

Voting for President: Nothing personal

Political primary season is in full swing, and the candidate who wants to get an edge by polishing his image as a caring, warm, down-home kind of guy might heed the findings of voter surveys conducted prior to the last two presidential elections. In both 1980 and 1984, says political scientist Warren E. Miller of Arizona State University in Tempe, voter impressions of Ronald Reagan's personal attributes, such as integrity and compassion, contributed insignificantly to his eventual margin of victory in the general election.

In 1980, the biggest boost to Reagan's electoral success came from widespread dissatisfaction with the economy and living conditions in general, as well as a growth in support for more conservative political programs. In 1984, feelings that the political status quo should be maintained contributed the most to Reagan's victory, although much of the support for a move toward conservatism had eroded.

A reassuring, telegenic personality appears to be less important in affecting the outcome of an election than is often assumed, noted Miller at a National Research Council press seminar in Washington, D.C., last week.

"Party preference remains the most important single factor in determining how we vote," he says. Nearly 90 percent of the electorate is predisposed to favor either Democrats or Republicans. About 60 percent of the voters have consistent ideological preferences along liberal or conservative lines.

His conclusions are based on the analysis of intensive interviews conducted with a representative national sample of approximately 2,000 voters in 1980 and 1984.

Anatomy of a lying smile

A smile can be deceiving, but can you tell the difference between a decoy and the real McCoy? According to psychologists at the University of California at San Francisco, there are subtle differences between smiles when people are truthful and when they lie about experiencing pleasant feelings.



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Smiles that reflect actual enjoyment (left) include the activity of the outer muscle that circles the eye more often than when enjoyment is feigned, report Paul Ekman and his colleagues in the March *JOURNAL OF PERSONALITY AND SOCIAL PSYCHOLOGY*. Smiles intended to conceal strong negative emotions frequently include muscular action around the lips and eyes linked to disgust (right), fear, contempt or sadness.

The investigators studied videotapes of 31 student nurses. First, each subject was told to describe her feelings to an interviewer after seeing a pleasant nature film. Then they saw a film showing amputations and burns and were told to convince the interviewer they had seen a pleasant film. Descriptions of the young women's facial muscle actions, such as pulling the brows together and wrinkling the nose, were made by two observers experienced in using a facial measurement technique developed by Ekman and his co-workers.

Although deceptive interviews produced significantly more "masking" smiles across the entire group, on an individual basis the face provided clues to deceit in fewer than half of the subjects. The researchers are now looking at how other behavioral signs, including body posture and speech content, may operate as clues to deceit in different people.

The spectrum of smiles that provide various social signals remains to be determined, add the scientists. For example, "phony" smiles that occur when nothing much is felt were not considered in their study.

Perestroika and particle physics

For years Soviet physicists have talked about building powerful and innovative particle accelerators, but progress has been extremely slow. Now, according to a report in the January/February *CERN COURIER*, the new Soviet leadership has decided to push things. They are speeding up work on the Accelerator and Storage Complex, better known by its Russian acronym, UNK, and have decided to build a linear collider for electrons and positrons, called VLEPP.

UNK is planned to come in three stages. The first, now under construction, will provide beams of protons with 400 billion electron-volts energy (400 GeV) using conventional magnets to bend the path of the protons around a circle of 21 kilometers circumference. The second stage will use superconducting magnets to provide protons with 3 trillion electron-volts (3 TeV). If this stage is completed on schedule in 1993, UNK will have the world's most energetic protons for use in experiments with fixed targets. The third stage, due in 1995, will be a second 3-TeV beam to collide with the first.

Over the last decade or so, UNK planners have done a good deal of design work and have built and tested prototype magnets. Now actual groundwork has begun. At the Institute for High Energy Physics at Serpukhov, near Moscow, workers have so far cut 9 kilometers of the 21-km tunnel in which the accelerator will stand.

VLEPP will be a pair of linear accelerators, one for electrons, one for positrons, arranged so that the particles that come out of them will collide with each other. At 500 GeV for each arm, VLEPP seems likely to be the world's first big linear collider.

Up to now Soviet physicists have concentrated their electron-positron colliding beam work at Novosibirsk, where the late Gersh Budker pioneered the conception and construction of such equipment. However, VLEPP will be built at Serpukhov, so as to give the opportunity for eventually building connections to UNK and obtaining high-energy electron-proton and positron-proton collisions.

Physics of the 21st century

Now that the Soviets are pushing construction and planning of large new particle accelerators, and the Americans hope to begin building the Superconducting Super Collider (SSC), European physicists have gotten together at Erice in Sicily to consider their future options. Western Europe has two major accelerators under construction. At Hamburg, the German national laboratory, the Deutsches Elektronen-Synchrotron (DESY), is building HERA, which will collide protons of 1 trillion electron-volts energy (1 TeV) with high-energy electrons. In Geneva, Switzerland, CERN is building LEP, which will collide electrons of 50 billion electron-volts energy (50 GeV) with 50-GeV positrons.

According to a report on the Erice meeting in the January/February *CERN COURIER*, CERN's Director General Herwig Schopper opined that the SSC, which will collide 20-TeV protons with each other, is "a large jump into unknown territory." He suggested Europe go by multiples of 10. If so, the next logical step would be the Large Hadron Collider (LHC), which would collide 8-TeV protons with each other. It would be built in the same tunnel as LEP.

After LHC would come the Eloisatron, the pet project of the Italian physicist Antonio Zichichi, which would collide 100-TeV protons with each other. Romantically Zichichi named the project after the famous pair of lovers of the Middle Ages—the machine that injects protons into the Eloisatron would be called Abelard. Zichichi has suggested building the accelerator across Apulia, the "heel" of the Italian "boot." To get a head start on conception and planning for the project, an Eloisatron Institute will be held at Erice in June.