

review board also advises the commission on the adequacy of the personnel security procedures and standards. Its membership consists of three persons, selected from private life, who are of recognized and outstanding ability in their chosen fields.

If the recommendation of the manager of operations is favorable, the general manager may, on the basis of the entire record, together with all recommendations, including that of the director of security, grant security clearance; or he may decide to transmit the entire record to the review board for its recommendation. In the latter situation, the individual will be notified of the pending review and of those matters concerning which the general manager desires information. Here, also, he may submit a brief in support of his position.

On receipt of a case, the review board makes its deliberations on the entire record and submits its recommendations, in writing, to the general manager. If this board is of the opinion that additional evidence or further proceedings are necessary, it may return the case to the general manager, with a recommendation that it be remanded for further hearing; or the review board may, within its discretion, request that additional testimony be presented before it and evaluate this testimony, together with the rest of the record, in making its recommendation.

The general manager, on receipt of the review board's recommendation, determines either to grant or to deny security clearance. The nature of the decision and the factors to be considered are set forth in the commission's regulations: "The General Manager shall give due recognition to the favorable as well as the unfavorable information concerning the individual and shall take into account the value of the individual's services to the atomic energy program and the operational consequences of denial of clear-

ance. In making his determination, the mature viewpoint and responsible judgment of Commission staff members, and of the contractor concerned, are available for consideration by the General Manager."

Reconsideration

The decision to grant or deny security clearance is a carefully considered one, based on notice, hearing, and review, which, although subject to important limitations, affords considerable opportunity to the individual and to the commission to explore the questions which are presented. This decision is made at the highest management level within the commission, and it is appropriate, I think, that a reconsideration of this decision be subject to definite limitations.

Once the general manager has granted clearance, an individual's eligibility is to be reconsidered only when, subsequent to the time of the hearing, there is new, substantial derogatory information or a significant increase in the scope or sensitivity of the information to which the individual has, or will have, access. Where the decision was to deny clearance, the individual's eligibility for clearance may be reconsidered when there is (i) a bona fide offer of employment that involves access to Restricted Data, and (ii) material and relevant new evidence which the individual and his representative failed, through no fault of their own, to present previously, or convincing evidence of reformation or rehabilitation. A request for reconsideration must be accompanied by an affidavit that sets forth such information in detail. These are rather severe limitations, but they are necessary to avoid harassment of those who have been cleared and to require of those to whom clearance has been denied presentation of a sound basis for reconsideration.

Summary

I have attempted to confine this article to an analytic description of the operations of the commission's personnel security program. This program has been analyzed critically and in detail by a number of individuals. I have not attempted to take issue with criticism, for this is not the purpose of a descriptive analysis. I have mentioned those limitations inherent in our program which do not entirely coincide with the traditional methods of due process. These limitations are significant, but, if they are properly exercised in the context of the commission's program, I feel that they are justified.

Notes

1. I acknowledge, with thanks, the able assistance of William D. English of the Office of General Counsel in the preparation of this article.
2. The Supreme Court has not decided the precise question of whether or not a security charge that involves a Government employee must meet the requirements of full due process under the Fifth Amendment to the Constitution. In the case of *Bailey v. Richardson*, 182 Fed. 2d 46, the Court of Appeals for the District of Columbia stated that if the Fifth Amendment were applicable in such situations (Government employment did not, the court decided, involve a right protected by this amendment), the Executive Branch would not, in all probability, have to afford complete and specific notice or full confrontation to satisfy the due process requirements. The basis of this statement was the court's recognition of the question of balance that is involved where the security of the nation is concerned. This balance between individual rights and the necessities of government was also recognized in the recent case of *Parker v. Lester*, 227 Fed. 2d 708, which dealt with the adequacy of the Port Security Program when viewed in the light of the Fifth Amendment. In this case the Court of Appeals for the Ninth Circuit found that seamen who were given only a general notice of the charge against them and who were not afforded the right of confrontation were deprived of the liberty to follow their chosen employment by direct action of the Government, without due process of law. In so concluding, however, the court indicated that some kind of qualified due process might be sufficient in view of the existing need for the Port Security Program. Although the *Parker* case is distinguishable, on the facts, from a Government employment situation, the principles stated must be borne in mind in examining the federal employee security program.

R. Zon, Pioneer in Forest Research

Raphael Zon, a blazer of trails in forest research and an outstanding conservationist, died on 27 October 1956, less than 2 months before his 82nd birthday. Thus was closed a long, colorful, and productive career.

Zon was born 1 December 1874 at Simbirsk, Russia. His early education was received at the classical gymnasium there and at the Imperial University at Kazan (1892-96). At the latter institution he specialized in zoology, particu-

larly in comparative embryology. Because of his liberal leanings, Zon had to flee Russia in 1896. He spent the next two academic years at the University in Liège, Belgium, and the University of London, studying natural sciences, political economy, and philosophy.

In 1898 Zon made his way to the United States and, not long thereafter, enrolled at Cornell University in the first American school for training professional foresters. He obtained his degree in forestry in 1901. In July of that year he joined Gifford Pinchot as a forester for the Bureau of Forestry (later U.S. Forest Service) in the U.S. Department of Agriculture. For the next 43

years his career lay with that agency, all of it in the field of forest research.

Zon had many "firsts" to his credit. He established the first forest experiment stations in the United States, in 1908. He envisioned, and thereby laid the foundation for, the system of regional forest experiment stations that were established, largely between 1921 and 1923, by the U.S. Forest Service. He pioneered in studies of the relation of forests to stream flow and flood control. As a basis for that work he wrote *Forests and Waters in the Light of Scientific Investigations* (U.S. National Waterways Commission, Final Report, 5 Apr. 1912, pp. 205-302; 62nd U.S. Congress, 2nd Session, Sen. Doc. 469; reprinted with revised bibliography, 1927). This publication, the first survey and summary of its kind, was later translated into German, French, Spanish, Russian, and Japanese. Zon, in collaboration with W. N. Sparhawk, prepared and published the first attempt at a systematic and accurate inventory of the forests of the earth (*Forest Resources of the World*, 2 volumes, New York, 1923). In collaboration with H. L. Schantz, he prepared the first complete map of the native vegetation of the United States; Zon prepared the section on forest vegetation (*Atlas of American Agriculture*, pt. 1, sec. E, U.S. Department of Agriculture, 1924).

That Zon was a man of vision is further attested by several of his activities. One of the most controversial undertakings with which he was involved was the Prairie States Forestry Project. When President Franklin D. Roosevelt, in 1934, proposed establishment of a network of shelterbelts in the prairie-plains states, it was Zon who was given responsibility for the technical direction of the project, which was essentially his own brainchild. He answered the critics of the scheme in an article entitled "Shelterbelts—futile dream or workable plan" [*Science* 81, 391 (1935)]. The soundness of his views was borne out by the establishment of 18,600 miles of shelterbelts, between 1935 and 1942, in the tier of states from North Dakota to Texas. A survey in 1954 showed that 77 percent of the plantings had been successful and that a large proportion of the failures had resulted from preventable causes [R. A. Read, *Yale Forest School News* 43, 67 (1955)].

Shortly after Zon became director of the Lake States Forest Experiment Station (University of Minnesota, St. Paul), at its inception in 1923, he initiated silvicultural research on jack pine (*Pinus banksiana*) and aspen (*Populus tremuloides* and *P. grandidentata*), which were then considered to be weed species. Today these are the two most widely used pulpwood species in the lake states region—a witness to his foresight—and the studies that Zon began provide a sound technical basis for their management.

To halt destructive cutting of forest stands in the lake states, Zon campaigned vigorously for the use of partial cutting methods. His effective espousal of this cause and the results of these methods, demonstrated by research that he had initiated, did much to convert many forest landowners to the practice of partial cutting methods and, hence, did much to extend the resource.

Foreseeing stringent demands for rubber during World War II, Zon proposed that the Forest Service develop methods of growing the Russian rubber-bearing dandelion (*Taraxacum kok-saghyz*). Such a program was authorized and developed under his technical guidance, although the need for rubber from this source ceased before the program got into full production.

From 1902 to 1928 Zon wielded strong influence on the progress and direction of professional forestry in the United States as an editor of the *Proceedings of the Society of American Foresters*, as assistant editor to B. E. Fernow on the *Forestry Quarterly*, and finally as editor-in-chief of the *Journal of Forestry*, which succeeded these earlier journals. He set high standards for the technical content of the *Journal*, and his stimulating editorials helped to mold the thinking of members of this young profession along progressive lines. In addition, he was the author of more than 200 scientific publications, which embraced almost all branches of forestry.

Seldom do we realize the worth of a person until he is gone. This is true of Raphael Zon, yet he was not without honors and recognition in his lifetime. At Montreal, in 1952, he was awarded the Gifford Pinchot medal, the highest honor bestowed by the Society of American Foresters, at the joint meeting of that organization and the Canadian Institute of Forestry. He was one of the

first to be elected a fellow in the Society of American Foresters and was long a fellow of the American Association for the Advancement of Science. During World War I, President Wilson appointed him to the National Research Council, where he served for many years as chairman of the Forestry Committee. He was American vice president of the subcommission on forest soils at the International Congress of Soil Science in 1928. He was editor of forestry and logging terms for Webster's *New International Dictionary*, author of the section on forests and forestry in the *Encyclopedia Britannica*, and author of the article on forests for the *Encyclopedia of Social Science*. In 1940, in connection with the New York World's Fair, he was named one of the 600 foreign-born citizens who were judged to have made the most notable contributions to American democracy in the past 100 years.

Zon was not infallible, of course. One of his early enthusiasms was for drainage of forested swamps. Studies which he initiated did show that improved tree growth followed this practice, but the benefits were disproportionate to the cost involved. Perhaps he was just ahead of his time, for drainage of forested swamps is widely applied in Finland, where the pressure for land is much greater.

Zon was a man of many facets. He was both a staunch supporter of what he believed to be right and a relentless and resourceful adversary of what he considered wrong. Such a man makes both bitter enemies and devoted friends. He was extremely frank, yet often very considerate. With his subordinates he was warm and understanding, a "human" person, yet one who demanded their best. He was always concerned about the effects of forestry and conservation activities on the people, especially on the "little fellow." Gifford Pinchot called him "a forester-statesman and a statesman-forester" [*J. Forestry* 43, 927 (1945)].

Although he had been professionally inactive during the past 5 years, Zon's passing leaves a deep sense of loss among those who knew him and worked with him. American forestry and the American people are the richer for his having been with us. That is his monument.

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