

High-school students shun careers in physics

As part of an attempt to determine what the prospects for future undergraduate physics majors in our institution might be, the physics department at our institution undertook an extensive survey of high-school students in the Metro-East St. Louis area. Over 1500 students in advanced mathematics, chemistry and physics classes were surveyed in 18 high schools ranging in size from about 200 to 3000 total students. The results suggest that university physics departments might do well to adopt much more flexible curricula if they are to survive in the years ahead.

While a detailed copy of this report is available by writing to the address below, some brief findings are stated here:

- 1) The average GPA of this "select" group of students was 3.2 out of 4.0, and about 90% intended to go to college.
- 2) Only about 1.3% indicated they wanted to major in physics; this compares with about 3.2% in chemistry and 8% in mathematics. The percentage of indicated majors for significant discipline responses is indicated in the table.

About 35% of this group had taken a first course in high-school physics and only about 7% had completed an advanced course. These percentages compared with 75% who had completed a high-school chemistry course. Even more, about 80% had taken algebra and geometry. The number of students who had taken trigonometry was about the same who had taken the first-year physics course.

A few questions on attitudes toward science and career plans were included

Majors chosen by high-school students

Discipline	Percentage of prospective majors
Science	11%
Math	8%
Engineering	5%
Medicine	4%
Biology	3.5%
Nursing	3.5%
Business	3.5%
Chemistry	3.2%
Law	3%
Education	3%
Music	2.5%
English	2.5%
Psychology	2%
History	2%
Physics	1.3%

in the survey form. About 40% of the students surveyed said they "liked science"; another 50% described it as "hard but interesting" or "not bad." About 40% indicated that they planned to earn an advanced degree in some field.

While physics departments will clearly continue to play an important service role for the science majors above, it would appear that they would do well to become involved in much more serious interdisciplinary and multidisciplinary efforts even at the undergraduate level. Broader physical science and applied physics majors would appear to have some appeal to many "undecided" students.

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called "water dowzers" and "diviners" and concluded that some sort of an electromagnetic-wave phenomenon was involved. Instrumentation checks by Tromp in the early 1940's indicated that some legitimate "dowzers" and "diviners" not only appeared to be able to detect underground running water in geologically unpromising areas, but also apparently possessed a magnetometer sense and were able to detect buried and wall-encased pipes and cables. This was later verified with laboratory magnetic solenoids and endocardiographs. Later, much to his surprise, he found some of them were able to detect passive targets such as earth faults, where abrupt changes in soil-resistivity existed. This implied a possible remarkable "proximity-detector" capability via either their own reflected body bioelectric field or thermal radiations. This, in turn, suggested that water "dowzers" are able to detect the underground-stream wet-soil boundary and an electric charge developed by the running water, thus verifying Maby and Franklin's conclusions.

Some casual experiments conducted by the writer many years ago with routine electronics equipment and so-called "psychic" individuals indicated that, while normal physical effects appeared to be involved, poorly understood and abnormally sensitive natural sensory apparatus seemed to be at work.

Poisonous snakes, insects and insect-catching plants have been shown to possess infrared senses. The moth's antenna have been shown to be efficient dielectric-array infrared "eyes." Rather startling electronic instrumentation checks by C. Backster showed that even plants possess some kind of intelligence awareness and telepathic senses. Some human "psychics" such as Rudi Schnieder and Kuda-Bux seemed to have been equipped with infrared "vision" and electric and telepathic senses. Ehrenwald, the psychiatrist, mentioned strange "synchronous" dreams between himself and some of his patients. An internationally-known inventor and a biomedical researcher both made random radio-wave "jammer" tests on a well known "medium" and successfully cut off her "contact" in synchronism with the jammer signals, while she was in her trance state. Sharks have just

Teleneural physics

As R. A. McConnell pointed out in his letter in the May issue (page 13), W. Franklin's "teleneural" suggestions have been anticipated. The Italian medical researcher, F. Cazzamalli, was one of the earliest pioneers in this field, having published biological-radiation papers in the medical journal *Neurologica* about a half century ago. Back in 1946 S. W. Tromp, of the geology department of the University of Leiden in

Holland, referred to it in his book as "psychical physics." Soviet scientists have used the term "biological radiations" in their work. Other technically qualified investigators in this field (many of them well known inventors, electronics engineers, biologists, biomedical researchers, geologists, psychologists, etc.), have used the more familiar terms "parapsychology" and "ESP phenomena."

In the 1930's, the British team of Maby and Franklin investigated so-