

There are now several cases in which heritable human diseases and even "allergies," abundant in many races, can be traced back to a particular enzyme defect. Gerty Cori's studies on the glycogen storage diseases represent the first demonstration that a human heritable disease stems from a defect in an enzyme. In the hepatic storage disease a specific phosphatase, glucose-6-phosphatase, is missing. In the more involved disease which affects the muscle system, Gerty Cori's observations were even more remarkable. To my mind the most fundamental aspect of this particular study is the demonstration of the existence of abnormal short-branched, glycogen, "limit-dextrin

(phosphorylase)," to use Gerty Cori's terminology, and its correlation with the absence (or defect) of the so-called debrancher enzyme, amylo-1, 6-glycosidase. The latter enzyme was also discovered by Gerty Cori. This outstanding piece of molecular biology was initiated early in 1950, stemming, of course, from Gerty and Carl Cori's earlier discoveries in this field. The demonstration that an aberrant architecture of a polymer is rooted in a well-defined enzyme defect still remains an unmatched scientific accomplishment. The ingenious enzymatic techniques employed here should be used as a teaching topic for students in biology, biochemistry, and medicine.

Gerty Cori was deeply interested in the broad aspects and implications of biological science. At the same time, she insisted on craftsmanship as the healthy basis for scientific work. She did not tolerate mediocrity or facile approaches in science. This is also reflected in the high demands that she made on her own labor. Her illness only served to intensify these demands on herself. She exercised the same intense and warm enthusiasm in her active concern about the future of free human society. We shall all deeply miss her crusading spirit.

HERMAN M. KALCKAR  
National Institutes of Health,  
Bethesda, Maryland

## News of Science

### Passport Decision

The U.S. Supreme Court ruled in a five-to-four decision on 16 June that a person cannot be denied a passport because of his beliefs or associations. This ruling invalidates the State Department's regulations denying passports to Communists, to persons who refuse to sign non-Communist affidavits, and to those whom the Secretary of State believes would in some way help the Communist cause and injure the best interests of the United States by leaving this country. The Court decided the three cases before it on grounds of lack of statutory authority and thus avoided constitutional issues.

The cases involved artist Rockwell Kent and two scientists: Walter Briehl, Los Angeles psychiatrist, and Weldon Bruce Dayton, a physicist of Corning, N.Y. Kent and Briehl, whose cases were considered together, refused to answer State Department questions about Communist affiliations. They said they wished to travel abroad for pleasure and for professional reasons.

Dayton, who wanted a passport to take a job at the Tata Institute of Physics in Bombay, India, was accused of association with Communist espionage agents. He denied the charges under oath, but the Secretary of State refused him a passport on the basis of confidential information. There was a possibility that

the Dayton case would provide a major test of the Government's constitutional powers to use secret informants. But the Court disposed of it on the statutory basis of the Kent-Briehl case.

*Majority opinion.* Justice William O. Douglas prepared the majority opinion. Joining him in the decision were Chief Justice Earl Warren and Justices Hugo L. Black, Felix Frankfurter, and William J. Brennan, Jr. Douglas wrote:

"Freedom of movement across frontiers in either direction, and inside frontiers as well, was a part of our heritage. Travel abroad, like travel within the country, may be necessary for a livelihood. It may be as close to the heart of the individual as the choice of what he eats, or wears, or reads. . . .

"Freedom of movement also has large social values. As Chafee put it, 'foreign correspondents and lecturers on public affairs need first-hand information. Scientists and scholars gain greatly from consultations with colleagues in other countries. Students equip themselves for more fruitful careers in the United States by instruction in foreign universities.' . . .

"[*Congressional intent.*] The difficulty is that while the power of the Secretary of State over the issuance of passports is expressed in broad terms, it was apparently long exercised quite narrowly. So far as material here, the cases of refusal of passports generally fell into two cate-

gories. First, questions pertinent to the citizenship of the applicant and his allegiance to the United States had to be resolved by the Secretary, for the command of Congress was that 'no passport shall be granted or issued to or verified for any other persons than those owing allegiance, whether citizens or not, to the United States.' . . . Second was the question whether the applicant was . . . engaging in conduct which would violate the laws of the United States. . . .

"The right of exit is a personal right included within the word 'liberty' as used in the Fifth Amendment. If that 'liberty' is to be regulated it must be pursuant to the lawmaking function of the Congress. . . . And if that power is delegated, the standards must be adequate to pass scrutiny by the accepted tests. . . . Where activities or enjoyment, natural and often necessary to the well-being of an American citizen, such as travel, are involved, we will construe narrowly all delegated powers that curtail or dilute them. . . .

"We must remember that we are dealing here with citizens who have neither been accused of crimes nor found guilty. . . . They may or may not be Communists.

"But assuming they are, the only law which Congress has passed expressly curtailing the movement of Communists across our borders has not yet become effective. It would therefore be strange to infer that pending the effectiveness of that law, the Secretary has been silently granted by Congress the larger, the more pervasive power to curtail in his discretion the free movement of citizens. . . .

"To repeat, we deal here with a constitutional right of the citizen, a right which we must assume Congress will be faithful to respect. We would be faced with important constitutional questions were we told that Congress . . . had given the Secretary authority to withhold passports to citizens because of their

belief or associations. Congress has made no such provision in explicit terms; and absent one, the Secretary may not employ that standard to restrict the citizens' right of free movement."

*Dissent.* Justice Tom C. Clark, who wrote the dissent, was joined in his opinion by Justices Harold H. Burton, John M. Harlan, and Charles E. Whitaker. Clark held that Congress had given the State Department ample authority to operate under its regulations. He traced the Secretary of State's broad discretion over passport issuance back to 1856 and found no limits on the Secretary's authority in the legislative history. Clark wrote in rebuttal:

"But the court then determines (i) that the Secretary's denial of passports in peacetime extended to only two categories of cases, those involving allegiance and those involving criminal activity, and (ii) that the Secretary's wartime exercise of his discretion, while admittedly more restrictive, has no relevance to the practice which Congress can be said to have approved in 1952 [the year possession of a passport for travel abroad became obligatory].

"Since the present denials do not involve grounds either of allegiance or criminal activity, the court concludes that they are beyond the pale of Congressional authorization. Both of the propositions set out above are vital to the court's final conclusion. Neither of them has any validity: the first is contrary to fact, and the second to common sense. . . .

"In a wholly realistic sense there is no peace today. . . . Were this a time of peace there might very well be no problem for us to decide, since petitioners then would not need a passport to leave the country. . . .

"Indeed, rather than being irrelevant, the wartime practice may be the only relevant one, for the discretion with which we are concerned is a discretionary control over international travel. Yet only in times of war and national emergency has a passport been required to leave or enter this country, and hence only in such times has passport power necessarily meant power to control travel."

In an article in the *Washington Post* Clark is quoted as saying that the decision is a "blow" to the national security. He further observed: "This decision in effect strikes down all travel control until Congress acts."

*Reaction.* In editorials approving the Court's decision, both the *New York Times* and the *Washington Post* urged Congress to respect the constitutional tradition of due process when considering further passport legislation. The Federation of American Scientists, which had assisted Dayton in the preparation

of his case, also released a statement expressing gratification and reminding Congress to frame any new statute with regard for the principle that the right to travel is guaranteed by the Constitution.

### Sputnik III Signal Recording

The Soviet Embassy in Washington has issued a request for sputnik signal recordings from foreign observers. The embassy's statement, which includes information about the satellite's radio transmission, says:

"The sputnik continues to transmit scientific information. Its Mayak radio transmitter, emitting telegraphic signals on a frequency of 20.005 megacycles, is operating normally. It is being powered by solar batteries, and by electrochemical batteries when the sputnik is moving in the earth's shadow.

"By changing the length of the telegraphic signals, information is being transmitted about the operation of the solar batteries and the quantity of cosmic particles and photons. The signals have been coded as follows: When the radio transmitter is fed by the solar batteries, the length of the first telegraphic signal which follows the marker, equal to 300 milliseconds, lasts 150 milliseconds. When the radio transmitter is being powered by the electrochemical batteries, it lasts 50 milliseconds.

"Recordings of the luminescent cosmic ray counter are transmitted by an alteration in the length of the second and third (the last) signals from 150 milliseconds to 100 or 50 milliseconds. The shift to the various lengths of signals, depending on the number of particles registered, is effected by a relay system. The intensity of the cosmic rays measured is determined by frequency changes in the signals.

"The results of the decoding of the recordings received from the Mayak transmitter indicate that the solar batteries and the cosmic particle and photon counters are functioning normally. The transmitter may be expected to continue functioning for some time unless the solar batteries are put out of commission by meteoric erosion.

"The data transmitted by the Mayak through its radio channel will be of great scientific value if they are registered over a long period of time and by many observers. That is why it is particularly important for the study of the variations of cosmic radiation and the distribution of cosmic particles along the energy scale that the recordings be located in time as precisely as possible (to within a few seconds), that they be continuous, and that the information received about the operation of the cosmic particle and photon counters be received from the

maximum number of localities situated in the various latitudes.

"Data on cosmic rays during the time the sputnik is in the earth's shadow are of particular value. The most favorable conditions for such observations at present are in the Southern Hemisphere—the Antarctic, Australia, South America, and South Africa.

"The U.S.S.R. Academy of Sciences would be very grateful to Soviet and foreign scientists and observers for magnetic or photographic plate recordings of the signals emitted by the Mayak transmitter with a specification of the time or a deciphering of these plates. Such information should be addressed to: Sputnik, Moscow."

### British Scientists

#### Petition Prime Minister

A group of 618 British scientists presented an appeal on 2 May to British Prime Minister Harold Macmillan, urging immediate action to halt the testing of nuclear weapons. The signers included 69 fellows of the Royal Society and 93 professors of science and medicine at British universities. Nobel Prize winner Sir John Boyd Orr; Sir Charles Darwin, former director of the British National Physical Laboratory; and Julian Huxley, who is former director of UNESCO, were among the signers.

The appeal said:

"Each added amount of radiation causes damage to the health of human beings all over the world and causes damage to the pool of human germ plasm such as to lead to an increase in the number of seriously defective children that will be born in future generations."

In a letter to the Prime Minister accompanying the appeal, Bertrand Russell wrote:

"I hope that this appeal from those most qualified to judge will be carefully considered by you together with the fact that a large majority of the British people are in favor of the suspension of the British tests. May I add that I personally feel that it is intolerable that Britain should continue its present series of tests, despite the suspension by the Soviet Government. A unique opportunity now exists to reduce the nuclear peril which confronts us all. I hope that you and your Government will accept the opinion not only of the many eminent scientists but of millions of ordinary people and call an immediate halt to the present series at Christmas Island."

Macmillan replied in a letter to Russell which rejected the appeal and said that it was essential "to rely upon the nuclear deterrent in order to prevent aggression." He continued: