

# The Month at Caltech

## *Missed Alliance*

An idea that warmed the blood of undergraduates and stirred up heated debate among faculty members faded last month when the board of trustees of Immaculate Heart College decided to proceed with its original plan to move the campus of the Catholic liberal arts girls' school from Hollywood to Claremont.

The IHC plans—developed over the past five years—to associate with the Claremont Colleges were interrupted last December by an enthusiastic invitation from some Caltech undergraduates and faculty members to move next to the Institute campus in Pasadena.

In January the *Los Angeles Times* reported that “conversations are under way between Caltech and Immaculate Heart College that could lead to a future alliance.” Although no merger between the two schools was ever contemplated, the sale to IHC of some Caltech land on the northwest corner of San Pasqual St. and Wilson Ave. could have facilitated the exchange of students in certain classes, and would have made the girls of IHC more available for social contacts with Caltech students.

But Caltech could not make even this limited kind of commitment without long-term evaluation, and IHC was faced with deadlines relating to federal grants and loans, as well as a pressing construction schedule at Claremont.

Sister Helen Kelley, president of IHC, in reiterating her school's intentions to move to Claremont, said on January 27: “Whether anything beyond the very useful cooperation which now exists between Caltech and IHC would have

developed from prolonged discussions is impossible to say. That IHC and Caltech know one another better and for the most part appreciate more one another's goals and procedures can only be considered as mutually advantageous and reason enough to continue to discuss other means of cooperation in the future.”

## *Conference No. 1*

“As part of our effort to find ways in which to solve the problems of the nation and the world—particularly those for the creation of which science and technology must bear a substantial responsibility—we plan to hold during 1970 a series of four conferences, each in its way exemplifying an interaction between science and technology on the one hand and human behavior and society on the other.”

President Harold Brown made this announcement in his inaugural address last October. Now the first of the four conferences has been set for March 16-18, when the Institute will bring scientists from the U.S. and Canada to the campus to discuss the Biological Bases of Human Behavior.

Robert L. Sinsheimer, chairman of the division of biology, is in charge of the conference. Speakers include:

Jane Lancaster—The Evolution of Human Tool-Using Behavior

Harry F. Harlow—Induced Psychology in Monkeys

David Hamburg—Recent Evidence on the Evolution of Aggressive Behavior

David Koehne—Evolution of Primate DNA

Carleton Gajdusek—Physiological and Psychological Characteristics of Stone-Age Man

Kennedy McWhirter—Socio-genetic Influences on Chromosome Complements  
F. R. Sergovich—Population Cytogenetics and Behavior

John Money—Cytogenetic Psychology  
I. Michael Lerner—Polygenic Inheritance and Intelligence

Arthur R. Jensen—The Heritability of Intelligence

Irving I. Gottesman—Genetics and Psychopathology

Richard Lewontin—The Nature of Human Variation

Samuel Bogoch—Individual Variability of Nervous System Proteins

Bert LaDu—Genetic Variations in Drug Metabolism and Drug Response

William Nyhan—Human Purine Metabolism and Behavior

R. Luchsinger—Inheritance of Speech and Speech Defect

Barton Childs—The Genetics of Reading Disability: Present and Future

Admission to all sessions is free, and tickets are available from R. L. Sinsheimer in Caltech's division of biology.

Future conferences will cover Technological Change and Population Growth (May 6-9), Technological Change and Human Environment (October 21-23), and Technological Change and Economic Development (December 2-4). Over-all chairman of the conference series is Harrison Brown, professor of geochemistry and of science and government.

## *Birthday Party*

“I thought I was in on—if not in charge of—the wheeling and dealing in astronomy,” says Jesse Greenstein, “but three of my former post-docs set up the whole symposium, and I didn't suspect or hear a thing. It got started because I went around feeling sorry for myself, saying that I was suddenly old and that astronomy was therefore dying.”

Greenstein, professor of astrophysics, staff member of the Hale Observatories, and executive officer for astronomy at Caltech, was surprised with a symposium on “The Chemical History of the Galaxy,” held on the campus on January 12 and 13 in honor of his 60th birthday. The organizers were George Wallerstein, chairman of the astronomy department of the University of Washington; and two staff members of the Hale Observatories—Wallace Sargent, associate professor of astronomy at Caltech, and Leonard Searle.

The symposium guest book was signed by 120 people, about 50 of whom had worked with Greenstein at Caltech. Expenses were covered by a grant from the U.S. Air Force Office of Scientific Research, which has been supporting Greenstein's work on stellar abundance determinations and nucleosynthesis for many years.

About half of the papers were devoted to the chemical compositions of stars and especially to the significance of astro-

nomical evidence for differences depending on the age of the star and to the nuclear explanation of changes of composition from star to star. The rest of the papers discussed theories of the origin of the chemical elements inside and during explosions of the stars, and made comparisons of the theories with the observed facts about the composition of stars.

One basic issue emerged from the papers and led to some spirited discussion: whether or not the continued nuclear reactions in stars have played a large part in the production of chemical elements. The view of most Pasadena astronomers and physicists, described by Greenstein as the "Caltech dogma," is that stars differ substantially in their chemical composition, and this reflects large amounts of activity in still older stars. In opposition,

A. Unsold of Kiel University (Germany) pointed out how amazingly alike most of the stars are in our own and other galaxies, which he interprets to mean that perhaps all the chemical elements were made in violent explosions at essentially the same time—at the beginning of star formation.

"Geochemical Clues to Nucleosynthesis," a paper by Gerald Wasserburg, professor of geology and geophysics at Caltech, included pictures of the Apollo 11 moon rocks and studies of their composition and age. The high accuracy attainable when one can actually handle the material prompted William Fowler, professor of physics and spiritual father of nucleosynthesis theory, to note wryly that in the 22 years he and Greenstein have worked together at Caltech they have collaborated on only two papers—

and Wasserburg's report convinced him that both papers were wrong.

Greenstein says that the symposium left him with the general feeling that 60 is not too old, that the study of nucleosynthesis in relation to the evolution of the Galaxy is still a lively subject, and that almost all of the major problems are still unsolved.

*A most happy fellow at the symposium in honor of his 60th birthday is Jesse Greenstein, flanked on his right by Rudolph Minkowski, retired staff member of the Hale Observatories, and on his left by Albrecht Unsold of the University of Kiel and by William Fowler of Caltech.*



## Nobel Dinner

At an Athenaeum dinner on January 26, the Caltech faculty honored its two 1969 Nobel Prizewinners—Max Delbruck, professor of biology, who shared the prize in physiology and medicine; and Murray Gell-Mann, Robert Andrews Millikan Professor of Theoretical Physics, who received the prize in physics.

The prizewinners, just back from Sweden, were welcomed and congratulated formally by President Harold Brown and by Robert Christy, chairman of the faculty.

“The unique luster of a Nobel Prize,” said Christy, “illuminates its surroundings in a reflected radiance that multiplies it many times. Each institution that has had any association with a Nobel Prizewinner claims him. Thus Murray is no doubt claimed by Yale, MIT, Chicago, and Caltech—not to mention Churchill College, Cambridge, and the Institute for Advanced Study in Princeton, where he spent sabbaticals. Similarly Max will be claimed by Göttingen, Bristol, Copenhagen, Zurich, the Kaiser Wilhelm Institute, Vanderbilt, and Caltech.

“We are of course particularly happy that Caltech is included in these lists, and that they are here now. We all bask in the reflection of the honors awarded them.”

The following adaptation of Max Delbruck’s remarks reflects his own opinion about these honors.

I have led a very simple and har-

monious life. Ever since my earliest youth, it has been my favorite pastime to impersonate the distinguished lovable old windbag. Now that I *am* a certified distinguished lovable old windbag, I have no difficulty at all in conforming to this role. One of the aspects of this role is that nobody can stop me, however long I talk. So I want to get a few things that I think worthwhile off my chest.

Now, what is this Nobel Prize business all about really? Our dear friend Richard Feynman four years ago gave a marvelous lecture on this subject. And the impression that I came away with from his lecture was that the Nobel Prize is the world’s greatest publicity stunt. After all, what does it amount to? By some random selection procedure, you pick out a person, and you make him an object of a personality cult.

My thesis is—and I think that most of you would agree to it—that there are no geniuses, that all of us, first we are funny young people, and after a while we are funny old people. And in between, each of us is trying to make the best use of the exceedingly limited knowledge we have. Moreover, one of the illusions, which I find especially perplexing, is that even if Mr. X’s personality represents a true value within his own ivory tower, it does not follow at all that he has a message for TV audiences.

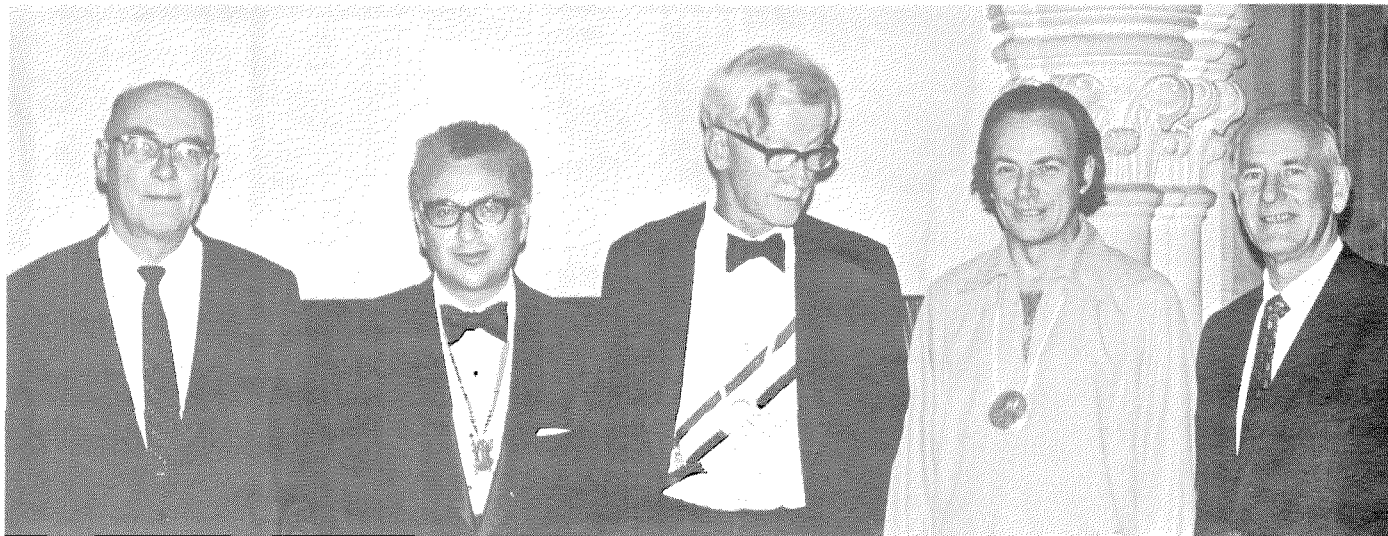
I want to talk about the reactions of the laureates to this situation.

At the Nobel ceremonies a strange psychological situation developed. Of

course it’s not only scientists who get the prize; a literature prize is also handed out at this occasion. It is quite rare that scientists are asked to meet with artists and are challenged to match the other’s creativeness. Such an experience may well humble the scientist. The medium in which he works does not lend itself to the delight of the listener’s ear. When he designs his experiments or executes them with devoted attention to the details, he may say to himself: ‘This is my composition; this pipette is my clarinet.’ The orchestra may include instruments of the most subtle design. To others, however, his music is as silent as the music of the spheres.

He may say to himself, like Thucydides, ‘My story is an everlasting possession, not a prize composition which is heard and forgotten,’ but he fools only himself. The books of the great scientists are gathering dust on the shelves of the learned libraries. And rightly so. The scientist addresses an infinitesimal audience of fellow composers. His message is not devoid of universality, but its universality is disembodied and

*Joining new Nobel Laureates Gell-Mann and Delbruck (second and third from left) at a dinner in their honor on January 26 were three other Caltech Nobelists—physicists Carl Anderson and Richard Feynman, and trustee George Beadle, former biology division chairman at Caltech and retired president of the University of Chicago.*



anonymous. While the artist's communication is linked forever with its original form, that of the scientist is modified, amplified, fused with the ideas and results of others, and melts into the stream of knowledge and ideas which form our culture.

The scientist has in common with the artist only this—that he can find no better retreat from the world than his work, and also no stronger link with the world than his work.

When, at the Nobel ceremonies, scientists are brought together with a writer, the scientists can look back on their lives during which their work addressed a diminutive audience, while the writer (in this case Samuel Beckett) has had the deepest impact on men in all walks of life. We find, however, a strange inversion when we come to talking about our work. While the scientists seem elated to the point of garrulousness at the chance of talking about themselves, like I am doing now, Samuel Beckett, for good and valid reasons, found it necessary to maintain a total silence with respect to himself, his work, and his critics. He did not even turn up. He did not even give an excuse. He sent word that he was unable to attend. He did not say he had a funeral or a dentist appointment; he just didn't turn up. We must realize that he was acting in accordance with the rules laid down by the old witch at the end of a marionette play entitled *The Revenge of Truth*.

"The truth, my children, is that all of us are acting in a marionette comedy. What is important more than anything else in a marionette comedy is keeping the ideas of the author clear. This is the real happiness in life. And now that I have at last come into a marionette play, I will never go out of it again. But you, my fellow actors, keep the ideas of the author clear—yea, drive them to the utmost consequences."

Of course there were many parties in Stockholm, and in this connection I found one thing troubling. While the aspects of publicity and randomness were very obvious to all of us, it was also clear that the Swedes themselves took enormous pride and pleasure in their parties. And they were wonderful parties, just because our hosts took so much pleasure in them. That was one of the great surprises. Even the Royal Family obviously did not

consider this a chore, but their big occasion.

So what do you do about that? I found another quote that I want to read, in a story where a young Italian girl and a Danish nobleman are talking about love and about parties. The girl says: "I suppose that even in your country you have parties, balls, and conversazione? (This is taking place in Italy.)

"Yes," he said, "we have those."

"Then you will know," she went on slowly, "that the part of a guest is different from that of a host or hostess, and that people do not want or expect the same things in the two different capacities."

"I think you are right," said Count Augustus.

"Now, God," she said, "when he created Adam and Eve, arranged it so that man takes in these matters (in the matters of love) the part of a guest, and woman that of a hostess. Therefore man takes love lightly, for the honor and dignity of his house is not involved therein. And you can also surely be a guest to many people to whom you would never want to be a host. Now tell me, Count, what does a guest want?"

"I believe," said Augustus when he had thought for a moment, "that if we do, as I think we ought to here, leave out the crude guest, who comes to be regaled, takes what he can get, and goes away, a guest wants first of all to be diverted, to get out of his daily monotony or worry (and we certainly did in Stockholm). Secondly, the decent guest wants to shine, to expand himself, and to impress his own personality upon his surroundings. And thirdly, perhaps, he wants to find some justification for his existence altogether. But since you put it so charmingly, Signorina, please tell me now: What does a hostess want?"

"The hostess," said the young lady, "wants to be thanked."

The Stockholm festivities, at which my fellow laureates and I were entertained with such incomparable grace and splendor, left one thing wanting, which I found disturbing. In some cases it was difficult to identify the hostess to whom I would wish to express my thanks.

Now, this dinner tonight is the last of the parties that are going to be given in this connection. And, again, I find it difficult to define a hostess. So, whom

should I thank? It would perhaps seem trivial to say you thank your wife for having been your hostess for the last 30 years, or all women in your life, starting with your mother. But I guess that is what it must be. So, in this sense, I'll conclude.

### *Alexander Goetz*

Alexander Goetz, 72, retired associate professor of physics, died of cancer on January 12 at his home in Altadena. The physicist, who joined the Caltech faculty in 1930 and retired in 1966, specialized in studying how aerosols pollute the atmosphere.

Goetz was educated in his native Germany and was a Rockefeller fellow at Caltech from 1927 to 1930. He held about 40 patents, many for devices for studying microscopic smog particles.

### *Awards and Appointments*

WILLIAM A. FOWLER, professor of physics, has been named winner of the American Physical Society's 1970 Tom W. Bonner Prize for nuclear research in astrophysics. The \$1,000 award is for leading and stimulating laboratory studies of the nuclear processes in stars, thus increasing man's understanding of the origin of the elements and of the evolution of stars.

NORMAN BROOKS, professor of civil engineering, is one of the initial 16 members of a Science and Technology Advisory Council established by the California State Assembly to act as an "early warning device" for identifying state problems. The Council, the first of its kind among the states, is expected to concentrate on problems of environment, urban development, criminal justice, and health.

Brooks is noted for engineering activities related to environmental control, particularly in oceans and lakes. He has served Ventura, Los Angeles, Orange, and San Diego Counties as a consultant on problems of ocean outfall facilities for sewage disposal. Last year he was a member of the President's Panel on Oil Spills. At Caltech he is currently coordinating development of a curriculum in environmental engineering science.

## *Weigle Lectures*

The first Jean Weigle Memorial Lecture at Caltech was given February 2 by Herman M. Kalckar, professor of biological chemistry at Harvard Medical School. Kalckar has made extensive studies of biochemical genetics in man and microorganisms with special reference to galactose metabolism. A recent extension of this work correlates diverse aspects of the physiology of bacteria, and this phase of his research was the subject of his Weigle lecture.

Memorial lectureships at both Caltech and the University of Geneva were established by friends and colleagues of Jean Weigle after his death in December 1968. Weigle, who was head of the physics department at Geneva for 17 years, left there after suffering a heart attack in 1948. When he visited Caltech's physics department in 1950, the physicists referred him across the campus to physicist-turned-biologist Max Delbruck, and Weigle became a member of Del-

bruck's Phage Group. Among his early contributions to their research was the introduction of the possibilities of the electron microscope—which made possible some important discoveries in molecular biology.

The first Weigle Memorial Lecture in Geneva was given last October 27 by Caltech biologist Robert Edgar (now provost of College Number 6 at the University of California at Santa Cruz), who worked closely with Weigle at Caltech for more than ten years. Edgar's topic, "Blueprint for a Virus," summarized the work done in isolating conditionally lethal mutations in defective genes in bacteriophage—work that underlies current research on the molecular basis of heredity. That work, says Edgar, reflected Weigle's guiding influence both in scientific contributions and in elegant and precise research techniques. "He was a bridge," Edgar says, "between Caltech and the University of Geneva. For almost 20 years he fostered a continuous two-way traffic in ideas, people, and scientific accomplishment—a really reciprocal brain-drain."

## *Movable Deanery*

*When Robert Huttenback was promoted from master of student houses to dean of students, he had to move his office from centrally located Lloyd House to the first floor of Throop Hall. Once there, he found that about the only time students ever dropped in to see him was when they were summoned—hardly the makings of friendly chats. So Huttenback, in his usual direct way, took the dean's office to the students by setting up a doughnuts, hot chocolate, and good-talk shop in the Winnett Student Center plaza about once a week. Business is booming.*

