

focus of intense, near round-the-clock telescopic observation by researchers a quarter-mile away. But certain vital data could not be gleaned remotely, such as weight, bill length and length of primary feathers. The latter two are constants, independent of the bird's nutrition, Borneman explained. What's more, eggshell shards being gobbled up by both the chicks and their parents offered data on pesticide levels in shells. While remote surveillance of the remaining chick continues, researchers worry that emotional criticism stemming from the chick's death could seriously jeopardize the condor-conservation program. □

### Three-eggs-a-week plan

In the first revision of their 1968 "Risk Factors and Coronary Disease," the American Heart Association asserts once again that a diet high in cholesterol and saturated fat increases risk of heart disease. The new statement was released early (it will appear in the August CIRCULATION) to clarify the association's position in the controversy surrounding the recent report of the National Academy of Sciences Food and Nutrition Board (SN: 5/31/80, p. 343). The AHA recommends "moderate changes in food selection and preparation" to increase consumption of fruits, vegetables, legumes, whole grains and dairy products with low fat content and to decrease consumption of saturated fats and egg yolks. The report emphasizes that interaction of many risk factors is responsible for coronary heart disease in an individual. □

### Chemotherapy consensus

Roughly 109,000 women in this country get breast cancer each year, and sometimes it may seem to doctors that as many journal articles are published on the relative value of various types of chemotherapy. In an effort to define the current state of the art for the use of chemotherapy following breast cancer surgery, the National Institutes of Health held a consensus conference earlier this month.

Among their recommendations:

- Pre-menopausal women whose cancers have spread to their lymph nodes should receive chemotherapy following surgery, since this increases the five year survival rate from 45 percent to 60 percent.
- Women with no evidence of spread should be spared chemotherapy, until such time as it becomes possible to determine who is at risk of relapse. Survival rate is now at least 80 percent. Chemotherapy would "expose the majority to the risks of toxicity without possible benefit."
- Preliminary studies of post-menopausal women show there may be some benefit to chemotherapy, but there is not enough research for a definitive conclusion. □

## Comets: Seeing one is like seeing all

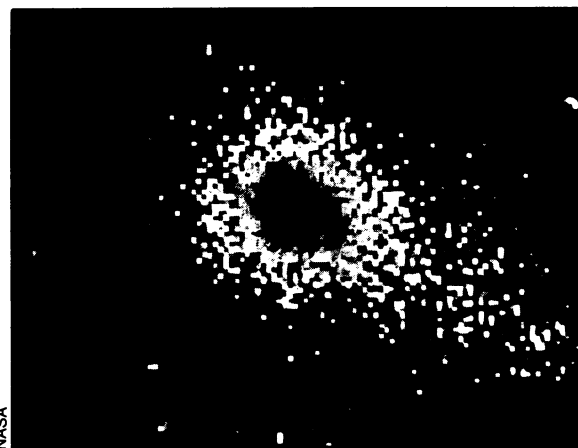
There's further evidence for the vintage idea that all comets have a common parentage — a conjecture that involves statements about the origin of our own solar system. The latest results are the consequence of nine scientists from five institutions studying the ultraviolet spectrum of Comet Bradfield. (Since it is possible for several comets to have been discovered by a sole observer, they are less ambiguously identified with the year and order of their discovery. Thus, the one of several Comets Bradfield being discussed here is designated 1979I, the twelfth comet found in 1979.)

By comparing the spectral appearance of Comet Bradfield with those of Comets West and Sargeant, which had previously been observed in the same wavelength range, the scientists found all three to be identical in crucial respects. This is significant since the ultraviolet spectral region is especially revealing about a comet's composition: Almost every molecule advertises itself within that range of small wavelengths ( $1.2\text{-}3.2 \times 10^{-5}$  centimeters). Though by itself this comparison of three comets is a weak statistical foundation from which to jump to conclusions, coupled with previous knowledge the tempting suggestion is that comets are all molded from the same cosmic clay and perhaps are emigrants from a single far-flung venue.

Credit for the ultraviolet observations goes to the International Ultraviolet Explorer Satellite, launched by NASA in 1978. From its lofty vantage point, thousands of miles above the Atlantic Ocean, the satellite can see a comet's UV emanations with crystal clarity. By contrast, a terrestrial observer, who must contend with the atmosphere's propensity to absorb them, is rendered blind to whatever information they impart.

Reporting in the July 10 NATURE, P.D. Feldman and colleagues also discuss various meanings for the presence of hydroxyl,  $\text{OH}^-$ . Among these is that comets are indeed dirty ice balls, a thirty-year-old idea first suggested by Harvard University's comet guru, Fred Whipple. Since the comet's presumably frozen nucleus of water-ice and dust is obscured by its extensive halo, astronomers now can only assume that the measurable abundance of  $\text{OH}^-$  is directly related to the amount of water contained in the comet's invisible regions.

Besides being less dusty, Comet Bradfield is very similar to its more popular contemporary, Halley's Comet, due to make its anticipated reappearance in 1985. Consequently, astronomers are interested in fully exploiting the analysis of Comet Bradfield as something of a trial run. Pursuing these studies, astronomers believe



Comet Bradfield as seen in the ultraviolet.

that if—as the Dutch astronomer Jan Oort suggested several decades ago—comets come to us from the periphery of our solar system (far from the transmuting effects of the sun), they bring material of the seminal solar nebula, preserved these past four-odd billions of years in the deep freeze of their insulated nuclei. □

### Tempus fugit . . . it also varies

Under pressure, any one of us might be heard complaining about the shortage of minutes in a day. But to the verity of that familiar lament there is an interesting postscript, an aspect of which has recently gotten empirical validation.

For years, scientists have reasoned that the length of day varies as consequence of the earth's rotational period being affected by natural circumstances, among them the mercurial shiftings of ordinary winds. As they blow, impelled by a global network of high and low pressure zones, they grate against the landscape, upsetting the earth's rotation rate. Now, actual measurements of these very tiny effects—less than one millisecond in a typical day—have been added to, with results reported by D. J. Shea and colleagues in the July 10 NATURE. Based on 16 weeks of meteorological data sampled every twelve hours, their measurements of "high-frequency" fluctuations in the length of a day (those that ebb and flow more frequently than four times during the year) verified what had previously been seen for lower frequencies of the same phenomenon. The triumph of this latest analysis derives from the higher frequency fluctuations being far more subtle, though not less important.

Ultimately, geologists hope to measure and thereby eliminate all known contributions to the total fluctuation, leaving by inference only the part that arises from the earth's core rubbing against the planet's crust. Applying further arguments to such a result could lead to important conclusions regarding the composition and viscosity of the core. □