

## Scientist studies eggshell quality

# A thick shell is all in the genes

By ELYSE CHILAND

Daily Collegian Staff Writer

"How would you like your eggs?" Whether they're scrambled or fried, soft or hard-boiled, poached or coddled, the evolution of every raw egg begins in the same place — its shell.

The eggshell is a smooth, oval shaped, protective covering whose only flaw is its fragility. One slip of the cook's wrist and both the shell and the egg are shattered.

In an effort to improve eggshell quality, University scientist, Edward G.

Buss, has been studying what makes tougher, thicker eggshells.

In the past, researchers have manipulated the hen's food and environment to toughen their eggshells. Recently however, the aim of the experiments has been to develop a superior chicken.

"It's all in the genes," Buss said. "To get harder eggshells, we have to breed a better bird."

Buss said that as long as a hen is of "inferior genetic ability," the amount of feed she is given will have almost no

effect on shell quality.

Neither the amount of time an egg remains in the uterus, nor the number of eggs the hen lays, determine the eggshell's fragility, he said.

What does have an effect on eggshell quality? Calcium, according to Buss. "Eggshells are comprised of about 90 percent calcium carbonate, and calcium is the mineral crucial to shell quality."

By testing calcium levels in hens having different genetic strains, scientists at the University have discovered

that a hen's ability to absorb calcium and then deposit it in an eggshell is genetically determined.

"It's a wasted effort to feed a hen more calcium than its genetic limitation will permit it to absorb," Buss said.

The importance of breeding chickens able to produce stronger eggs is not just to make egg consumers happier. The quality of the egg shells is critical to the poultry industry, which loses more than 100 million dollars a year in broken eggs, Buss said.

## New pope planning major Vatican shakeups

VATICAN CITY (UPI) — Pope John Paul II is planning a major shakeup of the Vatican bureaucracy and will likely remove many key church officials left over from the reign of Pope Paul VI, Vatican sources said yesterday.

The sources also said the new pope might travel to his native Poland next Spring. When he was still a cardinal, John Paul II had extended an invitation to the late Pope Paul VI to visit Poland.

The sources said the main question facing Pope John Paul II is what to do about the powerful job of secretary of state, held for the past decade by French Cardinal

Jean Villot.

The Vatican announced Wednesday that Villot had been asked to remain as secretary of state by the new pontiff and the French cardinal had agreed. He similarly had been reconfirmed in his job by the late Pope John Paul I during his brief 34-day reign.

However, the Vatican sources said Villot, who at 73 has already expressed a desire to retire, probably would stay in his post only for several months and then be replaced by an Italian.

Even during the reign of Pope Paul VI, Villot often complained privately that he did little more than attend

ceremonial functions while the actual running of the Vatican and formulation of church policy was in the hands of his Italian assistants.

Because the new pope is Polish, the sources said, he would probably appoint an Italian in Villot's place after several months in order to balance the nationalities of the church's highest officials.

The man most often mentioned as Villot's eventual replacement is Bishop Agostino Casaroli, the Vatican's unofficial "foreign minister" who guided Paul VI's Ostpolitik overtures to the Communist governments of Eastern Europe.

## Challenger protests loss

BAGUIO, Philippines (UPI) — Challenger Viktor Korchnoi yesterday protested his loss in the \$550,000 world chess championships, accusing Soviet champion Anatoly Karpov of using mind-bending techniques to sew up the title.

Karpov, who retained the title with a 6-5 victory over Korchnoi in the 32-game match, responded by

criticizing the challenger for hurling insults but commended his play in the 92-day marathon series.

The Swiss chess federation announced in Lucerne it would seek a replay of the final match in the series, accusing the Soviets of using "severe psychological pressure" against Korchnoi, a Russian defector now living in Switzerland.

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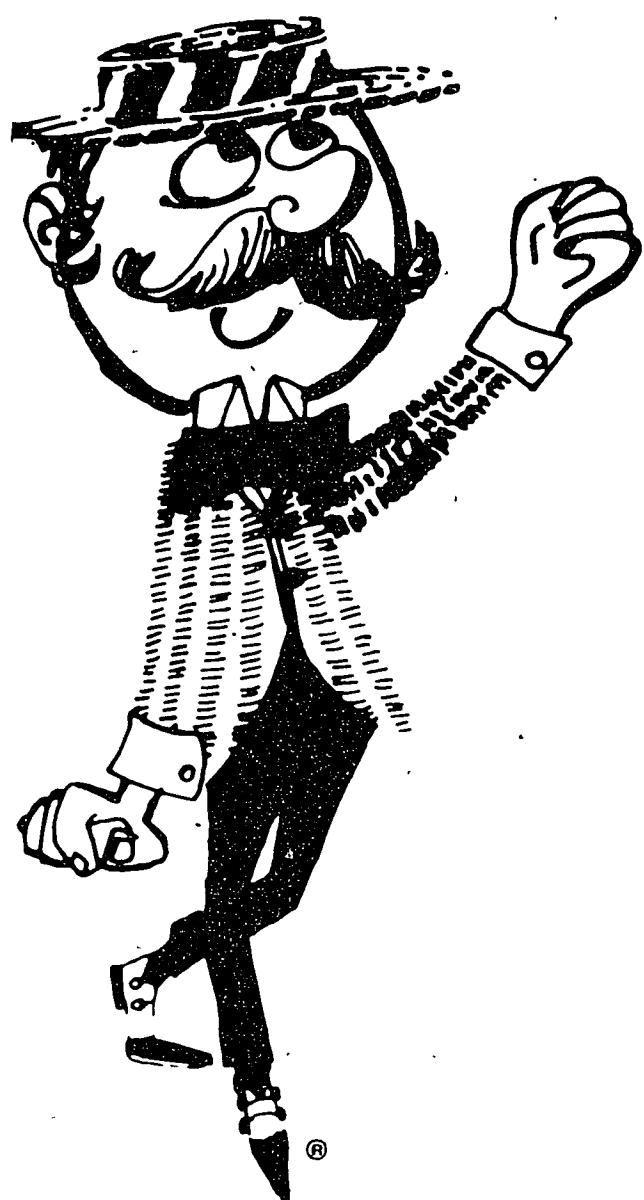
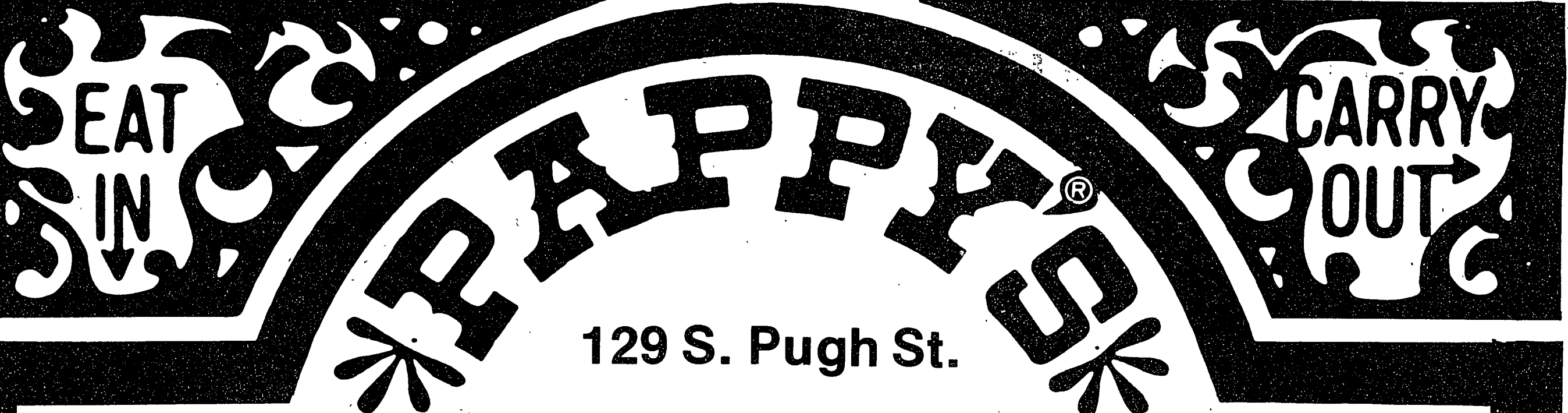


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