

Features

Are comets 'cosmic storks'?

Scientists discuss comets and life's origins

COLLEGE PARK, Md. — One scientist suggests comets are "cosmic storks" that spread primitive life throughout the universe. Another concludes that the chemical building blocks of life rained from comets onto Earth more than 3 billion years ago.

Still another idea is that comets were responsible for much of Earth's water and atmosphere and thus provided the medium in which organic molecules evolved into living things.

Such speculation about comets and their hypothetical role in the development of terrestrial life is possible because so little is known about the wandering masses of gas, dust and ice that orbit the sun.

According to the generally accepted theory proposed by Harvard University astronomer Fred Whipple, a comet's nucleus is a dirty snowball—a mixture of dust and frozen water and ices of other chemicals.

Comets may contain material undisturbed since the birth of the solar system 4.6 billion years ago.

Astronomical observations of comets in recent years show that, with the exception of phosphorus, all the elements necessary for life exist in comets. These are hydrogen, carbon, nitrogen, oxygen and sulfur.

Some of the world's leading comet specialists gathered at the University of Maryland recently

It is suggested that some of the "dust" grains in these "cosmic stork" comets are in fact bacteria enclosed in a protective shell.

for two days to review what is known about comets and to speculate on any link they may have to the origin of life.

Probably the most controversial theory discussed was a proposal of Fred Hoyle and Chandra Wickramasinghe of Britain's University College in Cardiff, Wales. They believe comets can disperse life throughout the universe.

Wickramasinghe called these comets "cosmic storks" and said they could well have brought micro-organisms to Earth 3.8 billion years ago. He suggested that some of the "dust" grains in comets are in fact bacteria enclosed in a protective shell of graphite formed from the degradation of biological materials.

He and Hoyle estimated the Earth receives large numbers of viable cells every year from

cometary particles that survive their fall through Earth's atmosphere.

"Of those that survive, the various environments on the Earth, we believe, simply pick up the types that are best suited for replication under the conditions that prevail," he said.

Wickramasinghe did not address the question of where the bacteria came from in the first place. But he said the chemicals of life did not originate on Earth and thus there is no reason to assume that life began on Earth.

Rockefeller University biologist Richard Young, a former space agency official, said it is difficult to accept the idea that life arose from comets because of the absence of liquid water in comets and the deadly radiation environment of space.

Cyril Ponnamperna, director of the University of Maryland's Laboratory of Chemical Evolution and the conference host, said there is no doubt that comets contain many of the ingredients of life. But he said he does not believe Earth life needs any help from comets.

Scientists hope to get their first hard information on the makeup of comets when Halley's comet makes its once-every-76-years swing past the Earth in 1986. The European Space Agency, the Soviet Union and Japan are planning spacecraft to probe the comet. The U.S. space agency may have to forego the opportunity because of a lack of money.

Child day care demand growing

NEW YORK — About 16 million American households pay for day care for small children outside the home. Proprietary or professional day care centers are thus one of the best growth businesses in the country.

The Bureau of Labor Statistics estimates there are at least 19,000 day care centers in the country, with people paying \$7.5 billion a year for their services. Their licensed capacity grew from 850,000 children in 1973 to 1.6 million in 1979. The Department of Health, Education and Welfare thinks the payments by parents could soar to \$35 billion a year by 1990.

The 19,000 centers include everything from Mom 'n Pop operations to centers operated by churches, welfare institutions, unions or employers or by the public schools.

The proprietary chains represent only a little over 5 percent of the total but are growing fast. They say they provide more than the other child care centers, even if they charge for it.

Among the leading chains, Kinercare Learning Centers, Inc., of Montgomery, Ala., has 660 units and hopes to open 150 more each year for several years. La Petite Academy, operated by CenCor, Inc., of Kansas City, runs 250 centers in 16 states, each capable of accommodating 80 to 140 children and intends to open 50 to 60 more annually. Children's World, Inc., of Evergreen, Colo. has 85 centers, with room for 100 children each, and hopes for a 20 percent annual growth rate.

Parents pay from \$30 to \$50 a week per child according to the hours and variety of care provided.

LaPetite Academy represents the metamorphosis of CenCor from a small consumer finance company to a sizable service conglomerate. Chairman F. Brozman recalls that the 32-year-old CenCor bought nine operating child care centers in 1970 "in order to end our dependence on the highly volatile consumer finance business." The experiment was so successful that CenCor now has gone into such other chain service opera-

tions as temporary help agencies, income tax preparation offices and par-medical schools.

The typical LaPetite Academy is a year-round operation usually housed in a one-story air-conditioned building on a plot of half acre or so, with a staff ranging up to 20. The centers care for children from three to 12 years of age and so are open outside the usual school hours, some operating evenings and weekends, and provide more care in summer than when school is in session.

Behind the rosy growth outlook for the business are the steady increases in the number of working mothers and in the number of one-parent households. Even the affluent working mother or one-parent family head has increasing difficulty finding competent domestic help to care for small children at home. The BLS says that in the whole country there were only 474,000 domestic workers in 1979, down 1 percent from 1971.

The growth in one-parent families

may be surmised from the increase in divorces from 479,000 in 1965 to 1.12 million in 1978. The number of working women jumped 40 percent in the same period. The BLS says there presently are at least 17 million children with working mothers. One third of these are pre-school age, that 5.5 million should double by 1990.

A few years ago it was believed Congress would appropriate billions for day care centers. That didn't happen but the debate brought some interesting arguments, including opposition to centers operated by either employers or unions since it would give them a hold over parents, especially working mothers.

Consultation firms expand

Making a good salesperson

NEW YORK — Definitions are emerging for what separates top producers from mediocre sales people.

Scientific investigation of sales training and selection methods is bearing fruit. For example, selling is now defined as a people problem, not an economic or technological one.

In an era of technological explosion, salespersons with an engineering background are much in demand. Still, most business is people oriented, not technically oriented.

Firms developing sales training methods offer systems variously called consultative selling, customer oriented selling, lifestyle or behavioral selling.

Jack Snader, president of Systema Corp., a Chicago marketing and management consulting firm, teaches various selling methods, but Snader says lifestyle selling has the broadest use.

His company has sold systems to life insurance, health care and data processing companies. Sales training methods are based on recognizing four distinct types of customer personalities and tailoring the sales approach and appeal to fit each.

The personalities are defined as: — *The driver*, the customer who has to be in charge. He or she wants to get right to the point and looks the salesperson right in the eye. The driver is quick to take risks. To deal with him, the salesperson must be logical and efficient and quick to offer options — and must avoid becoming personal or emotional.

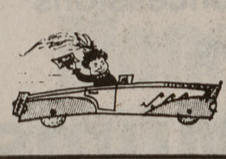
— *The expressor*, a customer who has a need for recognition of his or her importance and is likely to be excitable and a bit dramatic. Expressors use facial expressions and body movements freely. The sales-

person should never push the expressive customer for a quick decision.

— *The amiable customer*, one who wants to be accepted by everyone and is not eager to get down to business. Usually this customer sits back and looks relaxed. The salesperson must be very patient and cultivate a personal relationship. The salesperson should try to get the customer more interested in him or her

than in what's being sold, Snader said.


— *The analytical type*, another case that demands great patience, precisely accurate information and ample evidence to back every claim. Analyticals are recognizable by a tendency to speak slowly, stick to facts and be sticklers about time. They show little emotion and often avoid eye-to-eye contact with those they are conversing with.


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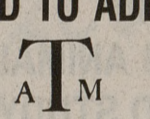

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