Federal Pay: In the Competition for Professionals, Government Faces Salary Gap, Other Problems

As an employer of scientists and engineers, the federal government seems to be in a predicament similar to Alice's in *Through the Looking-Glass* when the Red Queen admonished her, "*here,* you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run twice as fast as that."

The number of federal employees in scientific and technical jobs has been increasing rapidly both in absolute terms and in relation to nonspecialized government workers, and federal pay for professionals has been improving steadily. But the studies perennially show that the pay of government scientists and engineers compares unfavorably with the pay of their counterparts in private industry. And despite some fairly strenuous effort, the federal government is still having serious problems, involving both quantity and quality, in recruiting and retaining this premium manpower.

To the Civil Service Commission falls the task of filling the competitive positions in the federal bureaucracy, of defining job specifications, and, to some extent, of policing agency personnel practices. As custodian of equity, efficiency, and economy in the federal service, the CSC has the often conflicting duties of keeping federal employees, Congress, and the taxpayers reasonably happy. And nowhere are the conflicts any sharper than those which attend CSC's efforts to attract high-grade executives and professionals to government agencies and to help the agencies keep them.

By providing for special inducements to scientists, engineers, and others with premium qualifications, the last federal pay raise bill—the Salary Reform Act of 1962—did strengthen CSC's hand somewhat.

The President, acting through the CSC, was authorized to establish special rates of pay for certain occupations when higher pay in private enterprise significantly handicapped government recruiting in these occupations.

These special rates are meshed with the General Schedule (GS) classification system, which covers civilian federal employees except those in the Postal Field Service and Foreign Service officers and staff, which have separate but similar pay-grade systems. The military services follow a different pay pattern, geared to rank and allowances.

On the regular General Schedule there are 18 grades with 10 pay steps within each grade except the top ones. A GS-1 employee, who earns $3305 to $4250, is at the bottom of the Civil Service totem pole, and a GS-18, who earns a flat $20,000, is at the top of the regular schedule. A second and final federal pay boost under the 1962 salary bill went into effect on 1 January, and special rates were adjusted upward accordingly.

The new special rates are based on the regular GS framework but provide higher minimums and correspondingly higher step increases within a grade. For example, a recruit to the federal service with a bachelor's degree in engineering will usually enter at the GS-5 level. Under the special rate, the minimum and maximum annual rates for GS-5 are now $5650 and $7090, as compared with $4960 and $6130, for the bottom and top steps of the regular GS-5 grade.

Selective Coverage

The special rates for most engineers and scientists cover the middle grade ranges—GS-5 to GS-11—and a federal worker receiving the special rate receives very roughly a thousand dollars a year more than a worker in the same grade and step on the regular GS scale.

Above GS-11 ($8690 to $10,930 under the special rate), scientists, engineers, and others in the special-rate category are paid according to the regular GS scale. Government employees above GS-15 are considered to be in the policy-making category, along with political appointees.

While precise figures are not yet available, it appears that perhaps 40,000 government workers are now covered by the special rates. This includes all professional engineers in the GS-5 through 11 categories plus many physical scientists and mathematicians in fairly junior posts. Professionals in the biological sciences, it is interesting to note, are not entitled to the special rates. Apparently the government has had less difficulty, over the years, in recruiting in the biological sciences than in other sciences or engineering.

The special rates apply to other hard-to-hire people. Pharmacologists, for example, are offered premium pay in GS grades 7, 9, 11, 12, 13, and 14. In some cases the special rates apply in limited geographical areas. For engineers and scientists the coverage is worldwide; for pharmacologists it is nationwide, but for electric accounting machine operators the special rates apply only in Joliet, Illinois, and Juneau, Alaska, for GS-5's and below.

The special-rate system is tied to a concept of "comparability" which was ensconced in federal pay policy by the 1962 salary reform law. Roughly stated, comparability implies (i) that federal workers should get equal pay for equal work within the government, and (ii) that the federal worker's pay should correspond to the pay of a worker doing a similar job in private enterprise.

The new salary law requires the Civil Service Commission (CSC) each year to compare federal salaries with salaries in private enterprise and to recommend revisions in federal pay to make them comparable.

While Congress seems to have endorsed the comparability principle by passing the pay law, there remains what CSC Chairman John W. Macy, Jr., calls a "salary gap," and Congress so far has shown no strong inclination to follow the newly prescribed pattern of review and adjustment, rather than to adhere to its postwar habit of raising everybody's pay every few years in unsystematic response to increases in the cost of living.

In general, the postwar federal pay raises have favored employees in the lower grades rather than those in the middle and upper reaches of the bureaucracy. In a period of rising living costs Congress has proved sympathetic to pleas for a "living wage" for lower-paid workers. Besides, a big majority of federal workers were clustered in the bottom half-dozen grades, and the legislators have not been oblivious of the political potency of this group. The best organized and most politically militant major group of federal employees happens to be the postal workers, who, in the nature of things, have fairly limited pay horizons, and this group has left a distinct imprint on federal pay policy.

While a trend toward compression of the distance between lowest and highest salaries in the federal service has been evident in recent years, the composition of the federal work force has been changing. The old stereotype of the bureaucracy with a few executives at the top and a lot of clerks at the bottom and some supervisors in between has had to be altered. Technological change and the extension of government functions in the direction of regulation and research have forced

a radical change in the "mix" of federal workers.

The government's demand for professionals and the growing competition for them with private enterprise and nonprofit institutions have produced a phenomenon which is defined in federalese as "escalation"—that is, the movement of a larger proportion of federal employees into higher salary grades.

For example, the number of GS-13's in federal service increased by more than 50 percent (from 33,494 to 51,241) between 1958 and 1962, while the total number of federal employees rose from 962,264 to 1,058,458, or by less than 10 percent. In this same span of 4 years, employment in the lowest three grades declined by 47,000.

This process of upgrading is also going on in private enterprise and is viewed in most quarters as both inevitable and desirable, but the Civil Service finds some aspects of escalation disturbing. In a report, the CSC's bureau of programs and standards described the following causes of escalation as "clearly bad."

"Reorganization specifically for the purpose of raising grades by spreading higher level duties thinly among a larger number of positions.

"Establishment of more organizational units than are really necessary in order to get more high-level supervisory jobs.

"Inflated position descriptions.

"Deliberate misclassification of jobs for purposes of adjusting to outside pay pressures."

The report goes on to observe that causes of overstaffing and misclassification have not changed over the years —sheer bad management on the one hand and, on the other, deliberate misclassification for purposes of "recruiting advantage, for pirating purposes or for empire building."

The CSC admits that its inspection program cannot correct things that are the result of unwise management decisions in organizing and assigning work or desperation over staffing.

In part because of limitations on its direct authority and influence in the agencies, the CSC has put strong emphasis on the comparability principle. To establish its criteria of comparability the CSC has relied on studies of work levels within occupations in and out of government, the most notable of which is a study now conducted annually by the Labor Department's Bureau of Labor Statistics. The BLS study concentrates on occupational groups numerically important in industry as well as the federal service. Chemists and engineers are among the dozen occupations included in the most recent study.

These professionals are put in seven levels of pay and responsibility. Trainees in both government and industry are at the bottom, and at the top are individuals bearing full responsibility for complex and diversified programs, or what might be called "middle management." The federal grades covered are GS-5 to 15.

A Widening Gap

The report showed that federal chemists and engineers in the lower and middle ranges of the levels studied lagged behind their counterparts in industry, with the gap widening steadily in the upper ranges, so that a GS-15 made $2000 to $4000 a year less, according to his time in grade, than his opposite number in industry. At higher management levels the contrast apparently grows considerably, and testimony in the last congressional hearings on pay policy indicated that industry's equivalent to government's $20,000-a-year man draws $35,000 to $40,000 annually.

It seems to be more difficult to draw close comparisons between federal scientists and scientists in universities. The National Science Foundation has collected data and published surveys showing that scientists in federal service are paid less on the average than those in industry and somewhat more than university scientists. The trouble is that university salaries do not reflect income derived from consulting fees, honoraria, or (in some cases) summer pay, and these extras, almost everybody assumes, affect the relative positions. In the next few months NSF plans to publish a new study with refinements which should help to illuminate this question.

Even between federal and industrial jobs, however, job-salary comparisons are imperfect. Government officials themselves feel that comparisons are more valid in the lower levels than in the upper ones.

Not only do the rewards of high-level federal researchers and executives differ from those of their counterparts in private enterprise, but so do the responsibilities and risks.

The profit motive is the driving principle in private enterprise, while in government, presumably, the driving principle is service. In most federal agencies, top executives are more hedged about by regulations, decisions are fashioned more through committees and consensus, and responsibility is more diffused than in most private enterprises. The top civil servant does not enjoy the rewards of the management tycoon, but neither does he endure the insecurities, and these differences suggest why the comparability principle is not the complete answer to the problem of staffing the government.

And in the case of the federal government's problem in recruiting and keeping scientists and other technically trained workers, pay is not the whole story. One of the clearest evaluations by insiders of the dilemma was provided by a report titled "The Competition for Quality," produced in 1962 by the Federal Council for Science and Technology's panel on environment and incentives for research.

In one section of its report the panel, headed by Allen V. Astin, director of the Bureau of Standards, documented the depressing effects of the salary lag on recruitment and retention of highly competent scientists and engineers, and in another section it examined the nonsalary factors.

The Astin panel points out that "the necessity of assuming administrative duties to qualify for senior positions is frequently a source of difficulty in recruiting and retaining superior research scientists. Some agencies have dual career development ladders: one based on program and supervisory responsibilities, the other based solely on recognition of difficult and creative research performance." Some agencies seem not to.

Frictions and Frustrations

Another not uncommon source of frustration for senior scientists—lab directors, for example—is friction with nonscientist agency officials with administrative or financial duties who may top the scientists in both seniority and rank. Complaints range from minor ones about difficulties over getting support and services for research to a major one that scientists are not adequately consulted on major decisions affecting research and development activities. The situation seems to vary widely from agency to agency.

One of the thorniest problems for those trying to rationalize federal science and salary policy is, of course,

caused by the commissioning of federal research through contracts and grants to industry and nonprofit institutions. High salaries, actually supplied by federal funds, are often paid scientists and engineers working in firms performing government R&D work, so that the government is bidding up the price of scarce professional manpower to the detriment of its own cadre of professionals. Efforts to limit nongovernment salaries financed by federal funds are still mainly in the discussion stage.

A discernible pattern has developed in some areas, notably aerospace, under which able junior scientists and engineers enter government service, move into responsible, relatively high-level jobs fairly quickly, and then move out into private industry or the universities, where they capitalize on their federal experience.

Such movement in and out of government is probably inevitable and to some extent healthy, but the Astin study indicates that at upper levels the traffic tends to be one-way and creates in the federal service a deficit of talent.

The problem of professional manpower for the federal service is a complicated one, and "comparability" is no panacea even if Congress fully accepted it, which at present seems unlikely.

Last year President Kennedy asked for special action on executive and high-level professional salaries, but two specific factors seem to block any drastic action in the near future. First, limitations on salaries for federal officials—$22,500 a year for members of Congress and $25,000 for Cabinet officers—put an effective ceiling on all federal salaries, and pay-raise bills are usually shunned in election years. Second, the CSC and the federal officials who make pay policy have historically been reluctant to, as one official put it, "create an inequitable situation among employees"—in this case, to create a substantially different pay scale for a technocracy within the bureaucracy in what would be interpreted by other civil servants as a breach of the equal-pay-for-equal-work principle.

It was apparently for a combination of these two reasons that a decision was made last September not to press for substantially higher pay for executives and professionals in shortage categories until the fate of yet another general pay bill was decided.

—JOHN WALSH

Announcements

In an attempt to increase the coverage of the **forthcoming events** calendar in *Science*, the editors request that organizations scheduling meetings, conferences, or symposiums send pertinent information to our office as early as possible. Letters including the title and subject of the meeting, dates, place, and sponsors, and if applicable, subjects and deadlines for submitting papers, should be mailed to Forthcoming Events, *Science*, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005.

The discovery of two **new species of birds** has been reported by the Smithsonian Institution. The species, found in little-known regions of Panama, are:

A hummingbird, discovered by C. O. Handley, Jr., of the U.S. National Museum, on the Isla Escudo de Veraguas, has been named *Amazilia handleyi*. It is similar to, but larger than the Reifer's hummingbird.

A wood-quail, found by Pedro Galindo, of the Gorgas Memorial Laboratory, Panama, and named *Odontophorus dialeucos*; it lives in the Serrania del Darien. The quail most nearly resembles the *Odontophorus strophium*, near Bogota, Colombia.

The Office of International Science Activities of the National Science Foundation invites suggestions of topics for seminars to be held under the **U.S.–Japan Cooperative Science Program**, during 1965. Seminars may be in any scientific discipline, but are limited to U.S. and Japanese participants, a maximum of ten from each country. Final approval of topics and delegations is made by NSF and the Japanese administering agency. Information is available from Norman P. Neureiter, Office of International Science Activities, NSF, Washington 25.

Scientists in the News

The Research Corporation, New York, has named **Paul J. Cohen**, associate mathematics professor at Stanford, and **Heisuke Hironaka**, associate mathematics professor at Brandeis University, to receive its 1963 award. The $10,000 award is presented annually for outstanding achievements in science. Each recipient this year has "resolved by highly orignian means a famous and important problem in mathematics."

Hans Ziegler, professor of technical mechanics at the Eidgenossische Hochschule, Zurich, Switzerland, now on a year's leave of absence, is visiting professor of aeronautical engineering at Massachusetts Institute of Technology.

H. William Koch, of the National Bureau of Standards, has been appointed chief of the radiation physics division of NBS.

Frederick Robbins, professor in Western Reserve University's medical school and director of pediatrics and contagious diseases at Cleveland Metropolitan General Hospital, has taken a year's sabbatical leave to work at Donner Laboratory and Lawrence Radiation Laboratory at the University of California, Berkeley.

The new president of the International Association of Seismology and Physics of the Earth's Interior is **John H. Hodgson**, chief of the Dominion Observatory's seismology division, Ottawa, Canada.

Carl F. Kossack, formerly with the IBM Corporation, Dallas, Tex., has become director of the newly formed computer sciences laboratory in the Southwest Center for Advanced Studies, research section of the Graduate Research Center of the Southwest, Dallas.

The American Public Health Association's highest award, the Sedgwick medal, has been presented to **Gaylord W. Anderson**, founding director of the school of public health at the University of Minnesota.

The Atomic Energy Commission Citation this year was presented to **Shields Warren**, pathology professor at Harvard University and scientific director of the Cancer Research Institute of the New England Deaconess Hospital, Boston. He was honored for contributions as U.S. representative to the U.N. scientific committee on the effects of atomic radiation and for his work with the AEC division of biology and medicine.

Jack L. Hough, formerly professor of geology at the University of Illinois, has been appointed oceanography professor at the University of Michigan, and research geologist at the university's Great Lakes research division, Institute of Science and Technology.