

solute Mendelian ratios by isolating and growing the lineally arranged ascospores of a single ascus, used the fungus to define the phenomenon of "heterokaryotic vigor," and made many other fundamental contributions to the biology and genetics of this organism. In many respects Dodge's discoveries and views were well in advance of those of his time, and his findings had an important influence on the development of genetics, especially of microorganisms, and on biochemical genetics, for which *Neurospora* became so useful a tool.

He convinced T. H. Morgan of the potentialities of *Neurospora*, and Morgan took cultures with him when he moved from Columbia University to the California Institute of Technology in 1928. There, C. C. Lindegren, on Morgan's advice, undertook the preparation of a dissertation on *Neurospora* and spent the summer of 1930 in Dodge's laboratory, one of many students and colleagues who felt the impact of Dodge's ideas and enthusiasm.

At the New York Botanical Garden Dodge was responsible for the control of plant diseases and pests, a responsibility which he took very seriously, frequently supervising in person the spraying, dusting, and other control measures. He published research findings and observations on diseases of iris, Japanese cherries, pachysandra, roses, geraniums, cedars, marigolds, opuntias, delphiniums, and other ornamental plants and a text on diseases of ornamental plants.

His researches on *Neurospora* were an "extra," pursued while he carried on his official duties of plant pathologist and coped with limitations of time, assistance, and facilities uncommon in these days of substantial support of basic research. Routine media were frequently prepared by Dodge himself; individual ascospores were isolated by means of a sharpened sewing needle inserted in a simple wooden handle. It is, of course, fruitless to speculate on what he might have accomplished had he been less handicapped by lack of funds in his earlier years and more generously supported in his research later on.

Dodge's concern with fungi as causes of disease extended from plants to animals and man. From 1928 to 1939 he was consultant in mycology for the Presbyterian Hospital, New York City, and from 1929 on, was lecturer in dermatology for the College of Physicians and Surgeons, New York.

In his later years Dodge was intrigued by phyllotaxy, the Fibonacci series, and other expressions of design in nature, and with his usual enthusiasm he spent much of his spare time puzzling over them and directing the attention of his colleagues to their wonders.

Dodge's contributions to science were widely recognized. He was a member of Sigma Xi and of the National Academy of Sciences, fellow of the American Academy of Arts and Sciences and of the American Association for the Advancement of Science, foreign member of the Linnean Society of London,

and honorary member of the British Mycological Society. He received the Distinguished Service award of the New York Botanical Garden and the Golden Jubilee award of the Botanical Society of America.

Dodge participated willingly and effectively in the affairs of the various organizations to which he belonged. He served as associate editor of *Mycologia*; editor of the *Bulletin of the Torrey Botanical Club*; convener of the section on fungi and fungus diseases of the 3rd International Microbiological Congress; secretary-treasurer and president of the Torrey Botanical Club; president of the Mycological Society of America; vice-president of the 7th International Botanical Congress; and vice-president of the American Association for the Advancement of Science.

He was a big man physically as well as mentally. Blond, blue-eyed, fine-looking, he was over six feet tall and weighed 190 pounds. He was modest to an extreme, a bit shy, friendly, cheerful, good-natured, never bitter, and especially marked by his enthusiasm. Nothing pleased him more than to inspire in some beginner or colleague enthusiasm for the subject in which he took so great an interest, and few could resist him. He was inclined to be conservative in politics and was affiliated with the Episcopal church.

He is survived by his wife, Jennie Perry Dodge.

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Science in the News

Educating the Public: To Win Broad Support for His Program Kennedy Assumes the Role of Mass Educator

Last week the Administration's education program had become so enmeshed in the side issues of civil rights and religion that Chairman Powell, of

the House Education and Labor Committee, announced that unless the situation could be cleared up, the President's program was dead. At the same time it had become clear that the Administration's over-all program, including its plans for science, had become enmeshed in an education problem

of another and more general sort: the problem the Administration faces in educating the country as a whole to what it is talking about.

The paradox with which the Administration is faced is that, although Kennedy himself has made an exceedingly good impression on the country (a Gallup poll taken after his first 30 days in office showed him enjoying a popularity even greater than Eisenhower's at the same point of his Administration), nevertheless there seems to be no discernible ground swell of support for his program. Few people doubt either that if the election were to be held over again this week, Kennedy would beat Nixon by a much greater margin than he did in November, or that if Congress were to vote on

his program this week, large parts of it would be defeated.

The problem Kennedy faces is not merely convincing the country that his proposals to meet problems are sound but the deeper one of educating the country to an awareness of what the problems are. The central issue, and the one in which the problem of public education is clearest, is that of economics. Kennedy's message on budget revisions is not due until next week, but his over-all requests will apparently total at least \$5 billion more than was asked for in Eisenhower's budget. And this is only a beginning, for, particularly in the areas of education and natural resources, many of the proposals contain built-in increases for succeeding years.

The cost of the education program, if enacted, would, for example, double in three years, from \$770 million in fiscal 1962, beginning this June, to \$1.5 billion in fiscal 1964.

Even this is not all, for what the Administration has asked for so far is by no means all it feels it must ask for eventually, a fact that is suggested by Kennedy's repeated description of his programs as "modest." Large areas of the Science Advisory Committee's recommendations for support of basic research and higher education, for example, have not been dealt with so far ("... the Federal Government has no escape. Either it will find the policies—and the resources," the committee report said, "or no one will"). Kennedy's confidence in the men who made the recommendations is reflected in his appointment of Glenn Seaborg, who headed the panel which produced the report, to be chairman of the Atomic Energy Commission, and in his bringing McGeorge Bundy, the Harvard dean who was largely responsible for getting the committee's ideas down on paper in clear and forceful language, into the White House as a special assistant to the President.

Kennedy's Appointments

There is no reason to doubt that the President will move to put the view of the Seaborg panel into effect bit by bit, and this is only one of a number of sets of recommendations in which Kennedy has demonstrated his interest in very concrete fashion by putting their exponents into influential positions in his Administration.

Under Eisenhower, the budget, after an initial decline made possible mainly by the ending of the Korean War, grew

at a rate of about \$2 billion a year. Kennedy's program would require a rate of growth a good deal higher than the Eisenhower average; this makes his policies for economic growth not just one area of the Administration program but the central area, which, if the Administration's economic views are correct, will make the rest of the program possible.

Terms of Debate

Yet Kennedy has not so far succeeded in getting his Administration's view of the nature of the economic problem across to the public, although an initial effort to do so has been made. To date, despite the Administration's efforts, the debate over what to do about the economy has been dominated by the question of what to do about the current recession, although the current recession is not at all what the Administration is really concerned about, and a debate on these grounds is one the Administration is almost certain to lose by.

The Administration so far has not succeeded in convincing many people who were not already convinced before Kennedy took office that it is not enough for the economy to be going up, but that the *rate* at which it is going up is extremely important.

Problem of Growth

The Administration's view accepts the need to raise this rate of growth from the 2.5 percent we have averaged since 1953 to at least 3.5 percent, diagnoses the basic weakness in the economy as an insufficient demand for goods and services, and proposes to make up for the slack demand by running an unbalanced budget to pump extra money into the economy until it is completely back on its feet. The reasoning behind this was outlined here several weeks ago in a report on Kennedy's economics.

If the right to vote were limited to people with Ph.D.'s in economics, there is not much doubt that Kennedy would easily win heavy, although not unanimous, support for his views. If the Administration had a free hand to go ahead with its policies for several years and then ask the public to judge the results, it would, as Kennedy likes to say, "look to the future with some confidence." Since neither is the case, the Administration has a serious problem.

The Kennedy view is not a radical one. Deficit spending to stop a recession

has become a conventional remedy, as was demonstrated by the almost complete lack of any outcry when the Administration announced that it would consider a temporary tax cut if the recession proved worse than expected. What has not become conventional is the notion that stimulation of the economy is justified not only when the economy is in a clearcut decline but also whenever excessive slack appears, as measured, perhaps, by the rate of unemployment.

There have been signs of change, as when the Committee for Economic Development, made up of about 1200 business executives and university administrators, sponsored testimony before the Joint Economic Committee of Congress criticizing Eisenhower for balancing the budget in 1959, after the 1958 recession was over but before a vigorous recovery had been achieved. In the same vein, and before the same committee, Kennedy's Secretary of the Treasury, Douglas Dillion, said, "The problems of bringing about a prompt recovery, and more importantly, vigorous expansion, call for the stimulating potential of a larger Government budget. . . ." What is significant in such testimony is not the advocacy of government spending to stop a recession, which has become a conventional, if still widely unpalatable medicine, but the advocacy of government spending beyond the point where the economy has turned up again, in order to promote a vigorous recovery.

Congressman Thomas Curtis, a member of the Joint Economic Committee, who has become a leading critic of Kennedy's economic policies, argues, as his central point, that it is unreasonable to expect post-1953 rates of growth to be as high as pre-1953 rates, because the Korean War stimulated the economy before 1953. "You have to distinguish," he says, "between a war economy and a peace economy." "It should be common knowledge that the rate of economic growth measured in GNP can be stimulated by war and that it will relapse in peacetime." The Kennedy people see this, though, as an argument for their point of view: Why should we need a war, they ask, to have a vigorous economy? If spending for war is so effective in picking up the slack in the economy, then why not extra spending for schools and slum clearance and the rest of the Administration program to take up the slack during the weak periods of the economy in peacetime?

But there is a great difference, at least in terms of political tactics. When there is a war there is no argument about the need to spend the money, and therefore no occasion for justifying or opposing the spending in terms of what it might do for or to the economy.

During a recession, declining tax revenues produce a deficit whether the Administration or Congress wants it or not, and the only question is the size of the deficit.

The problem Kennedy faces is in asking for a deficit neither in war nor in recession but in fiscal 1962 and 1963, when the economy, it is assumed, will be on the upswing. To win support he must convince the country that the combination of the innate value of the programs on which the money will be spent and the importance of pushing economic growth add up to as compelling an argument for more spending as either the needs for arms programs in wartime or for government stimulation during an actual recession provide by themselves. This implies a great effort at public education. Walter Lippmann recently wrote a column arguing that the President must not only undertake to be the national leader but the national teacher, and the White House has let it be known that Kennedy will begin this task in earnest through a series of television broadcasts to begin within a few weeks.

The difficulty of the task must be measured by the degree of public understanding that already exists. Congressman Curtis' lengthy speech in the House attacking Kennedy's economics, for example, began with a demonstration that the rate of growth under Eisenhower was 4.6 percent a year rather than 2.5 percent a year as Kennedy has claimed.

Curtis arrived at this conclusion by the simple device of not bothering to take into account price inflation. He was aware of this, but apparently saw nothing wrong with it, for he describes the method by which Kennedy arrived at the lower 2.5 percent in a context that implies there was something sneaky about the way Kennedy's figures were adjusted to take into account price inflation.

What was more curious than Curtis' argument, which might be dismissed as questionable but widely used political tactics, was that a widely published middle of the road reporter wrote a column praising Curtis' "brilliant" presentation,

and in particular his demonstration that the rate of growth under Eisenhower was higher than Kennedy had said it was.

In a similar vein, Senator Goldwater recently argued that the Administration was exaggerating the recession. The Senator pointed out that although unemployment normally rises in January, contrary to the normal pattern the seasonally adjusted unemployment rate had actually declined this January. Unemployment had in fact gone up by a million in January, but Goldwater apparently did not choose to recognize the meaning of the term "seasonally adjusted."

This does not mean that there are not good arguments against Kennedy's proposals, especially philosophical ones dealing with the proper role of the government in a free society. But the frequency with which responsible figures make arguments that would flunk them in a freshman course in economics suggests the difficulty the Administration faces in getting across to the public the reasoning behind his proposals.

The Administration's greatest problem in economic policy is one that it faces almost everywhere in its program, and particularly in education. There is a wide gap between the ease with which it can get across the idea that something should be done and the ease with which it can get across the idea that although we are already doing a good deal we should be doing still more.

In economics, the Administration needs to get across the basis for proposing stimulation when the economy is growing and reaching new highs of output. This is a difficult notion to put across, while the contrary argument of why tinker with a system that produces new record highs almost every year is a very simple argument.

On another problem, the Administration's team of negotiators set off for the Geneva talks, resuming the 21st, after a round of luncheons and briefings intended to convince the Senate Foreign Relations and Atomic Energy Committees that the U.S. position at Geneva would be based on a tough-minded balancing of the risks involved in either reaching or failing to reach agreement, and that, therefore, if agreement is reached with the Russians, the Senate would ratify the treaty. Word leaking out of the briefings suggested that the effort was not entirely successful.—H.M.

News Notes

Biologists Speak Out Against Bills To Regulate Animal Use

Many American biologists have expressed opposition to proposed federal legislation to regulate research in which experimental animals are used. Their position is stated in the February *Bulletin* of the American Institute of Biological Sciences, in an article by Hiden Cox, the editor.

Four bills, the Cooper Bill in the Senate and three identical House bills, were introduced in the 86th Congress. None was passed. A similar bill, H.R. 1937, has been introduced in the 87th Congress by Representative Griffiths (D-Mich.). The Cooper Bill provided in its preamble for "the humane treatment of animals used in experiments and tests by recipients of grants from the United States and by agencies and instrumentalities of the United States Government. . . ."

The *Bulletin* article reports the reactions to the bill of a number of biologists and biological organizations. The *Bulletin* itself takes no stand on the legislation, but Cox explains the attention given the measure in the journal in these words: .

"To the surprise of few, the Cooper Bill was greeted by something less than unanimous enthusiasm. All biologists, directly or indirectly, are affected by provisions of this bill. Since this or any similar bill is aimed straightway at the research programs of a large share of biologists, the *Bulletin* should provide a means by which biologists can have their say. . . ."

The article begins by quoting a resolution adopted on 28 October 1960 by the Animal Care Panel, an organization of veterinarians, scientists, and others. The resolution declared that the bills introduced in the 86th Congress would "permit an unwarranted encroachment upon the research worker's freedom . . . delay the testing of new concepts and ideas and would hinder and restrict medical and biological research. . . ." The resolution also said that the bills contain "no constructive provisions to deal with the real current needs in the field of laboratory animal care" and would "retard the objective of rational humane care for laboratory animals."

Maurice Visscher of the University of Minnesota, former president of the