

ordinary bench chemistry, the characteristic spectrum of microwave radio frequencies it emits, by which it can be recognized, was unknown. The first task therefore was to synthesize it under special laboratory conditions so that it could be held long enough to study its microwave emissions. This is what the Sussex group was doing.

As the days hastened on last month toward the time the Hertzberg Institute people had reserved for use of the Algonquin Park equipment, Kroto crossed the Atlantic to be in Canada for the observations. At that point his collaborators had not yet completed the laboratory work. As McLeod tells the story, the observations were already in progress when Kroto got a transatlantic telephone call telling him the frequency to look for. The observers looked and found the compound.

Cyanotriacetylene, based on a chain of seven double-bonded carbon atoms, has a molecular weight of 99. Its discovery follows that of cyanodiacetylene (HC_5N), announced 14 months ago (SN: 2/28/76, p. 132). The next in the series to look for is HC_9N , which has a nine-carbon chain. Actually, says McLeod, the chemists have a more proper name for cyanotriacetylene—cyanoheptatriene—and that is the name the observers will probably use when they publish the result, which they hope to do soon, probably in *ASTROPHYSICAL JOURNAL LETTERS*.

From there, the road is onward and upward. The simplest amino acid is glycine, and every practicing molecular astronomer would like to be the one to find it in space. A group at Monash University in Australia is already working out glycine's microwave spectrum. □

Brain hears, learns what it wants

It has been said that people hear only what they want to hear. Now, in work with rabbits at the University of Texas, psychologist Michael Gabriel reports that the brain frequently *does* hear what it wants to, and virtually ignores "other signals that have had little meaning in the past."

Gabriel utilized various tones, some of which preceded an action such as the administration of a shock, and others that did not. During such training, the psychologist reports, auditory input pathways are altered "so as to facilitate the transmission of important sounds and hinder transmission of unimportant ones."

His results also indicate that learning does not take place in one area of the brain, but progresses from the outer layers to the inner core as learning progresses. Initial learning takes place in the cortical area, then "after considerable training," is apparently passed on to the thalamus in the core of the brain, says Gabriel. □

Lab grows sleeping sickness parasite

Sleeping sickness, a painful and often fatal disease, has reigned over a wide belt of tropical Africa since ancient times. Each year this disease, called trypanosomiasis, attacks more than 10,000 people and kills hundreds of thousands of domesticated animals. It prevents livestock production in vast and fertile areas of Africa.

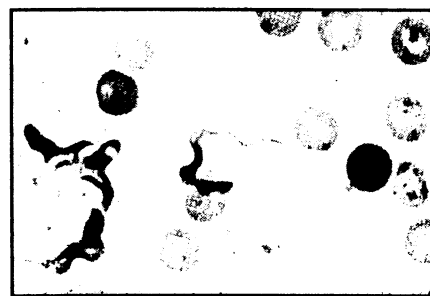
The parasites responsible for African sleeping sickness have proved to be evasive adversaries (SN: 1/18/75, p. 44). These single-celled protozoa have a complex life-cycle spent partly in the tsetse fly and partly in the mammalian bloodstream. While in the fly, the trypanosome has a stumpy, noninfective form, but after being injected into a mammal by a tsetse-fly bite the parasite is slender and infective.

Despite numerous attempts over the last 70 years, investigators have been unable to maintain the infective form of the parasite outside a host animal. If infective trypanosomes cannot be grown in the laboratory, it is impossible to obtain large numbers of organisms to use in developing a vaccine or drugs or in examining the basis for the trypanosomes' troubling characteristics.

Researchers working at the International Laboratory for Research on Animal Disease (ILRAD) in Nairobi, Kenya, have now developed a method of growing the infective form of a trypanosome outside a host animal. They work with *Trypanosoma brucei*, which infects cattle and is closely related to the human parasites. With their new method, Hiroyuki Hirumi and John J. Doyle have kept infective trypanosomes in seemingly good health for almost a year after isolation from infected animals.

Their novel method mixes the techniques for growing protozoa and for culturing tissue cells. The trypanosomes thrive best in a soup containing cells grown from cattle blood for several generations in the laboratory. The normal function of those mammalian cells is not known. This type of procedure might also be useful to researchers of other diseases, points out John A. Pino of the Rockefeller Foundation and chairman of the board of trustees of ILRAD.

With the new culture method, researchers may be able to discover the mechanism by which the parasite so successfully eludes the host defense system. An animal's immune system recognizes invaders by their surface proteins, called antigens. The trypanosome parasites, however, continually switch disguises. When the body has wiped out the organisms exhibiting one antigen, a wave of trypanosomes with slightly different antigens arises. In the laboratory, researchers have observed trypanosomes of as many



Slender parasites in infected rat blood.

as 40 different surface antigen types arising from a single parent cell, says immunologist Carter L. Diggs of the Walter Reed Army Medical Center. Most researchers think that these changes result from different genes being expressed, but no one knows what controls them. The researchers in Nairobi are now attempting to observe the antigens as the parasites switch from the mammalian bloodstream forms to the insect forms and back again. An understanding of this mechanism could also contribute to the problem of control of gene expression during development of more complex organisms.

Although the immediate development of drugs or a vaccine is still far from certain, a major step has been taken. "what is important is the fact that we now have the organism to study and tear apart," Pino says. □

Television violence: A call to arms

As evidence continues to build up that TV violence may harm the mental health of children (and some adults), behavioral scientists are escalating their drive for "more responsible" programming. With some prodding by TV consumer advocate Peggy Charren and the National Citizens Committee for Broadcasting (NCCB), massive organizations such as the American Medical Association and the American Psychiatric Association are expressing public concern over video violence and its potential effects. Last fall, the NCCB's rating of advertisers who most often sponsor violent programs embarrassed a number of ad executives and their companies. Chevrolet most frequently sponsored violent programs, according to the study, followed by Whitehall Labs (Anacin), American Motors, Sears-Roebuck and Eastman Kodak. Those sponsoring the least violent programs included Peter Paul, Hallmark, Texaco, Whirlpool and Prudential.

Last week at the American Orthopsychiatric Association's annual meeting in New York, Charren, NCCB's Ted Carpenter and others called for a continued outcry

from the association's thousands of psychiatrists, psychologists, social workers and other professionals. "It's time for a call to arms," says Michael Rothenberg of the University of Washington medical school. "We need a concerted effort toward major program revisions that are more stimulating and less violent."

Antiviolence advocates use a wealth of study results to back up their pleas. Some of the latest findings, presented at the meeting, come from the seventh year of a study of second to tenth graders by the University of Minnesota's Institute of Child Development. Since 1970, some 5,000 youngsters have participated in the laboratory study by undergoing tests of attitude and cognition before and after viewing various commercial TV programs. The results so far indicate that while television can, and does, transmit physically violent acts on the screen, it does little to convey their meaning or consequences.

"TV producers argue that it's all right to show violence, if you also show the consequences," says Minnesota's Andrew Collins. "But we're seeing that the

kids do not connect the acts with the consequences." Questionnaire results also show that many of the children "often do not understand the context in which the violence occurred," Collins says. "They do not understand the feelings and motives of the characters."

Collins's work further shows that a child who does not understand the violence he sees is more likely to be aggressive than if he does understand the scene's consequences. (Such children, when placed in hypothetical situations where they could help or hurt someone, more often chose to hurt.)

A summary of other recent TV studies, presented by Harvard associate professor Aimee Leifer, also indicates that:

- Children do learn what they see.
- Frequent viewers of televised violence are more likely to remain passive bystanders to real-life violence.
- Such viewers are likely to over-estimate the prevalence of violence in society.
- The older a person is, the less influence TV violence has on his life. "But it looks as though [TV violence] does affect aggressive behavior," Leifer says. □

Avant-garde parents: 'Traditional' infants

It's been about a decade since a faction of young Americans first decided to break away from the traditional marriage system. It started in the late 1960s with communal living, and subsequently focused on other types of unorthodox family styles such as unmarried "social contract" couples and single women who chose to have babies but not husbands. This trend, combined with a movement toward childless families and increased women's rights, has contributed to the recent U.S. Department of Labor estimate that only 7 percent of American families fit the traditional formula of a married father and nonworking mother, with two children.

But what of the children of these new generation families? Have their parents' rejection of tradition affected their development in American society? For the past four years, the Family Lifestyles Project of the University of California at Los Angeles's Neuropsychiatric Institute has been gathering data on 150 alternative families and comparing them to 50 traditional living groups. In the first such study of its kind, the children have been followed since the third trimester of pregnancy, and will be tracked until they are about five and one half years old.

Now that all 200 children have been studied through at least one year, the project released its first formal findings to that point last week at the American Orthopsychiatric Association's annual meeting in New York. With some admitted surprise, the researchers report almost no difference between children of traditional and various forms of nontraditional fami-

lies. Furthermore, they found that despite the philosophical differences among the parents, parental upbringing during the first year did not vary appreciably. Indeed, they discovered that in most cases, it was the child's presence that molded the parents' behavior.

However, preliminary data on the youngsters from 18 months to 3 years of age points to possible differences between groups as the child gets older.

The UCLA team is studying four types of living styles: communal, social contract, single mothers (by pre-choice, not divorce or separation) and standard, two-parent marriages. The living groups—50 in each category—were selected randomly from throughout California. However, for uniformity reasons, only parents from either middle or stable working class backgrounds were selected. "We were interested in persons who chose alternative lifestyles for ideological reasons," says Jerome Cohen, a project investigator from UCLA's School of Social Welfare.

Some half dozen tests and interviews were performed during the child's first year, but the key measurement was the Ainsworth "ABC" test designed by Mary Ainsworth at Johns Hopkins about 10 years ago. During the procedure, the child is placed in a room with its mother, and at various intervals, the mother departs, leaving the youngster either alone or with a stranger. If the child barely notices the mother's departure and continues to play independently, it is classified as an A type. If there is a "clearcut," but not exaggerated, separation anxiety, then the child is a B (Ainsworth identified this category as

the most normal). If the youngster becomes extremely upset, to the point where it bitterly shuns the mother upon her return, the child is a C, or poorly adjusted.

The researchers report absolutely no difference in the test results either between the alternative lifestyle children and the traditional youngsters or among any of the groups. In each category, about 15 percent of the youngsters were A, 77 percent were B and 8 percent were C. This was particularly unexpected, because the amount of time a mother normally spent with her child varied considerably between and among each of the categories. Neurological and intelligence tests also yielded few differences.

"What we found, at least in the first year, is that children can't simply fall into pigeonholes," Cohen says. "The [parents'] lifestyles can't really define the children during that period. In fact, it's the child that has more of an effect on the environment than vice-versa."

There were signs that it is the infant who alters the adult during the first year, no matter what the parents' ideological stance. Even in communal, and the supposedly egalitarian social-contract marriages, the mother was the primary caretaker of the child in 95 percent of the families. "We expected the father to play a larger role, particularly in the social-contract situations," says Bernice Eiduson, chief investigator of the project. "We imagined the fathers would be at home more." The results were similar in communal situations, even though the child was exposed to more adults. Also surprisingly, "the alternative mothers wanted to be at home more with the kids than did the traditional mothers," Cohen notes.

The researchers suggest that traditional mothers have been more affected by the women's movement because they already have the support of a family, and unlike the others in the study, had yet to break with accepted practices in some way. They also theorize that under the pressure of caring for the newborn, even the most radical of young women "tend to fall back on their middle-class experience." One-third of those in the study who started out in communes have moved out since and are now living in two-parent situations. There have also been changes in status of lesser percentages in the other groups.

The project, funded by the National Institute of Mental Health and the Carnegie Corporation of New York, is beginning to look at youngsters at 18 months and 3 years. More pronounced differences are expected to show up at those ages, "as the child begins to verbalize and symbolize," Cohen says. Preliminary indications already point to some possible differences among alternate lifestyle youngsters, primarily in the direction of more independence from the parents. "This may be something we'll see, but we don't want to say for sure yet," says one of the researchers. □