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Double quasar 0957+561 mapped at 6-centimeters wavelength by the Very Large Array radio interferometer. The point-source response is shown in the red box. Two unresolved sources, oriented north-south near map center, are separated by 6.1 arc seconds. These coincide with the optical images, which have been interpreted as double images of a single quasar caused by gravitational refraction by an intervening massive body. The additional radio sources in the field cause some difficulties for this hypothesis. See page 894. [D. H. Roberts et al., Massachusetts Institute of Technology, Cambridge, in cooperation with the National Radio Astronomy Observatory, Socorro, New Mexico]
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National Science Foundation

During its 29-year existence the National Science Foundation has experi-
enced moments of euphoric support and times of carping criticism. It now
faces a period of uncertainty from which it could emerge either strengthened
or weakened. Those who believe in the long-term benefits to society of pro-
grams carried on by NSF should follow closely and contribute to the in-
depth review of NSF now under way. The review is being conducted by the
subcommittee on science, research, and technology, chaired by Representa-
tive George E. Brown, Jr. (D-Calif.). The year-long effort will include an
examination of the basic statutes under which NSF operates and could pro-
abolably lead to legislation changing in some ways the scope and thrust of NSF.
Chairman Brown, who approaches the task in an open-minded fashion, in-
tends that the examination should be reflective, thorough, and broad-rang-
ing. Part of the subcommittee's review will be based on a series of public
hearings in which advice will be sought from individuals, organizations, and
communities. Other sources of counsel will include a commissioned study
and ad hoc advisory groups.

Why is NSF being placed under scrutiny at this time? One reason cited is
that 10 years have elapsed since the last searching look. Congress has re-
 sponsibilities for oversight and legislation which should be discharged.
Some of us adhere to the late Sam Rayburn's dictum, "If it ain't broke,
 don't fix it." However, the temptation to improve a going concern is strong,
 particularly when, as in the case of NSF, circumstances in which it operates
have changed. During the past 10 years the United States has lost much of
its technological supremacy and ability to compete in foreign trade. In-
novation has become one of the "buzz words" in Washington and it is natu-
ral that a possible role for NSF in fostering it has been identified. The past
10 years have also borne a great revolution in instrumentation. The new
equipment is very powerful but it is very expensive. An inevitable move is
on toward instrumentation centers. The past 10 years have also witnessed
an important change in university science departments. Enrollments have
 leveled off or declined. Few new faculty positions are available. If graduates
are to be placed, most of them must go to business and industry.

Representative Brown and the subcommittee reviewing NSF have identi-
fied at least 30 questions or issues for examination. They have not yet fo-
cused sharply on the matters that will receive maximum attention. How-
ever, given the spirit of immediacy that characterizes politics and the quick-
fix attitude of Washington, the tendency will be to move NSF further to-
ard applied research. One of the questions for discussion posed by the
subcommittee is, "To what extent should NSF support research intended to
provide solutions for society's problems?" Another comment and questions
are, "We often characterize basic research as an investment in the future,
and strongly imply future productivity, industrial innovation, etc. How
should NSF's concern with innovation and/or productivity be expressed, if
at all? What role or connection should NSF have with research in industry?
Can or should NSF promote good research in industry or the linkage be-
tween university research and industry?"

A short answer to the last set of questions is that relations between aca-
demia and industry could be improved, but the participation and funds of
NSF are not required. The government merely needs to change its poten-
tial policies with respect to inventions arising under grants.

In its studies and deliberations, the subcommittee will be reminded of the
enduring values of basic research. The words have been spoken before.
Nevertheless, they are true. Congress should reflect on how much it spends
on immediate efforts that often amount to plowing the waves. In contrast,
it should note how little is invested for the future.

This is an important period in the life of NSF. It needs the voices of those
who understand the importance of fundamental research. It also needs
some fresh ideas on how best to justify its continuing efforts.

—Philip H. Abelson