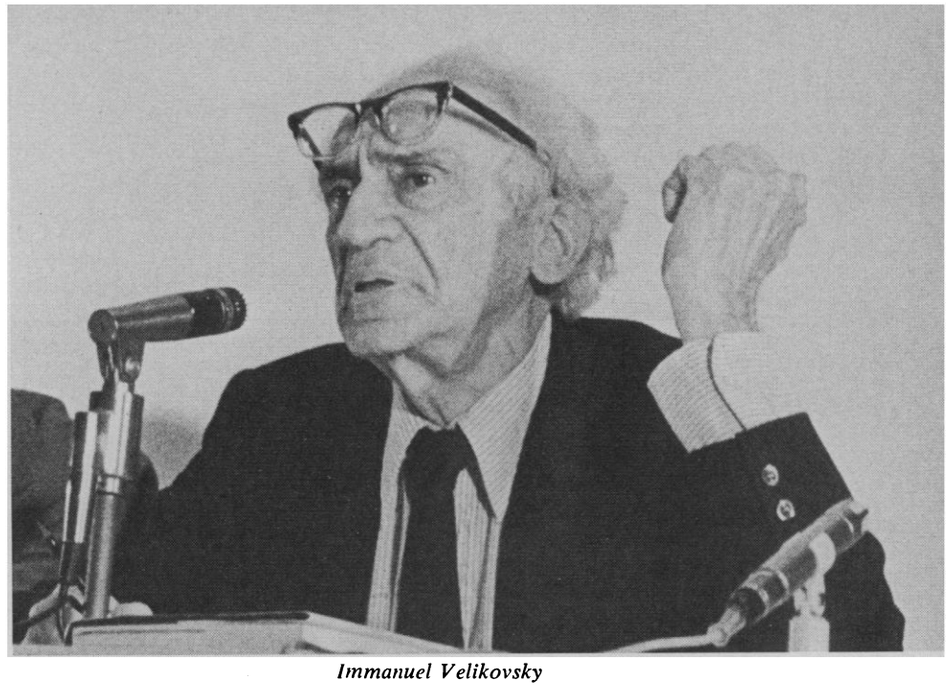
First to challenge Velikovsky was Peter J. Huber, a Swiss statistician of international repute whose avocation is Assyriology. Reading rapidly through a 20-page text, Huber said Velikovsky's arguments are based in part on "obsolete and erroneous translations" of old manuscripts and cuneiform tablets and that he sometimes "makes a complete muddle of texts, insights, periods, and places."

The earliest known examples of writing, from 3000 B.C., Huber said, contain references to regular appearances of Venus in the sky 1500 years before its Velikovskian brushes with Earth.

Huber added that some of the ancient records of Venus observations from which Velikovsky deduced the planet's erratic behavior are filled with scribal errors that appear as internal inconsistencies (showing, for example, two settings of Venus without a rising in between) and with inconsistencies between duplicates of the same tablets.

Velikovsky stepped nimbly up on the stage, commandeered the microphone, and declared that he'd never said Venus came *directly* from Jupiter in the second millenium B.C.—that it could have appeared regularly in the sky before embarking on its erratic behavior. He challenged Huber's credentials as a trained authority in cuneiform writing (an attack other panel members found ironic). The panelists then moved into an effusive half-hour discussion of Babylonian calendars.

Huber later said he came away from the encounter with the impression of two ships passing in the night. Gingrich, though, seemed to think one of them was the *Titanic*. "He demolished Velikovsky," Gingrich concluded over a dish of ice cream that night. "There was really no point in continuing after that." Velikovsky, naturally, disagreed. "I could have stood there for 3 days," he declared.



Immanuel Velikovsky

Velikovsky's turn came next. Looking every inch the catastrophist, he is tall and erect. His Slavic face is smooth and gaunt, and a wreath of white hair and piercing blue eyes emphasize its graveness.

It was the first time Velikovsky had used a prepared text, his wife said, and he read it slowly and dramatically for an hour, reciting the development of his ideas, comparing himself to Giordano Bruno the Copernican martyr, and he ticked off with relish his famous predictions. Venus, he had said in the early 1950's, must be very hot. And sure enough. Jupiter, moreover, would be found to emit radio noise and the moon would show remanant magnetism and evidence of recent heating or melting. (The last prediction is disputed; the others are not.)

"My work today is no longer heretical," he declared, concluding that he hoped the AAAS meeting marked a "retarded recognition" that nothing is achieved by "name calling instead of testing, by jest instead of reading and meditating."

J. Derral Mulholland, a University of Texas astronomer, was next in line with a list of what he called "fatal flaws" in Velikovsky's understanding of celestial mechanics. He called Velikovsky's descriptions of the dynamic effects on earth of a near-encounter with another planet "largely acceptable" but said that the present circularity and spacing of planetary orbits suggests that the planets have plied their orbital paths for much of the solar system's history. Gravitational friction between the earth and the moon and the earth and Venus, Mulholland said, can account in large part for the slow spin of both, and such resonances take a very long time to establish.

To some of the scientists in the crowd, it had begun to seem like overkill, but Sagan—Velikovsky's bête noire—was still to come. An articulate man with a switchblade wit, Sagan barely had time to skim through his 57-page paper before dashing off to a prior commitment in Los Angeles.

Sagan said that he found Velikovsky's concordance of myths "stunning," but probably explainable by cultural diffusion, not common observation. As for the man's record of predictions, Sagan noted that they are entirely qualitative and often vague. "Where Velikovsky is original he is very likely wrong; where he is right, the idea has been preempted by other workers." "There are," Sagan added, "a large number of cases where he is neither right nor original."

Listing objections to Velikovsky's ideas on physical grounds, Sagan said that any explosive event large enough to eject a body the size of Venus from a body the size of Jupiter would have involved sufficient energy to melt or vaporize the departing object.

Sagan also toyed with a suggestion of Velikovsky's that living flies might have dropped out of the putative comet as part of the Biblical plague of vermin. This, said Sagan, raised some

sticky problems of parallel evolution and instant adaptation (there being no evidence of free oxygen in comets or on Venus). And then there was the "fly ablation problem," not unlike the one faced by incoming astronauts.

All this left Velikovsky fuming. He said he'd only passed the fly idea along from others and didn't necessarily subscribe to it himself. Later, in a conversation, Velikovsky vowed that if Sagan didn't mend his ways, "I will destroy him."

As for the problem of Venus's escape, it didn't explode away, Velikovsky said; it fissioned.

So that Velikovsky would not be entirely alone in his own defense, the session's organizers had recruited one scientist to say something good about his ideas. Irving Michelson, of the Illinois Institute of Technology, chalked some equations on a board which he indicated lent some plausibility to Velikovsky's ideas that the earth could have briefly stopped rotating during one catastrophe. But when someone said one of Michelson's numbers was off by a factor of 10^{18}, he shrugged, said, "I'll let that go," and that was that.

By the end of the evening the old man's stamina had begun to wane. His speech thickened and his head bowed closer to the microphones at the podium as he reviewed again and again his record of predictions, his correspondence with Einstein, the volumes of ancient and modern references that —he insisted—bore him out, and the wrongs that had been committed against him.

One had to wonder what it was about the man that had inspired such outrage 24 years ago. Sociologist Storer suggested that, in part, it was the temper of the times; that Velikovsky was viewed as just one more threat to an intellectual community already sensitized by attacks on its loyalty. Then, too, his appeals to the lay public and his lack of conventional credentials, Storer said, violated the rules of the game and triggered defenses reserved for ordinary crackpots even though—as Mulholland put it—no one on the panel "believes Dr. Velikovsky is a crank in the usual sense, and some of us believe some of what he says is plausible."

Sagan said that some scientists were simply irked because New York literati were comparing Velikovsky to Einstein, Newton, Darwin, and Freud. Gingrich, for his part, mused later that "all of us can see our own faults mirrored in his approach to science . . . but in some ways it was an impressive performance."

What was accomplished? Velikovsky thought he had won new followers; Mulholland called it an act of contrition. Gingrich, too, said that he hoped in some way the event made up for the "shabby treatment" accorded Velikovsky in past years.

The organizers plan to base a book on the conference, and, while it may help heal an old wound, they will not be disappointed if it helps deflate the Velikovsky revival.—ROBERT GILLETTE

National Nutrition

Preliminary results of the first survey designed to assess the nutritional status of the entire U.S. population were released recently by the Public Health Service.* The survey, called HANES (health and nutrition examination survey), draws on a probability sample, made up by the Bureau of the Census, that is supposed to reflect the country's total population. (Its predecessor, the Ten-State Nutrition Survey conducted in 1968–1970, concentrated on low-income people.) HANES is being directed by the National Center for Health Statistics (NCHS) of the Health Resources Administration. Some 30,000 people in 65 separate "stands" are being tested by two large mobile examination units that have been roaming the country for the past 3 years. The people are being tested four ways: an individual's caloric and nutrient intake is estimated based on his recollection of what he ate in the previous 24 hours; blood and urine tests are administered to determine his vitamin and mineral content; he is given a physical examination to detect incipient malnutrition; and bone and body measurements are taken to discover abnormal growth patterns and obesity.

The preliminary report details the results from the first two tests: dietary intake and biochemical findings from a sample of 10,126 people.

The most striking finding, which confirms those of earlier, smaller surveys, is that the population suffers from widespread iron deficiency. According to the report, about 95 percent of all preschool children and women of childbearing age have iron intakes below the standards set by the Food and Nutrition Board of the National Academy of Sciences.

Some other findings:

- Most people have acceptable levels of calcium and vitamins A and C (B vitamins will be dealt with in a later report). Two exceptions are black women of childbearing age, whose calcium levels are below standard, and poor white women in the same age range, who are short on vitamin A.
- White preschool children and women are more deficient in vitamins A and C than black preschool children and women.
- Among those over 60, low-income whites get less vitamin C than low-income blacks. But the situation is reversed in the higher income levels. (This information may be misleading, because people are put in only two economic groups: poverty and nonpoverty).
- Despite the considerable evidence of iron deficiency as indicated by eating habits, only 10 percent of preschoolers scored low on iron when tested biochemically. On the other hand, blacks rated markedly lower than whites on tests for hemoglobin and hematocrit, which are also related to iron intake.

The main purpose of the study is to establish baseline data with which to compare the results of future surveys and supply information on which future government food stamp and school lunch policies can be founded.

Results of the physical examinations and measurements are due to come out next summer.—C.H.

* Single copies of *Preliminary Findings of the First Health and Nutrition Examination Survey, United States, 1971–1972* are available free from the Office of Information, National Center for Health Statistics, 5600 Fishers Lane, Rockville, Md. 20852.