promising start as science adviser (*Science*, 21 February), has also suffered unfortunate losses. His key role in an incident that embarassed the administration may have shaken his standing at the White House. And the fact that he was obviously overruled by White House political advisers has hardly enhanced his stature in the eyes of the scientific community.

I. I. Rabi, Nobel prize-winning physicist and a personal friend of the late General Eisenhower, wonders if DuBridge "now has a tin can tied to his tail—is he serving as 'yes man' or can he express himself?" And former science adviser Hornig believes the incident is "undoubtedly going to complicate the role of the President's science adviser," and makes it "very difficult" for DuBridge.

Nixon also appears to be a big loser. It remains to be seen whether the veto of Long will bolster the Administration's fight for the ABM, as Nixon apparently hoped, or will actually weaken the Administration's hand by focusing attention on the opposition and by indicating that the Administration thinks its congressional support on the ABM issue is shaky.

But there is little doubt that the Long veto will undermine the professed efforts of Nixon and DuBridge to "heal the breaches" between the government and the scientific community which have developed over the Vietnam war, the ABM, and various military issues. The incident will make it more difficult for the White House to attract scientific talent, and it raises questions about Nixon's seriousness in professing his desire to be exposed to all points of view.

As far as *Science* can determine, these are the major elements of the rejection of Franklin A. Long as director of the National Science Foundation. Although Long's views on ABM seem to have been an important cause of his rejection, these views may well have been made visible as a result of some rather mundane politicking by Republican congressmen. If the consequences of this politicking had not been so profound, this whole episode would make a bizarre and engrossing story. Because it has been so drastic in its results, we can only conclude that the rejection of Franklin A. Long, and the manner by which that vetoing was accomplished, marks one of the most disruptive episodes in a usually harmonious relationship between the federal government and the scientists.

The long-time alliance between science and the federal government is, to say the least, strained. This alliance has been, for the most part, a smoothly working gentlemen's agreement during the past quarter century. In return for their cooperation with the government and for the reticence of scientific leaders on many political questions, scientists have received federal funds and a large measure of influence in determining who will direct the federal scientific effort and how the funds will be distributed.

NSF has a strong symbolic significance to the scientific community. Probably without realizing the implications of what it was doing, the White House has severely shaken scientific confidence that the relationship will continue as it has in the past. In contrast to his stated intentions, President Nixon has widened the breach between the federal government and the scientific community. For the good of all parties, it can be legitimately hoped that the President will try to bridge the gap that has been created by his politically motivated rejection of Franklin A. Long.—PHILIP M. BOFFEY and BRYCE NELSON

Universities: Industry Links Raise Conflict of Interest Issue

Berkeley, Calif. The close professional ties with the oil industry of university experts in such disciplines as geology, geophysics, and, particularly, petroleum engineering have complicated efforts of California officials and federal authorities to deal with problems raised by the oil leak in the Union Oil Company offshore well in the Santa Barbara Channel.

California's chief deputy attorney general, Charles O'Brien, has publicly complained that experts at both state and private universities turned down his requests to testify for the state in its half-billion-dollar damage suit against Union and three other oil companies.

It is understood, also, that the President's Oil Spill Committee, created last February, has been discussing formation of a subpanel to study the question of the Union well in the channel, and that some difficulties have been encountered in enlisting university engineers with the required expertise because of conflicts of interest, apparent or real.

In California, interest in the issue was kindled by press and television reports of O'Brien's remarks at a Santa Barbara civic club meeting on 8 April. O'Brien said that petroleum engineers at the University of California campuses at Santa Barbara and Berkeley and at the privately supported University of Southern California refused to testify, and indicated that they did not wish to risk losing industry grants and consulting arrangements.

In an article in the San Francisco *Chronicle* of 17 April, reporter Michael Harris quoted Berkeley professor of petroleum engineering Wilbur J. Somerton as saying he had declined to appear as a witness and that he viewed his obligation to the community as that of supplying it with well-trained petroleum engineers. "We train the industry's engineers and they help us," he was quoted as saying. According to Harris, Somerton noted that he was not at present consulting for the oil industry and that he and his colleagues obeyed the spirit of the university regulations on consulting assignments for industry.

Somerton last week was not talking to reporters and referred questions to Berkeley dean of engineering George J. Maslach, who was looking into the implications of the exchange between Somerton and state officials.

Maslach said that no departmental or university rule had been transgressed. At Berkeley, as at most universities, rules on faculty consulting focus on preventing interference with academic activities. The dean did say, however, that what was still to be determined was whether the matter raised any "question of privilege and tenure" which would fall in the

domain of the academic senate.

Maslach said that Somerton has submitted a full account of the incident which made several points not covered in the newspaper article. Perhaps the most significant was that Somerton says the deputy attorney general who telephoned him asked him not simply to testify but to examine and interpret data and in effect to help with preparation of the case. Somerton felt that extended release time from university duties would be required in so complex a case and this was a reason, which he discussed with colleagues, for declining to participate.

Maslach describes Somerton's consulting activities for the oil industry in recent years as "negligible" but says Somerton has been very successful in obtaining scholarship funds from the industry. Somerton was also, it seems, a public supporter of a statement signed by a number of Berkeley faculty urging rigid controls on oil operations on the Santa Barbara Channel.

At the same time, Maslach says that the incident made it necessary to ask, "Is a man so engrossed with the activities of oil companies that he [can't do a proper job] of teaching in his field?"

Maslach said the incident only makes it more obvious that the universities should reconsider the concept of public service responsibilities. He said that the university should undertake public service activities "only when service cannot be duplicated elsewhere," but that when the demand is legitimate the university should make it an "institutional responsibility" and release faculty for periods necessary to make an effective contribution.

O'Brien told *Science* that, as a result of his public protest, he has had offers of expert help from faculty in both public and private universities in California. O'Brien originally asserted that he saw a conflict of interest in the refusal of faculty members in a state-supported institution to furnish evidence, and he says he thinks the issue still "worthy of examination."

One response diametrically opposite to the reaction to O'Brien's early canvass came from UCLA professor Richard L. Perrine, head of the university's petroleum laboratory, who was quoted in the *Chronicle* story as saying he had not been asked to testify because his expertise would not be particularly relevant. "We have no oil industry funds supporting our research," said Perrine, "and I am here because I want to be able to do independent research without industry influence." Pettrine said he would be glad to help recruit experts.

Talks this week with petroleum engineers in northern California suggest that the views of Somerton and other reluctant experts should be taken in the perspective of the way petroleum engineers see their relationship with the university and with the oil industry. Most petroleum engineers work in the oil industry. Almost all the university leaders in this field have worked for oil companies and have done extensive consulting. Most petroleum engineers are ill-conditioned for an ivory-tower existence. They feel themselves to be part of the "oil fraternity," a loosely knit international community of engineers, scientists, and production men. Personal and professional ties between academe and industry are stronger than in most other fields.

Not Just A Plush Perquisite

Consulting is regarded not simply as a lucrative perquisite of the professor but as a necessary way to establish and maintain a department's reputation and create job opportunities for its graduates. This doesn't mean that a university consultant sells his professional soul to the company that retains him. As one university engineer said, "You give the client the advice and let him do what's necessary." The confidential nature of the client-consultant relationship is strictly observed. "A deal is a deal" in the oil industry.

A real difficulty in getting objective advice on the Santa Barbara leak is that expertise in the specialized area of drilling problems and techniques is needed and there are few drilling experts available. Most top drilling experts work for oil companies or maintain close consulting ties. It happens that almost all petroleum engineers on west coast campuses are exponents of reservoir engineering, another specialty. California has a reserve of petroleum engineers in state agencies, notably in the Lands Commission, but these men suffer from a reverse conflict of interest, since, as state employees, their objectivity would not seem as irreproachable in a courtroom as that of their university colleagues.

The same sort of technical difficulty confronts the federal advisory panel as it moves to grapple with the question of the Union Oil Company lease. The chairman of the oil committee, John C. Calhoun, former science adviser to Secretary of the Interior Stewart Udall and now a Texas A & M vice president, declines to comment, since further actions of the committee are still under discussion. It is known in the oil community on the west coast, however, that efforts have been made to recruit experts in drilling and in other specialties for panel service, and that, in some cases, appointments have been held up because of a candidate's ownership of oil stock or because of consulting ties. The parent committee (made up of well-known earth scientists and engineers from universities and industry) seems to have been recruited with few difficulties concerning conflicts of interest. The main committee is dealing with broad questions, such as how the federal government can assist with beach cleanup and how future oil spills can be prevented.

Difficulties notwithstanding, the problems have a real urgency, since the oil is still leaking from the well at the rate of an estimated 1000 gallons a day. At Santa Barbara, city and county officials have apparently been having their own troubles in enlisting experts in their own legal efforts to have a permanent injunction placed against the limited drilling in the channel that was permitted in an order from Interior Secretary Walter J. Hickel.

Conservationists meanwhile are debating the extent of damage to wildlife, particularly to aquatic mammals that inhabit the islands and coastal beaches in the area. The State Fish and Game Commission has begun a survey of ecological damage; a monetary value will be placed on such damage, and the amount added to the claims in the state's big suit against the oil companies.

Ethically, the engineers, in declining to testify for the state, are behaving according to their own traditions. Professional engineering societies tend to set standards of professional competence and to act as technical societies rather than to oversee professional behavior as county medical societies and bar associations to some extent do. Professional codes of ethics for engineers tend to concentrate on engineer-client relations.

But, as one university engineer puts it, "insensitivity to ethical questions is very much to the fore these days," and engineers and scientists, who make their careers in universities supported by public funds, are likely to be pressured, as at Berkeley, to rethink their responsibilities for public service.

—JOHN WALSH