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OA/ID Number: 62006
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Folder Title:
D. Allan Bromley - Referral [4 of 6] [1991]

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"CORRESPONDENCE TRACKING"

TYPE: ACTION
ORIGINATOR: 02

DOCUMENT NUMBER: 9123538
DIRECTORATE STATUS

STATUS I

FROM: WANG, TZU-FANG

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 8/20/91

SUBJECT: REQUESTS LETTER FROM DR. BROMLEY TO ENHANCE HIS
CHANCES OF GETTING A PERMANENT POSITION FROM HIS
TEMPORARY POSITION AT LAWRENCE LIVERMORE NATIONAL
LABRATORY.

DIRECTORATE STAFF
ASSIGNED: D. Allan Bromley ASSIGNED:

ACTION STAFF
REQUIRED: RESPOND APPROPRIATELY ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: 09/04/91 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO:

WHITE HOUSE TRACKING #: CONTACT PERSON:
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OSTP RECEIVED: 08/19/91
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FILE: DAB-REFERRAL

CLOSED

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01a. Letter	To: Allan Bromley From: Tzu-fang Wang Re: Requests Letter of Recommendation [personal information redacted] (1 pp.)		(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

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(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
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Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01b. Letter	To: Allan Bromley From: Tzu-fang Wang Re: Requests Letter of Recommendation [personal information redacted] (1 pp.)		(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
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(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet

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Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01c. Resume	Resume of Tzu-fang Wang [personal information redacted] (11 pp.)	4/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

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(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

MEASUREMENT OF THE HALF-LIFE OF ^{20}F

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Abstract:

The half-life of ^{20}F has been measured, using a radioactive ion beam technique. The resulting half-life is 11.163 ± 0.008 seconds.

RADIOACTIVITY ^{20}Ne [from $^{19}\text{F}(\text{d},\text{p})^{20}\text{F}(\beta^-)^{20}\text{Ne}^*(\gamma)^{20}\text{Ne}$] measured $I_\gamma(t)$
 ^{20}F deduced $T_{1/2}$. Radioactive beam.

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1. Introduction

The nucleus ^{20}F has played an important role in studies of subtle effects of nuclear β -decay. In particular, Genz et al.¹, Wilkinson and Alburger², and Alburger and Calaprice³ considered the possibility of using the half-life of ^{20}F , together with that for ^{20}Na , to give information about second class currents. While all of these studies concluded that second class currents were small if they exist at all, they also produced half-life measurements which were inconsistent with each other.

We have, therefore, attempted to resolve this discrepancy by measuring the ^{20}F half-life using a technique not previously used, i.e., a ^{20}F radioactive beam. Our result is found to agree with that of Genz et al.¹. Section 2 describes our experimental setup, while Section 3 discusses the analysis we used and the relevant uncertainties. Finally, Section 4 compares our result with those of previous studies.

2. Experimental Method

The setup is similar to that used in a recent precision measurement⁴ of the half-life of ^8Li . The Lawrence Livermore National Laboratory (LLNL) FN tandem van de Graaff accelerator was used to produce a 56 MeV ^{19}F beam which was directed to the LLNL-OSU (Ohio State University) radioactive beam facility⁵. Initially the ^{19}F beam impinged on a D_2 gas cell, producing ^{20}F via the $^2\text{H}(^{19}\text{F}, ^{20}\text{F})^1\text{H}$ reaction. The scattered nuclei from that cell were analyzed by the double-quadrupole-triplet system, and a mixed ^{19}F and ^{20}F beam of about 25 MeV was focussed onto a stopping Ta foil at the end of the radioactive beam facility. The ^{20}F beam intensity was of order 10^4 s^{-1} . A Ge(Li) (lithium drifted germanium) detector was located

immediately on the other side of the end plate. Since ^{20}F decays almost entirely⁶ (>99.99%) to the first excited state (2+, 1.63 MeV) in ^{20}Ne , the resulting 1.63 MeV γ -ray indicates the ^{20}F decays.

Signals from the Ge(Li) detector were fed into a standard electronic setup, then processed by the online data acquisition system. A low frequency random pulse generator was also fed through the electronic system to measure the electronic deadtime. A typical γ -ray-pulser spectrum is shown in Fig. 1a.

The experimental cycle began with a 15 s period during which the ^{19}F beam, and hence the ^{20}F beam, was on, after which the ^{19}F primary beam was deflected away from the D_2 gas cell by an electrostatic steerer located upstream from the switching magnet of the beam line. The 15 s period was followed by a 100 μs period to give the steerer enough time to deflect the ^{19}F ions fully from the gas cell. Then followed a 50 s period (about 4.5 half-lives) during which the ^{20}F decay data were acquired. The γ -ray events were detected as a function of time from the beginning of the data acquisition portion of the cycle. That time was defined by a Hewlett-Packard precision pulser, which had been calibrated to an Efratom Model PTB-100 Precision Time Base/Frequency Standard, which is referred to a ^{87}Rb standard with an uncertainty of $< 2 \times 10^{-9}$ s. The Hewlett-Packard pulser agreed with the Efratom Standard to within an uncertainty of $< 1.2 \times 10^{-6}$ s. The time per channel so defined was 0.032 s ch^{-1} . A typical time spectrum is shown in Fig. 1b. During the first run we looked for other γ -rays from 100 keV to 2 MeV in our γ -ray spectrum; we saw none during the beam off portion of the cycle.

3. Data Analysis

3.1. Analysis of, and Corrections to, the Time Spectra

Because of the high resolution of the Ge(Li) detector, it is very unlikely that more than one nuclear decay contributed to the time spectrum gated on the photopeak of the 1.63 MeV γ -ray. Thus the γ -ray time spectrum was ultimately fitted with a single exponential term plus a flat background. However it was necessary to correct for deadtime effects before such a fit could give a correct value for the half-life. In the absence of deadtime the pulser time spectrum would be flat. The deviation from flatness, found to be the order of 1% at the high event rate end of the time spectrum for the highest count rate runs, was fitted with a polynomial in time to determine the deadtime for the pulser. Correction of the γ -ray spectrum for deadtime, then, was done in the following way. In time interval Δt , which occurs at time t after a cycle begins, $R_\gamma(t)\Delta t$ events and $R_p\Delta t$ pulser events occur, where R_i denotes the respective rates. Since γ 's can interfere both with the pulser and with other γ 's, but the pulser only interferes with γ 's, the deadtimes DT_i 's are given as

$$DT_\gamma = [R_\gamma\alpha_\gamma + R_p\alpha_p]\Delta t, \quad (1)$$

and

$$DT_p = R_\gamma\alpha_\gamma\Delta t. \quad (2)$$

The quantities α_p and α_γ are the times required for analysis of pulser and γ pulses respectively. These two times were measured, and were found to be identical: 76.2 μ s. The number of events lost per cycle per interval Δt at time t is therefore

$$L_\gamma = R_\gamma(t)\Delta t[R_\gamma(t)\alpha_\gamma + R_p\alpha_p], \quad (3)$$

and

$$L_p = R_\gamma(t) \alpha_\gamma \Delta t R_p. \quad (4)$$

It is the quantity L_p which is determined by the fits to the time spectra associated with the pulser peak, as discussed above. Combining eqs. 3 and 4 gives

$$L_\gamma = \left(\frac{L_p}{R_p \alpha_\gamma \Delta t} \right)^2 \alpha_\gamma \Delta t + \frac{\alpha_p L_p}{\alpha_\gamma}. \quad (5)$$

The actual γ -ray event rate, R_γ , was then determined from the number O_γ , of γ 's observed at time t in the interval Δt from

$$R_\gamma(t) \Delta t = O_\gamma(t) + L_\gamma(t). \quad (6)$$

Note also that, because of the quadratic term in eq. 5, accurate correction for deadtime can only be performed if R_γ at each value of t is fairly constant over the many cycles during which data were collected. Thus, runs which had an appreciable variation in R_γ at each t were broken up into shorter runs with little variation in the event rates. Eight runs, each typically of 10 hours duration, with Ge(Li) rates ranging from ≈ 60 counts/s to ≈ 235 counts/s at the starting time of the cycle, were made in this way. The deadtime corrections, determined from the pulser time spectrum, varied from 0.5% to 1.75% for different runs. Even small deadtime corrections are important for the half-life determination, however, as deadtime effects would tend to flatten the statistically most significant short-time portion of the spectrum were they not taken into account, thus producing an anomalously long half-life. Care was also taken not to start or stop runs during the data acquisition part of the cycle, as this could introduce significant errors.

The background was handled in two different ways in order to check

our assumption that no impurity decays were contributing to our half-life data. The first approach assumed that the total background in the time spectrum was given by the background seen in the γ -ray spectrum to the high energy (HE) side (see Table I) of the 1.63 MeV peak in a window having the same width as that taken for the peak. That total background was then divided by the number of channels in the time spectrum to give the background per channel. The searches on the time spectra then used this fixed value of the background. The second approach treated the background as a free parameter in the fits to the time spectra. There was little difference, and no systematic trend, in the background values derived from the two approaches; both are listed in Table I. In both approaches the backgrounds were found to be extremely small: from 1.6 to 2.9 counts ch^{-1} with floating background, and from 1.4 to 2.9 counts ch^{-1} with the background fixed to the off peak value.

Another type of deadtime could result from pulse pile-up; two pulses arriving within the width of each of them could result in production of a net pulse which would lie outside the window of the γ -ray peak, thereby rejecting both of them. However, such an effect would also result in pulser pulses, which had the same pulse shape as the γ -ray pulses, being rejected from the window (which had the same width as the γ -ray window) for the pulser peak. Thus this effect is correctly included in our dead-time determination.

The residuals from the fit to one of the eight time spectra are shown in Fig. 2. The resulting half-lives from the eight runs are given in Table I, along with their statistical uncertainties. The averaged half-life from the runs is 11.163 ± 0.008 s (standard deviation). The agreement of these

eight separate runs, with rate variations of nearly a factor of four, indicates both that the deadtime corrections were well accounted for in our analysis, and that other rate dependent effects (see below) were unimportant. We also fit the data with the first half-life portion deleted in the context of both background approaches, and also with the first and second half-life portions deleted; we got similar results (to within statistical uncertainties) as when they were included. Both sets of these results are also indicated in Table I. As can be seen from the resulting lifetimes listed, no systematic shifts are observed with the first or first and second half-life portions of the time spectra deleted.

The individual uncertainties to the ultimate half-life for each of the eight runs were: statistics, 0.14 to 0.20%, deadtime, about 0.1% (after correction), background, about 0.1%; time base $\ll$ 0.1%. The half-life value we obtain, including all these uncertainties and performing the weighted average over the eight runs, is 11.163 ± 0.008 s. This same result was obtained with either of the approaches to the background.

3.2. Possible Systematic Effects

However, systematic uncertainties could also be important, as attested to by disagreement far outside the quoted uncertainties between previous results of different half-life measurements. Thus we have attempted to analyze the potential systematic uncertainties of our experiment as well. Some of the checks of systematic uncertainties which were performed in the present experiment were discussed above; they are included in the summary. Others not previously discussed are also included.

3.2.1. Contaminant γ -ray peaks.

Although the resolution of the Ge(Li) detector makes such contaminants unlikely, particularly because they must occur during the beam off portion of the cycle, there is still the possibility that a tiny impurity peak could be included in the γ -ray energy window, and thus could contribute to the spectrum. As noted above, the possibility of contaminant γ -rays was checked by observing the entire spectrum during the first run; no indication of such contaminants was seen during the data acquisition portion of the cycle. As noted above, an additional check was provided by our fitting different portions of the time spectrum; the possibility that an impurity peak would both have an energy within a few keV of 1.63 MeV and also have a similar half-life to ^{20}F is doubly improbable. This confirms our assumption of a constant background, aside from the possibility of stray beams discussed under section 3.2.4 below.

3.2.2. Shifts in γ -ray peaks and peak broadening associated with resolution degradation or count rate changes.

Gain shifts could shift part of the peak out of the window used to gate the time spectrum. Thus we tried to estimate the effect that such would have had on our half-life determination. The centroids and peak widths are indicated for each of the eight runs in Table I. Although the low energy (LE) tail on the Ge(Li) peak (also indicated in Table I) is small, a shift of 1.6 channels in that peak, the extreme of the centroid values observed, would cause a change in count rate of about 0.12% of the total yield in that cycle. (Note that the peak widths do not appear to broaden appreciably in runs with slightly shifted centroids; this suggests

that the variations in both the peak widths and the centroids are essentially statistical.) Since each of the eight runs consisted of about 700 such cycles, and gain shifts within a cycle are all that could have such an effect on our half-life determination, such gain shifts are not thought to have affected our final result by any significant factor.

Another possibility is that peak broadening due to changes of the event rate could affect our result. However, effects would only be significant if changes in event rate caused changes in peak shape during a single cycle, since the important feature is that the fraction of the peak sampled during a single experimental cycle remain constant throughout that cycle. Since the peak shape was found to be constant between the highest and lowest beam intensity runs, there is no reason to believe that peak shape changes would have affected our data. Another possible error of this type could result from pulse pile-up in which pulses were thereby thrown outside of the γ -ray window. As noted above, the method used in determining deadtime would also have included this effect, so it is properly corrected for in our analysis.

3.2.3. Deadtime corrections.

The deadtime corrections are discussed above; they are felt to be accurate to a few percent of the 1% deadtime, and thus to contribute a negligible uncertainty to the half-life determinations. The agreement of the half-life values determined from runs of different acquisition rates, and of those obtained from fits to different portions of the time spectra, confirms this assessment.

3.2.4. Possible drift of primary ions past the electrostatic deflector to the gas cell.

Any effect of this type would produce ^{20}F ions which could get to the Ta stopping plate during the data acquisition cycle. This would produce an additional background to that assumed in the data analysis, since decays of these ^{20}F ions would fall into the correct energy peak. However, the two approaches to the background used in our analysis allow determination of the magnitude of this effect. The fixed rate background would not include such contributions, while the floating rate background would. The remarkable consistency of the background levels determined in the two different approaches, however, well inside one standard deviation, (with the fixed rate background actually being the larger of the two) confirms that any effect of this type would have to be extremely small (consistent with zero), and could not contribute appreciably to our half-life determination. Indeed, the half-life determined with the first half-life portions of the time spectra deleted comes out to be the same to five significant figures to those determined with the entire spectra. Those determined with the first two half-life portions deleted are slightly larger than those from the entire data set (11.167 s to 11.163 s), but the difference is far less than one standard deviation. Although the possibility of stray beams is difficult to test during an actual run, these results are certainly consistent with our attempts to observe stray beams in our apparatus; they are extremely small if they exist at all.

4. Comparison to Other Results

The present result is in agreement with that of Genz et al.¹, $11.18 \pm$

0.01 s, but disagrees with those of Alburger and Calaprice³ ($10.996 \pm .020$ s) or Wilkinson and Alburger² ($11.03 \pm .06$ s). Insufficient detail is given in either ref. 2 or 3 to determine reasons for the disagreement. Conceivably some contaminant reaction occurred in their experiment to cause the discrepancies; the NaI detector used in ref. 2 may not have had enough energy resolution to discriminate against other possible reaction γ -rays. We note also that the difference between the result of ref. 3 and the present result is only about 20% of one of their time bins; possibly some difficulty in time calibration is responsible for the problem. Definitive identification of the source of the discrepancy between the present result and that of refs. 2 and 3, however, remains unknown at present.

Acknowledgements

The authors express their thanks to H.C. Britt for support of this effort. The work was also partially supported by the National Science Foundation through grant PHY89-20606 and the Department of Energy through LLNL under Contract No. W-7405-ENG-48.

References

1. H. Genz, A. Richter, B.M. Schmitz, and H. Behrens, Nucl. Phys. A267 (1976) 13.
2. D.H. Wilkinson and D.E. Alburger, Phys. Rev. Letters 24 (1970) 1134.
3. D.E. Alburger and F.P. Calaprice, Phys. Rev. C12 (1975) 1690.
4. K.E. Sale, T.F. Wang, R.N. Boyd, G.J. Mathews, D.W. Heikkinen, M.L. Roberts, M.S. Islam, and P.B. Corn, Phys. Rev. C41 (1990) 2418.
5. K.E. Sale, R.W. Bauer, R.N. Boyd, G.J. Mathews, R.C. Haight, and P.B. Corn, Nucl. Instrum. Methods Phys. Res. B24/25 (1987) 490.

Figure Captions

Figure 1. (a) GeLi γ -ray spectrum resulting from observation of the decay of the $^{20}\text{Ne}(2^+, 1.63 \text{ MeV})$ state which was populated by the β -decay of ^{20}F .

(b) Time spectrum showing the number of γ -rays detected as a function of time since the beginning of the data acquisition portion of the cycle.

Figure 2. Residuals from the fit to one of the eight time spectra.

Table 1. Data for Separate Runs

Run	Total Events	% DT	Gamma-Ray Spectrum			Time Spect.: Cts./Ch.	
			HE Bkg Cts./Ch.	Centroid*	FWHM*	Fixed Bkg	Floated Bkg
1	840369	1.75	250	1667.5(3)	7.4(2)	2.9	2.8
2	431721	1.54	124	1667.0(2)	7.2(2)	1.4	1.5
3	484430	1.30	152	1668.1(3)	7.0(2)	1.75	1.6
4	843191	1.14	253	1667.6(3)	7.6(2)	2.9	2.7
5	622931	1.04	176	1667.0(3)	7.3(2)	2.0	2.1
6	511767	0.87	158	1666.6(3)	7.7(2)	1.8	1.6
7	563891	0.74	169	1666.5(3)	7.7(3)	1.95	1.8
8	447321	0.50	128	1667.2(2)	7.2(2)	1.5	1.7

Run	All Data	Half-lives: Floating BKG*		All Data	Half-lives: Fixed BKG*	
		First $T_{1/2}$ Deleted	First $2T_{1/2}$ Deleted		First $T_{1/2}$ Deleted	First $2T_{1/2}$ Deleted
1	11.174(17)	11.164(25)	11.172(31)	11.168(16)	11.170(24)	11.175(31)
2	11.183(21)	11.163(28)	11.168(37)	11.178(22)	11.160(28)	11.159(36)
3	11.160(15)	11.166(27)	11.159(31)	11.160(15)	11.163(25)	11.160(31)
4	11.146(21)	11.154(26)	11.165(30)	11.154(22)	11.154(26)	11.166(30)
5	11.170(22)	11.158(24)	11.170(33)	11.168(20)	11.161(24)	11.169(33)
6	11.140(20)	11.162(26)	11.166(30)	11.146(18)	11.162(24)	11.163(30)
7	11.172(16)	11.168(28)	11.171(31)	11.164(15)	11.160(25)	11.165(29)
8	11.167(18)	11.166(29)	11.167(29)	11.170(18)	11.171(26)	11.169(29)

* Numbers in parentheses indicate uncertainties in the last digit, for the centroids and FWHMs, and in the last two digits for the half-lives.

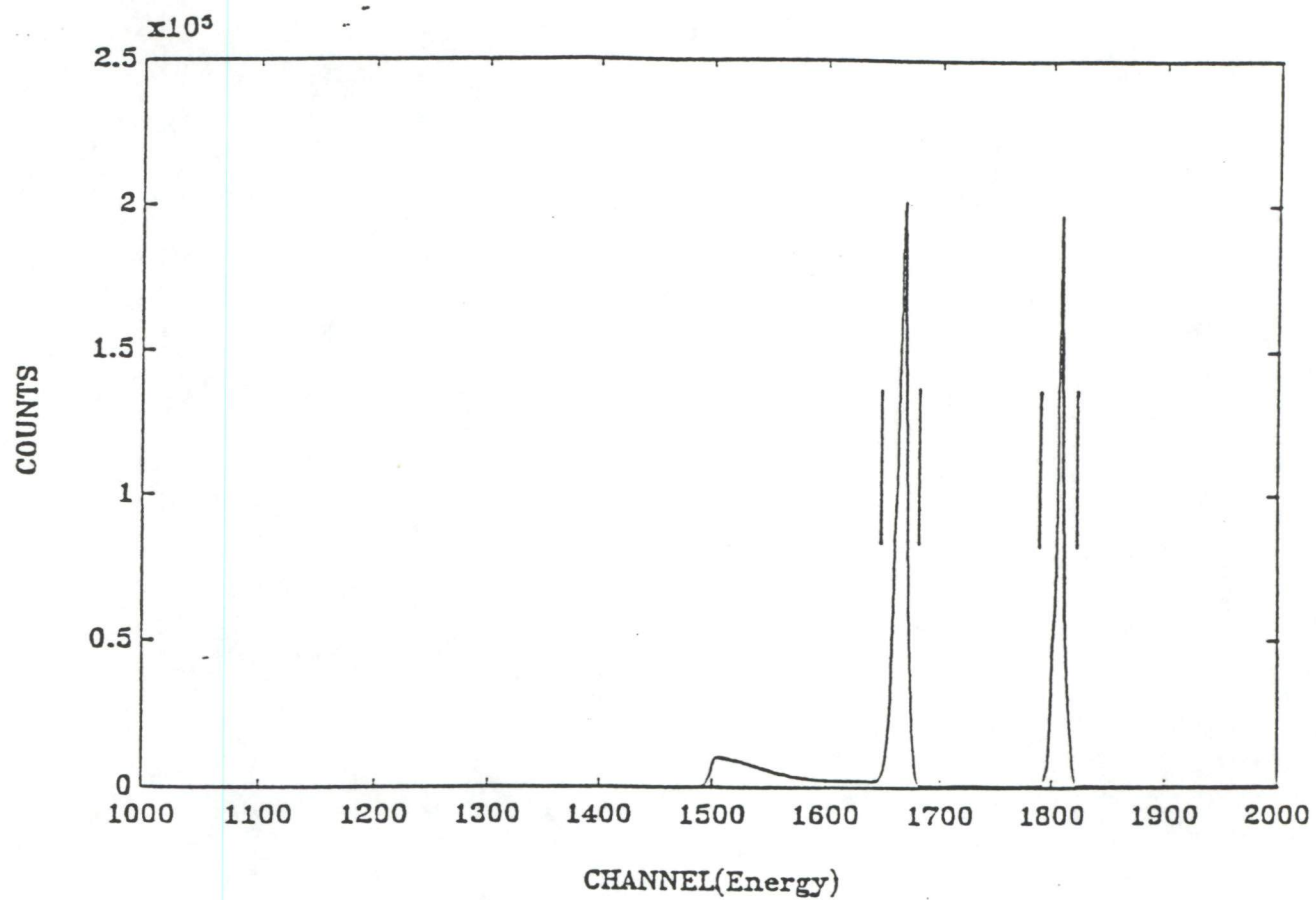


Fig. 1(a)

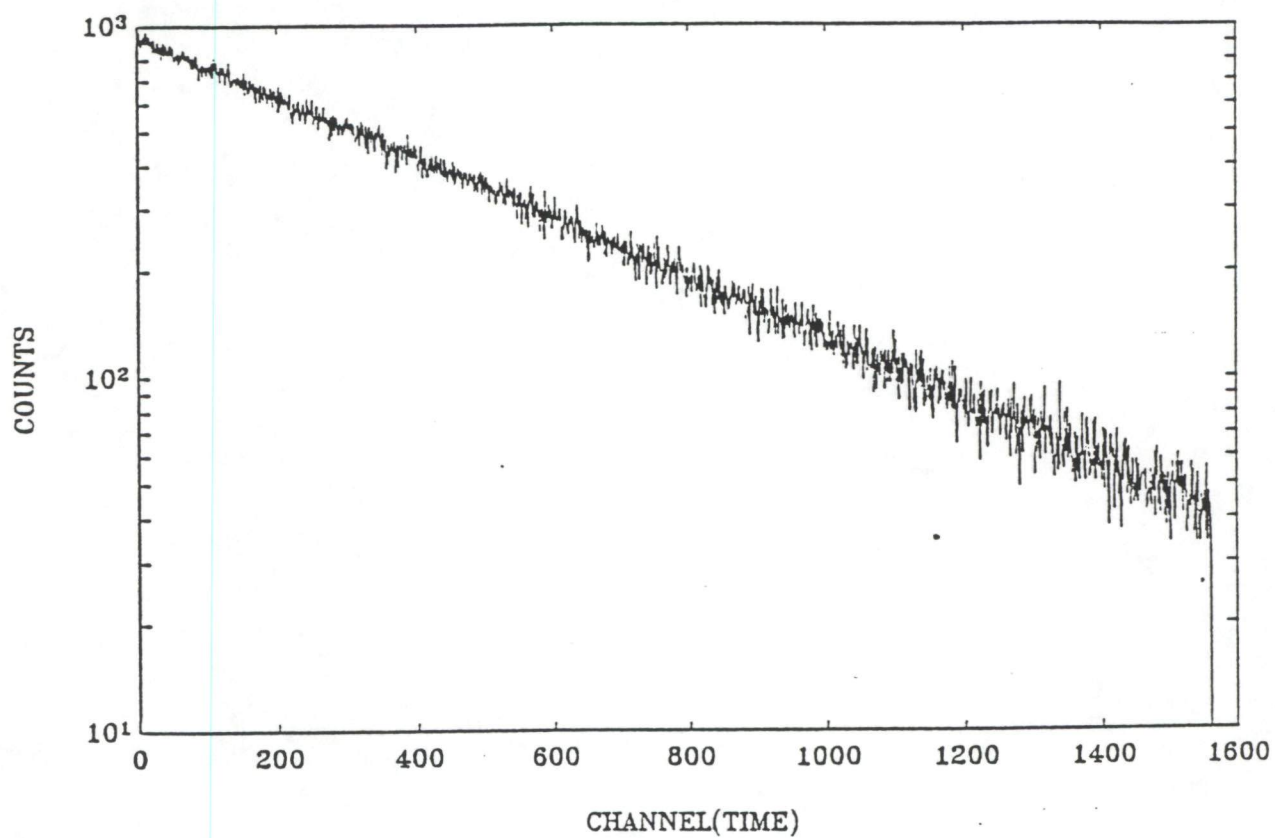


Fig. 1(b)

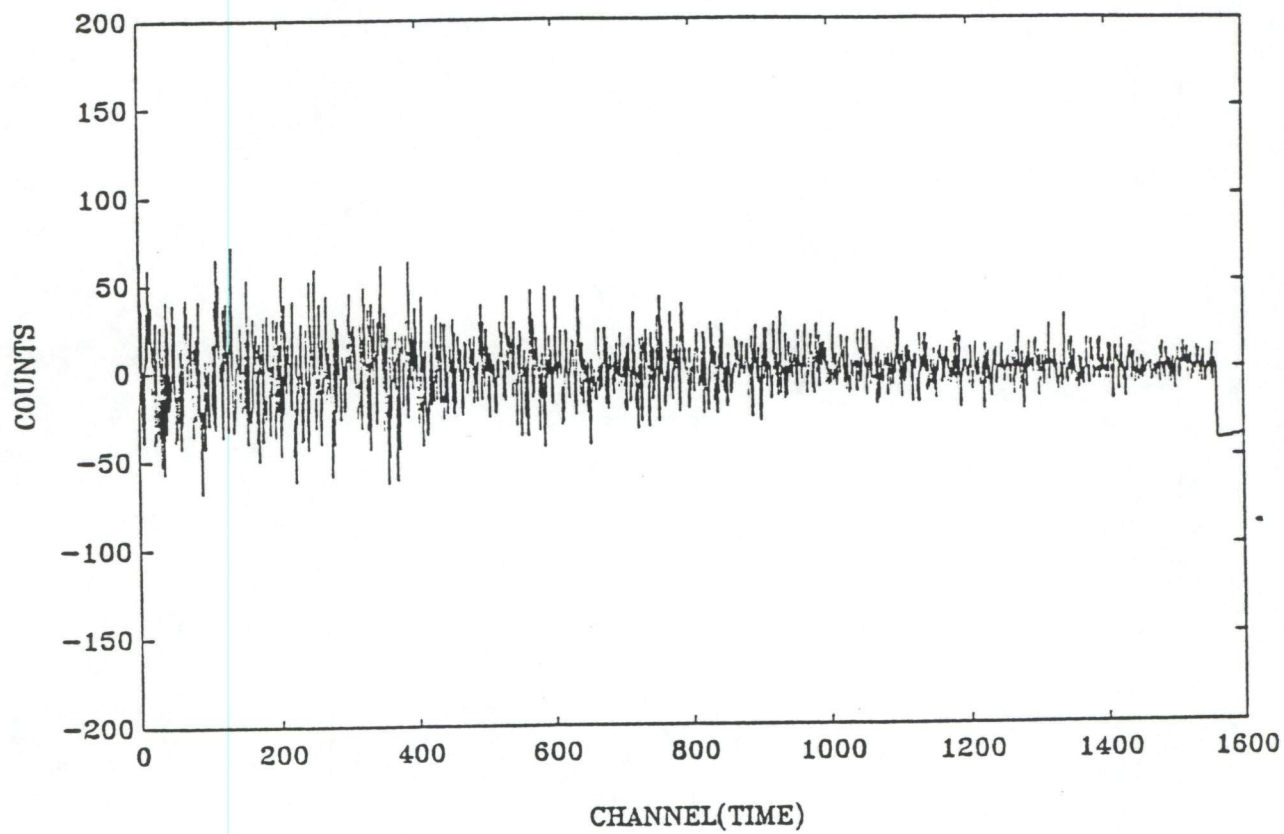


Fig. 2

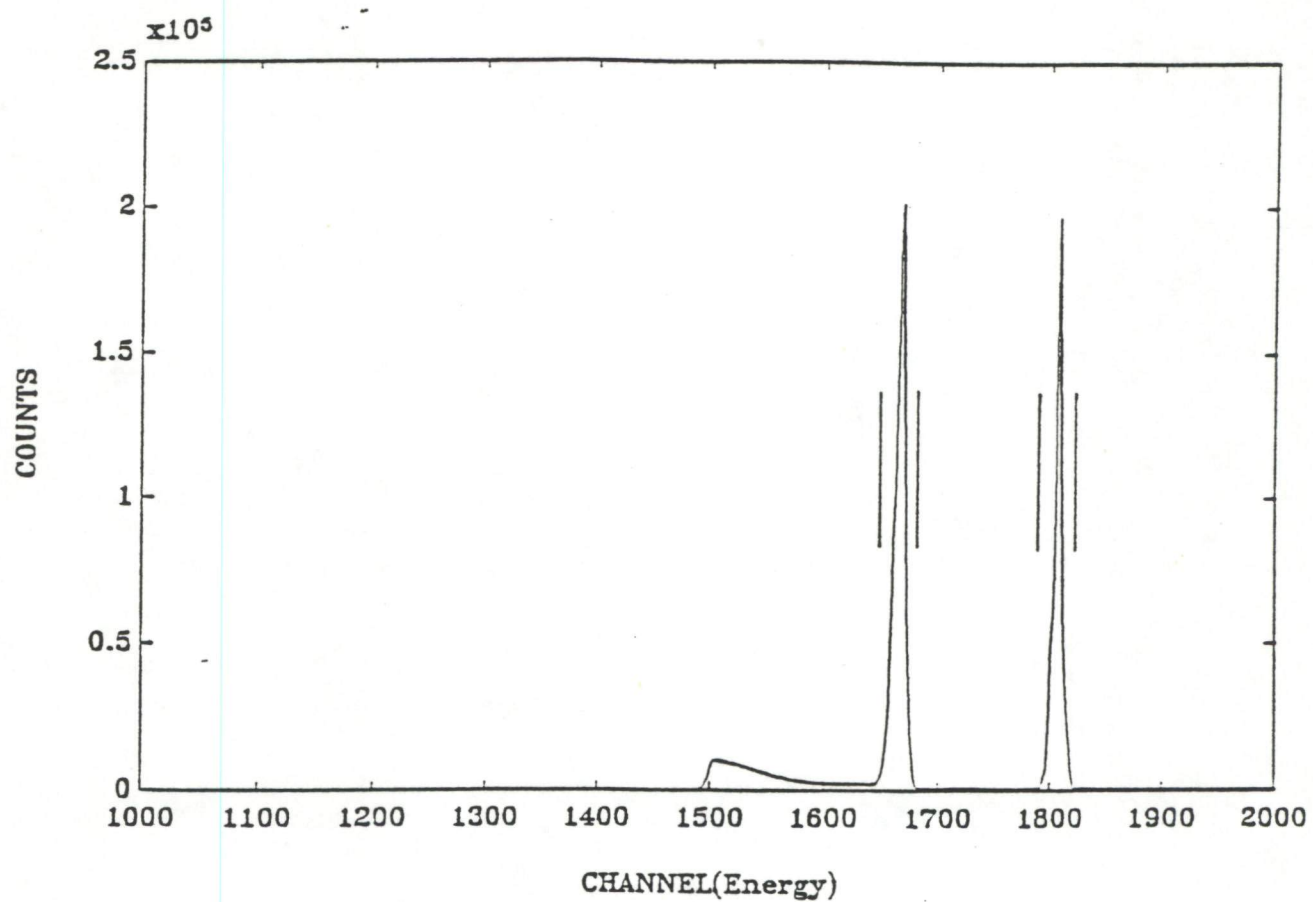


Fig. 1(a)

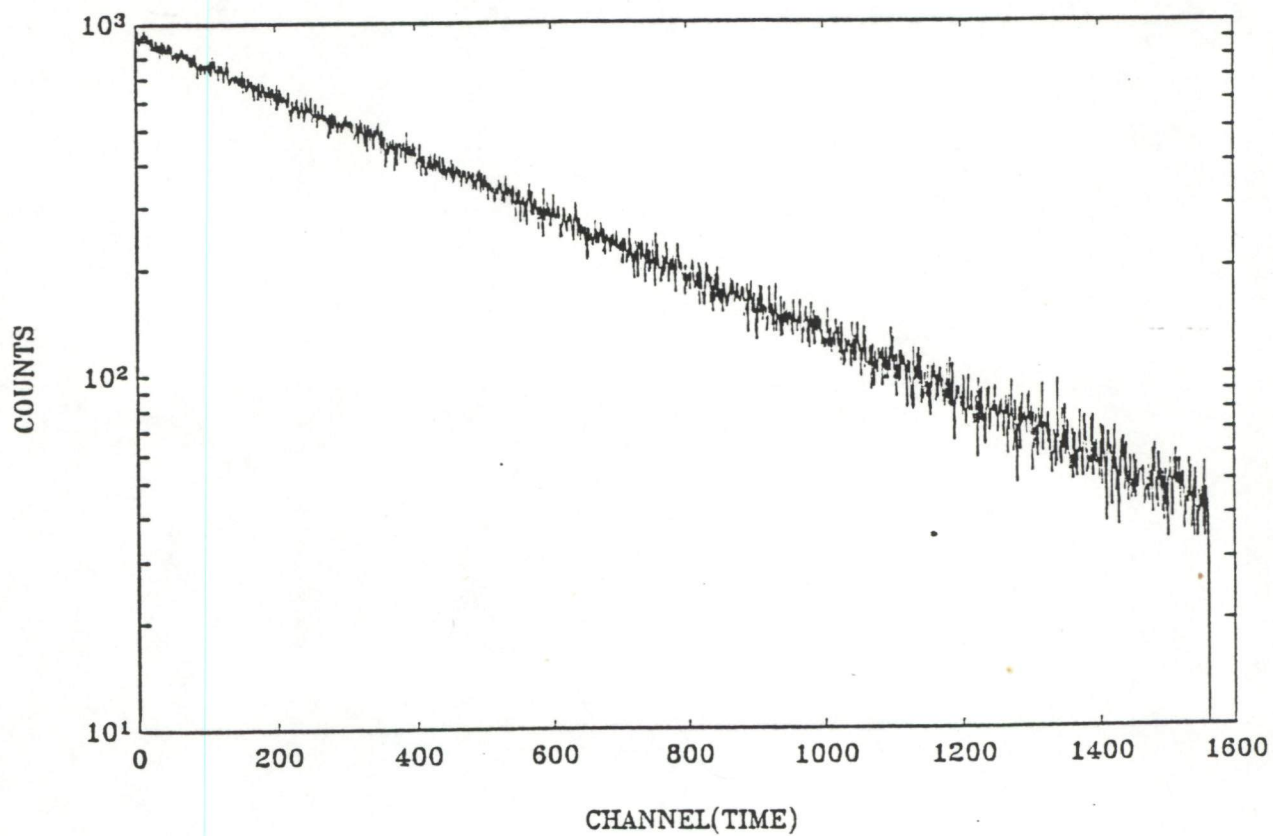


Fig. 1(b)

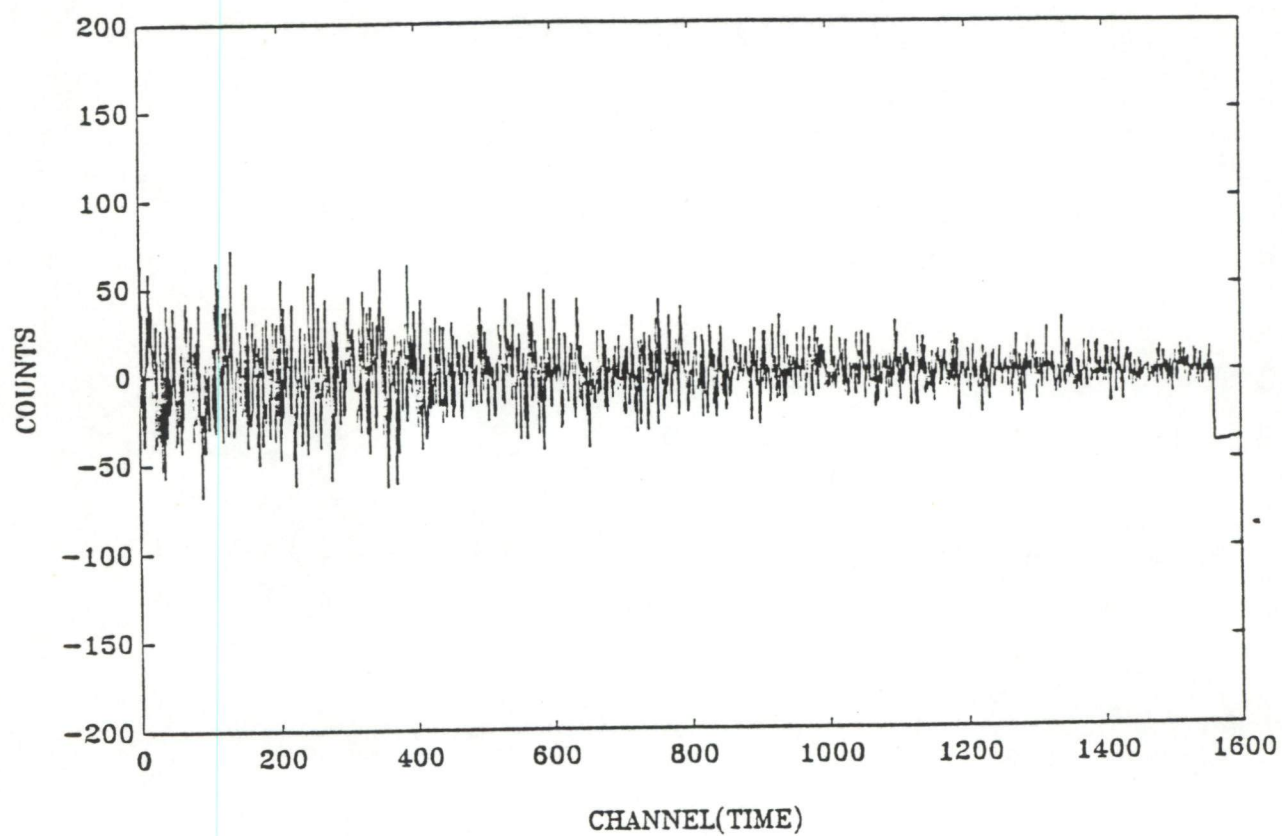


Fig. 2

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01d. Letter	To: John Woodworth From: Allan Bromley Re: Letter of Recommendation for Tzu-fang Wang [personal information redacted] (1 pp.)	9/20/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
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(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Yale University
Department of Applied Physics

Victor E. Henrich
Professor of Applied Physics and Physics
Phone: (203) 432-4399

327 Becton Center
15 Prospect Street
Box 2157 Yale Station
New Haven, CT 06520

Fax No. (203) 432-4283

October 21, 1991

Prof. D. Allan Bromley
6717 Tulip Hill Terrace
Bethesda, MD

Dear Allan,

I am writing to you with a slightly unusual request. My wife, Jan, who is an Associate Professor of Medicine at Yale, may have the opportunity to participate in a women's health initiative at the N.I.H. for two years, beginning next summer. The position would require her to live in the Washington area most of the time.

The situation of her living in Washington and me in New Haven all of the time is untenable for us. Therefore I would like to consider the possibility of doing something in Washington for part of that time, if my knowledge and expertise could be of use. I have a research group consisting of three graduate students and a postdoc based at Yale, so I would still have to commute back and forth often. But it might be possible for me to take a leave of absence from Yale for a year, which would at least relieve me of teaching and administrative duties, so I could then spend a larger amount of time out of New Haven.

I do not know much about the workings of the science establishment in Washington, and I have no idea what, if anything, might be possible given the constraints that I have. I can't think of anyone who has a more comprehensive view of science as it is practiced in Washington than you do. Do you have any suggestions as to places or institutions where my expertise might be valuable, perhaps on a part-time basis? This could be a chance for me to become involved in very different facets of science than I have been so far.

I would greatly appreciate any suggestions that you might have. (Things are at a very preliminary stage, so I have not discussed this with anyone at Yale.)

Best regards,

Vic

Victor E. Henrich

THE WHITE HOUSE
WASHINGTON

December 4, 1991

Dear Vic:

My apologies for the long delay in responding to your letter of October 21 but it arrived while I was out of the country and I have been travelling much of the time since so that I have developed a huge correspondence backlog.

Given the constraints that your responsibilities at Yale will place on your activities while you and your wife are in Washington, it seems to me that there are only two, and possibly three, areas where it might be possible for you to arrange a part-time position where you could really use your background and experience to best advantage.

As I see it, these institutions would be the National Science Foundation, the Department of Energy, and the Department of Defense, specifically the DARPA Agency.

At the National Science Foundation I would suggest that you write to the Director, Dr. Walter Massey; at the Department of Energy, the Director of the Office of Energy Research, Dr. Will Happer, and at the Department of Defense, Dr. Victor Reis, who is Director of Defense Research and Engineering and who, until very recently, has been Director of DARPA. In each case, you should tell them that you are writing at my suggestion and spell out a bit of your background and, more specifically, the time that you would have available for activities in their respective institutions. All three of them certainly have a need for people with your background and the question is simply one of being able to construct the right position in a time of tight budgets and on a part-time basis.

Another possibility that comes to mind is the National Institute of Standards and Technology in Germantown, and there the Director is Dr. John Lyons, and you might consider writing him in the same fashion, although this would not be as convenient for you. Germantown and Bethesda, however, are not really all that far apart so a relatively minor commute would take care of both of you from one of the northern suburbs.

If you would let me know once you have written to these individuals, I would be happy to call them on your behalf and would look forward to the possibility of having you here in Washington as a colleague.

I hope that this information is of some use to you and will look forward to keeping in touch.

With warmest best wishes,

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Allan", written in a cursive style.

D. Allan Bromley
The Assistant to the President
for
Science and Technology

Professor Victor E. Henrich
Department of Applied Physics
Yale University
327 Becton Center
Box 2157 Yale Station
New Haven, Connecticut 06520

"CORRESPONDENCE TRACKING"

TYPE: ACTION DOCUMENT NUMBER: 9123571
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: DEERE, Don U.: NUCLEAR WASTE TECHNICAL REVIEW BOARD

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 08/20/91

SUBJECT: REQUEST FOR ANY ASSISTANCE DR. BROMLEY MAY BE ABLE
TO OFFER TO EXPEDITE THE APPOINTMENT PROCESS TO FILL
THE VACANY CREATED BY DR. CARTER'S RESIGNATION IN
THE AREA OF RADIOBIOLOGY AND HEALTH PHYSICS.

DIRECTORATE STAFF
ASSIGNED: PHYSICAL SCIENCES ASSIGNED:

ACTION STAFF
REQUIRED: FOR DAB'S SIGNATURE ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: 09/05/91 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: LIFE SCIENCES
Ken Yale
D. Allan Bromley
ENVIRONMENT

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS: Re-assigned to Physical Sciences 09/03/91.

OBE

CLOSED

OSTP RECEIVED: 08/23/91
DEPT RECEIVED:

FILE: P-DAB-REFERRAL

3571



UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD

1100 Wilson Boulevard, Suite 910
Arlington, VA 22209

91 AUG 23 All : 14

OFFICE OF THE
DIRECTOR August 20, 1991

Dr. D. Allan Bromley
Science Advisor to the President
Old Executive Office Building, Room 360
Washington, DC 20500

Dear Dr. Bromley:

In the 1987 amendments to the Nuclear Waste Policy Act, Congress mandated the creation of the Nuclear Waste Technical Review Board (the Board) to evaluate the technical and scientific validity of the Department of Energy's (DOE) program to manage the disposal of civilian high-level radioactive waste. As the only independent source of expert advice to Congress and the Secretary of Energy on the technical and scientific aspects of the DOE's program, the Board has played a very important role in helping to address the Nation's civilian high-level waste disposal problem.

The NWPA specifies that Board members be appointed by the President from nominations made by the National Academy of Sciences (NAS). The Board, however, has never had a full complement of eleven members. Two as yet unfilled positions currently are being processed by the White House.

This July, one of the Board's original members, Dr. Melvin W. Carter, resigned his position with the Board creating a third vacancy. Dr. Carter filled a designated position in the area of radiobiology and health physics. This is a particularly important area at present as the EPA standard 40 CFR 191 is currently being revised. The revision may affect both the Nuclear Regulatory Commission's regulation 10 CFR 60 and the Department of Energy's efforts to comply with the new radiation limits. The Board would like to see this position filled as soon as possible.

Enclosed are copies of a letter and a summary of qualifications required of potential Board members, which I recently sent to Dr. Frank Press, President of the NAS. I have asked Dr. Press to begin as soon as possible the process of nominating candidates to fill the vacancy, created by Dr. Carter's resignation in the area of radiobiology and health physics.

I would greatly appreciate any assistance you may be able to offer to expedite the appointment process. I have requested the same from Ms. Constance Horner, Director of Presidential Personnel, Executive Office of the President, and have forwarded her copies of the letter to Dr. Press and the summary of qualifications. I hope that the vacancy can be filled in a timely fashion so that the Board may continue its work without interruption.

Sincerely,

A handwritten signature in cursive script, reading "Don U. Deere".

Dr. Don U. Deere
Chairman

Enclosures



UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD
1100 Wilson Boulevard, Suite 910
Arlington, VA 22209

August 20, 1991

Dr. Frank Press
President
National Academy of Sciences
2101 Constitution Avenue N.W.
Washington, DC 20418

Dear Dr. Press:

Almost three years ago, on January 18, 1989, President Reagan appointed the first eight members to the Nuclear Waste Technical Review Board (the Board), created by the Nuclear Waste Policy Amendments Act (NWPAA) of 1987. The Board provides an independent source of expert advice to the Congress and the Secretary of Energy on the Department of Energy's (DOE) program to manage the permanent disposal of civilian high-level radioactive waste. Since 1989, the Board has made good progress in its efforts to evaluate the DOE's program. In fact, our *Third Report to the U.S. Congress and the U.S. Secretary of Energy* was released this past May; our fourth will be released in November.

I am writing to inform you of a vacancy on the Board created by the recent resignation of Dr. Melvin W. Carter. Dr. Carter filled a designated position in the area of radiobiology and health physics. This is a particularly important area at present as the EPA standard 40 CFR 191 is currently being revised. The revision may affect both the Nuclear Regulatory Commission's regulation 10 CFR 60 and the Department of Energy's efforts to comply with the new radiation limits. The Board would like to see this position filled as soon as possible.

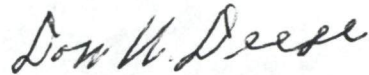
As you know, the National Academy of Sciences (NAS) is responsible for nominating potential candidates for appointment to the Board by the President. The NWPAA requires the NAS to nominate no fewer than two persons to fill each vacancy. Nominations must then be subjected to a vigorous screening by the White House. Given these requirements, the appointment process could become a lengthy one. I would therefore like to request that the Academy begin as soon as possible the process of nominating candidates to fill the vacancy created by the resignation of Dr. Carter. As Dr. Carter's four-year term was to expire on April 18, 1992, we expect the new appointment to be for four years.

For your convenience, I have enclosed a summary of those qualifications required of nominees for appointment to the Board. This summary is based on the requirements of the NWPAA and on the Board's conflict of interest policy, which was recently developed in coordination with the Office of Government Ethics.

I am forwarding a copy of this letter to Ms. Constance Horner, Director of Presidential Personnel, and to Dr. Allan Bromley, Science Advisor to the President. Perhaps their assistance will be helpful in expediting the appointment process.

I greatly appreciate your attention to this matter and look forward to your response. If you have any questions, please call Dr. William D. Barnard, the Board's Executive Director.

Sincerely,

A handwritten signature in cursive script, reading "Don U. Deere".

Don U. Deere
Chairman

Enclosures

cc:

Dr. Allan Bromley
Ms. Constance Horner
Dr. Peter Myers

NUCLEAR WASTE TECHNICAL REVIEW BOARD (NWTRB)

Qualifications for members

The two essential characteristics of a Board member are **technical competence** and **objectivity**. These create the foundation of the Board's credibility, a vital element to the success of its program. The Board's enabling legislation (Public Law 100-203, December 22, 1987) addresses both of these areas.

To ensure **competence** the law provides that each person nominated by the National Academy of Sciences for appointment to the Board shall be (1) eminent in a field of science or engineering, including environmental sciences, and (2) selected solely on the basis of established records of distinguished service. Therefore, a member must possess an excellent scientific reputation and background in one of a wide range of technical areas represented on the Board. This established expertise supports the critical requirements of independence and objectivity.

The law also addresses **objectivity** from a conflict of interest point of view by providing that no person shall be nominated for appointment to the Board who is an employee of (1) the Department of Energy (DOE), (2) a national laboratory under contract with the (DOE), and (3) an entity performing high-level radioactive waste (HLW) or spent nuclear fuel activities under contract with the DOE. Thus the law recognizes the need for a member to be distant from the "program" to insure independence and credibility of effort. The law does not limit conflicts to those listed, and credibility may be compromised by the perception of a member representing a point of view of others with vested interests in HLW disposal.

Past involvement with HLW is not a necessity, nor is such past involvement a disqualifying factor. In fact, a strict non-involvement policy could limit the candidate pool to the extent of undermining the quality of the Board. However, present involvement with nuclear waste disposal may be disqualifying. In fact, eliminating any present involvement may be a requirement for serving on the Board. Minimizing the perception of a conflict of interest (as defined by 18 USC 208 or the Board's enabling legislation) is critical to the credibility of a member's contribution, and the Board's efforts in general.

"LIFE SCIENCES (CORRESPONDENCE TRACKING)"

TYPE: ACTION DOCUMENT NUMBER: 9123577
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS C

FROM: SCHWARTZ, M. Roy: AMERICAN MEDICAL ASSOCIATION

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 08/12/91

SUBJECT: REQUEST FOR HELP IN IDENTIFYING AND HELPING TO
INTEREST QUALIFIED POTENTIAL CANDIDATES FOR THE
POSITION OF VICE PRESIDENT FOR SCIENCE AND PUBLIC
HEALTH.

DIRECTORATE STAFF
ASSIGNED: LIFE SCIENCES ASSIGNED: D.A. Henderson

ACTION STAFF
REQUIRED: FOR DAB'S SIGNATURE ACTION: Bromley Signature
AS/IF NECESSARY

SENDER'S DUE DATE:
OSTP DUE DATE: 09/18/91 STAFF DUE DATE 09/18/91
DATE COMPLETED: DATE COMPLETED/DEPT: 09/18/91

COPIES TO: D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS: Re-assigned to Life Sciences 09/03/91, therefore the due date
has been changed to 09/18/91. Dr. Henderson commented: "This is
a standard letter sent to literally thousands of people. No
reply is necessary."

OSTP RECEIVED: 08/23/91
DEPT RECEIVED: 09/09/91

FILE: P-DAB-REFERRAL

CLOSED

American Medical Association

Physicians dedicated to the health of America



M. Roy Schwarz, MD
Senior Vice President,
Medical Education & Science

515 North State Street
Chicago, Illinois 60610

312 464-4370
312 464-4184 Fax

RECEIVED

91 AUG 23 All: 15

OFFICE OF THE
DIRECTOR

August 12, 1991

Allan D. Bromley, PhD
Assistant to the President
for Science and Technology
The Old Executive Office Building
17th & Pennsylvania Avenue, NW
Washington, DC 20506

Dear Doctor Bromley:

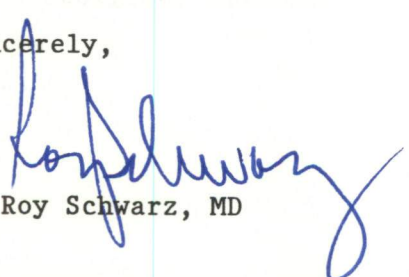
The American Medical Association (AMA) is seeking potential candidates for a position on its staff as Vice President for Science and Public Health. This senior position requires an individual who has experience and standing in the scientific and academic communities and has demonstrated the ability to lead a dedicated staff. Responsibilities include administering a major segment of the AMA's activities and enhancing the efforts of elected and volunteer member participants in the AMA's programs. Compensation, of course, would be competitive and supplemented with an attractive benefits package.

The Vice President for Science and Public Health is responsible for leadership of a sizeable staff and program and policy development activities of the American Medical Association in technology assessment, drug evaluation, a variety of public health initiatives, physician health, and related issue areas. The Vice President serves as Secretary to the AMA's Council on Scientific Affairs, an elected body of physician leaders in science. The position also involves networking with government and private agencies, foundations, and with other physician leaders across the country.

Being familiar with the AMA, you are aware of the key nature of this position at this time when technology and regulation seem to threaten to overwhelm the practicing profession. Your help in identifying and helping to interest qualified potential candidates for the position would be greatly appreciated. Please direct correspondence on the Vice President for Science and Public Health position to me at the address on this letterhead.

Many thanks for your help.

Sincerely,


M. Roy Schwarz, MD

"CORRESPONDENCE TRACKING"

TYPE: ACTION DOCUMENT NUMBER: 9123577
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: SCHWARTZ, M. Roy: AMERICAN MEDICAL ASSOCIATION

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 08/12/91

SUBJECT: REQUEST FOR HELP IN IDENTIFYING AND HELPING TO
INTEREST QUALIFIED POTENTIAL CANDIDATES FOR THE
POSITION OF VICE PRESIDENT FOR SCIENCE AND PUBLIC
HEALTH.

DIRECTORATE STAFF
ASSIGNED: LIFE SCIENCES ASSIGNED:

ACTION STAFF
REQUIRED: FOR DAB'S SIGNATURE ACTION:
AS/IF NECESSARY

SENDER'S DUE DATE:
OSTP DUE DATE: 09/05/91 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS: Re-assigned to Life Sciences 09/03/91.



OSTP RECEIVED: 08/23/91 FILE: P-DAB-REFERRAL
DEPT RECEIVED:

"CORRESPONDENCE TRACKING"

TYPE: ACTION DOCUMENT NUMBER: 9123577
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POSITION OF VICE PRESIDENT FOR SCIENCE AND PUBLIC
HEALTH.

DIRECTORATE STAFF
ASSIGNED: D. Allan Bromley ASSIGNED:

ACTION STAFF
REQUIRED: AS NECESSARY ACTION:

SENDER'S DUE DATE: STAFF DUE DATE
OSTP DUE DATE: 09/05/91 DATE COMPLETED/DEPT:
DATE COMPLETED: *****

COPIES TO: LIFE SCIENCES

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

OSTP RECEIVED: 08/23/91 FILE: P-DAB-REFERRAL
DEPT RECEIVED:

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Life Sciences
for DAB sig
(if necessary)
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American Medical Association

Physicians dedicated to the health of America



M. Roy Schwarz, MD
Senior Vice President,
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515 North State Street
Chicago, Illinois 60610

312 464-4370
312 464-4184 Fax

RECEIVED

91 AUG 23 AM 11:15

OFFICE OF THE
DIRECTOR

August 12, 1991

Allan D. Bromley, PhD
Assistant to the President
for Science and Technology
The Old Executive Office Building
17th & Pennsylvania Avenue, NW
Washington, DC 20506

Dear Doctor Bromley:

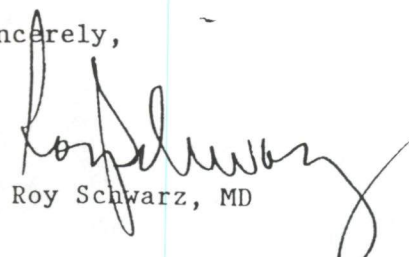
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Many thanks for your help.

Sincerely,


M. Roy Schwarz, MD

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02a. Letter	To: Allan Bromley From: Partha Chowdhury Re: Requests Letter of Recommendation [personal information redacted] (1 pp.)	7/31/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

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P-1 National Security Classified Information [(a)(1) of the PRA]
 P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
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C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

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 financial institutions [(b)(8) of the FOIA]
 (b)(9) Release would disclose geological or geophysical information

**TENURE-TRACK FACULTY POSITION
ATOMIC, MOLECULAR, AND OPTICAL THEORY
AUBURN UNIVERSITY**

The Department of Physics at Auburn University has an opening for a tenure-track faculty position in atomic, molecular, and optical theory, available September 16, 1991. The faculty appointment may be made at the level of assistant or associate professor. A candidate with expertise in atomic, molecular, and optical theory will be given preference, but applicants in other fields will be considered. The appointee will be expected to teach both undergraduate and graduate courses in physics. Interested applicants should send a curriculum vitae and addresses of three references to the Faculty Search Committee, Department of Physics, Auburn University, Auburn, AL 36849-5311. The faculty position is subject to the availability of state funds. Auburn University is an Affirmative Action, Equal Opportunity Employer. Minorities and women are encouraged to apply.

ASTROPHYSICIST

The Universities Space Research Association (USRA) is currently seeking an astrophysicist to join the X-Ray Astronomy Branch of the Goddard Space Flight Center's Laboratory for High Energy Astrophysics. Specific responsibilities will include the testing and calibration of the large proportional counters for the XTE PCA experiment and on preparations for associated data analysis and operations systems. The position also offers the opportunity to participate in current data analysis research. Applicants must have a Ph.D. in physics or a related physical sciences discipline and relevant experience in experimental physics is preferable. Salary will be competitive, commensurate with experience. A relocation allowance is available if required. The Universities Space Research Association is a non-profit university consortium, chartered to foster cooperation between universities and the U.S. Government toward the advancement of research and education in space science and technology. USRA is an equal opportunity employer. Applications received before July 15, 1991 will receive full consideration. Send curriculum vitae and contacts for references to: Dr. Frank J. Kerr, USRA Visiting Scientist Program, Mail Code 610.3, NASA/Goddard Space Flight Center, Greenbelt, MD 20771, (301) 286-5057.

**Instrument Scientist/Associate Research Scientist
Center for Astrophysical Sciences
The Johns Hopkins University**

The Center for Astrophysical Sciences has a position open at the Associate Research Scientist level for participation in the design and development of the Lyman Far Ultraviolet Spectroscopic Explorer (FUSE) mission. FUSE will perform high resolution spectroscopy in the far and extreme ultraviolet regions, and has recently entered the Phase B design stage. Launch is scheduled for 1998. The FUSE Science Team is being led by The Johns Hopkins University. Requirements for the position include a Ph.D. in astronomy or physics and previous experience in space or ground-based astronomical instrumentation or software. Preferred areas of expertise are microchannel plate detectors, diffraction grating fabrication and evaluation; UV optics design and evaluation, including ray-tracing techniques; and flight or ground software development for space systems. Similar additional positions may become available as the FUSE program advances. The successful applicants will also be encouraged to pursue independent research projects. In addition, the opportunity exists to participate in an on-going rocket astronomy program. Research staff at the Center receive one year appointments, which are renewable annually. It is anticipated that the position will be extended through the completion of the FUSE mission, which is expected to last three years after launch. Please send an application, including curriculum vitae and three letters of reference, to Professor Warren Moos, Director, Center for Astrophysical Sciences, The Johns Hopkins University, 3400 North Charles Street, Baltimore, MD 21218. The Johns Hopkins University is an Equal Opportunity/Affirmative Action employer.

**TENURE-TRACK OR TENURED FACULTY POSITION
AMHERST COLLEGE**

Amherst College is seeking an individual with broad intellectual interests and a strong commitment to undergraduate teaching and to research involving undergraduates, to fill a tenure-track (or tenured) faculty position in physics beginning in September, 1992. Preference will be given to candidates at the Assistant Professor level, but applicants with suitable experience and qualifications will be considered for appointment at the rank of Associate Professor or Full Professor (the latter with tenure). A Ph.D. is required. Postdoctoral research experience and previous teaching experience are pluses. The successful candidate will be expected to teach courses at the introductory and advanced undergraduate levels, to pursue an active research program, and, after the first year, to share in the advising of students, to serve on faculty committees, and to participate in the operation of the department. Preference will be given to candidates whose research provides opportunities for undergraduate participation. Substantial start-up funds for research are available. As part of a program to increase the ethnic and gender diversity of its faculty and, in addition, to recruit and retain a larger number of students from many ethnic and cultural backgrounds in the sciences, the College is actively seeking individuals who can help the College achieve those goals. Women and minority physicists are particularly encouraged to apply. Amherst College is a private liberal arts college with approximately 1600 students. Located in scenic western Massachusetts, the College enjoys a lively intellectual and cultural environment enhanced by the Five College Association (Amherst, Hampshire, Mt. Holyoke, Smith, and the University of Massachusetts at Amherst), which provides many opportunities for scholarly seminars and research collaborations. The Department currently has 8 faculty members with research interests in experimental tests of fundamental symmetries, laser spectroscopy of atoms and molecules, chaos and nonlinear dynamics, low-temperature physics, high-temperature superconductivity, high energy physics, theoretical hydrodynamics, cosmology and general relativity. A typical teaching schedule has 7 contact hours per week. We have an excellent machine shop, electronics shop, and technical support staff. Amherst hosts the editorial office of the American Journal of Physics. Applicants should submit a current c.v., a list of publications, and a letter describing plans for teaching and research at Amherst. In addition, they should arrange to have three letters of recommendation sent to Robert C. Hilborn, Chair, Department of Physics, Amherst College, Amherst, MA 01002. To receive full consideration, these materials should arrive before November 30, 1991. Early applications are encouraged. We may begin interviews in the early fall, but applications received by the deadline will receive full consideration. Amherst College is an Affirmative Action, Equal Opportunity Employer.

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**FACULTY POSITION IN
RADIOLOGICAL
SCIENCES**

The Department of Nuclear Engineering at MIT requests applications for a position in the area of radiological sciences. The position will be on a tenure track with an initial three-year appointment. The successful candidate will be a member of the Radiation Science and Technology program of the Nuclear Engineering Department. Candidate should hold a Ph.D. or Sc.D. in an engineering or physical sciences specialty and should have experience in imaging techniques, radiation production and detection, and radiation applications. Candidate should be interested in a broad range of topics dealing with biophysics and imaging.

Independent of the area of research, the candidate should be capable of mounting an extensive research program and obtaining support. The program should interact with and expand other activities in the Nuclear Engineering Department involving nuclear reactions. The candidates should be capable of teaching a wide range of courses in the academic areas of radiation science and technology including radiation and radioisotope applications and experimental nuclear physics. The teaching activities will form an integral part of the radiological sciences program and the successful candidates will have responsibilities for the supervision of student research including master's and doctoral research.

The candidate should also be able to integrate research and teaching with other aspects of the department's radiological sciences program such as radiation dosimetry therapy and health physics. Effective collaboration with other relevant groups in the Boston area is important.

Please submit curriculum vitae to: Professor Gordon L. Brownell, Massachusetts Institute of Technology, Whitaker College of Health Sciences, Technology and Management, Room E25-330B, 77 Massachusetts Ave., Cambridge, MA 02139-4307.

MIT is an Equal Opportunity/
Affirmative Action Employer
MIT is a non-smoking environment

**Massachusetts
Institute of Technology**

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Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02b. Letter	To: Gordon Brownell From: Partha Chowdhury Re: Application [personal information redacted] (2 pp.)	7/31/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02c. Letter	To: Robert C. Hilborn From: Partha Chowdhury Re: Application [personal information redacted] (3 pp.)	7/31/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02d. Letter	To: Partha Chowdhury From: Allan Bromley Re: Requested Letters of Recommendation [personal information redacted] (1 pp.)	9/18/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or
financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President
and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of
personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of
gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an
agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial
information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of
personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement
purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of
financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02e. Letter	To: Robert Hilborn From: Allan Bromley Re: Letter of Recommendation for Partha Chowdhury [personal information redacted] (2 pp.)	9/18/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
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P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02f. Letter	To: Gordon Brownell From: Allan Bromley Re: Letter of Recommendation for Partha Chowdhury [personal information redacted] (2 pp.)	9/18/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
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AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
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(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02g. Resume	Resume of Partha Chowdhury [personal information redacted] (9 pp.)		(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
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RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
 P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
 P-3 Release would violate a Federal statute [(a)(3) of the PRA]
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C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
 (b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
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 (b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
 (b)(9) Release would disclose geological or geophysical information

"CORRESPONDENCE TRACKING"

TYPE: INFORMATION

DOCUMENT NUMBER: 9123026

ORIGINATOR: 02

STATUS C

DIRECTORATE STATUS

FROM: GOLDEN, William T.: CARNEGIE COMMISSION

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 07/26/91

SUBJECT: RE: GOLDEN'S MEETING WITH BILL STEWART.

DIRECTORATE
ASSIGNED:

STAFF
ASSIGNED:

ACTION
REQUIRED:

STAFF
ACTION:

SENDER'S DUE DATE:

OSTP DUE DATE:
DATE COMPLETED:

STAFF DUE DATE
DATE COMPLETED/DEPT:

COPIES TO: Tom Ratchford
D. Allan Bromley

WHITE HOUSE TRACKING #:

CONTACT PERSON:

PHONE:

EXT:

REMARKS:

CLOSED

OSTP RECEIVED: 07/30/91
DEPT RECEIVED:

FILE: P-DAB-MEMBERSHIP-CARNEGIE COMM

3026

CARNEGIE COMMISSION
ON SCIENCE, TECHNOLOGY, AND GOVERNMENT

10 WAVERLY PLACE, NEW YORK, NY 10003, PHONE: (212) 998-2150, FAX: (212) 995-3181
EMAIL: CARNEGIE@ACF1.NYU.EDU

RECEIVED

91 JUL 30 A 9:14

Mr. Golden's private office: 40 Wall Street, New York, NY 10005

OFFICE OF THE
DIRECTOR

COMMISSION

William T. Golden

Co-Chair

Joshua Lederberg

Co-Chair

David Z. Robinson

Executive Director

Richard C. Atkinson

Norman R. Augustine

John Brademas

Lewis M. Branscomb

Hon. Jimmy Carter

William T. Coleman, Jr.

Sidney D. Drell

Daniel J. Evans

Andrew J. Goodpaster

Shirley M. Hufstедler

B.R. Inman

Helene L. Kaplan

Donald Kennedy

Charles McC. Mathias, Jr.

William J. Perry

Robert M. Solow

H. Guyford Stever

Sheila E. Widnall

Jerome B. Wiesner

July 26, 1991

Dear Allan:

I meant to tell you a little more about my very friendly meeting with Bill Stewart when I was in London last week. You got the message that he was less troubled by Curien's conduct than you were. He points out that both Curien and Riesenhuber (who, he said, seem to get along very well together) are both ministers and are both politicians who have to be elected and who therefore are always conscious of vote getting. Therefore they want to get publicity and call attention to themselves. I'm glad you don't have to!

Our Carnegie Commission session with you yesterday was helpful, and I enjoyed both seeing you and having a leisurely lunch with Tom Ratchford.

With warm regards,

Sincerely,



William T. Golden

Dr. D. Allan Bromley
Assistant to the President
for Science and Technology
Old Executive Office Building
Suite 358
Washington, DC 20506

ADVISORY COUNCIL

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Jonas Salk

Maxine F. Singer

Hon. Dick Thornburgh

Adm. James D. Watkins (Ret.)**

Herbert F. York

Charles A. Zraket

*Through April 1990

**Through January 1989

"CORRESPONDENCE TRACKING"

TYPE: ACTION DOCUMENT NUMBER: 9122943
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: AUSUBEL, Jesse H.: THE ROCKEFELLER UNIVERSITY

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 07/26/91

SUBJECT: REQUEST TO CONTRIBUTE A LETTER IN SUPPORT OF THE
CANDIDACY OF ROBERT M. WHITE FOR THE TYLER PRIZE FOR
ENVIRONMENTAL ACHIEVEMENT.

DIRECTORATE STAFF
ASSIGNED: D. Allan Bromley ASSIGNED:

ACTION STAFF
REQUIRED: AS NECESSARY ACTION:

SENDER'S DUE DATE: 10/01/91
OSTP DUE DATE: 08/12/91 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: ENVIRONMENT

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: 212/570-7974 EXT:
REMARKS: There is a request to notify Jesse Ausubel if you will be
submitting a letter.

CLOSED

OSTP RECEIVED: 07/29/91 FILE: P-DAB-REFERRAL
DEPT RECEIVED:

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
03a. Letter	To: Allan Bromley From: Jesse Ausubel Re: Requests Letter of Recommendation for Robert White [personal information redacted] (1 pp.)	7/26/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
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(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
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Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
03b. Letter	To: Jerome Walker From: Jesse Ausubel Re: Letter of Recommendation for Robert White [personal information redacted] (2 pp.)	7/19/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley - Referral [4 of 6] [1991]

Date Closed:	2/11/2010	OA/ID Number:	62006-004
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

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P-3 Release would violate a Federal statute [(a)(3) of the PRA]
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C. Closed in accordance with restrictions contained in donor's deed of
gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

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(b)(8) Release would disclose information concerning the regulation of
financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

The Tyler Prize

For Environmental Achievement



*Laureate
Commemorative Medallion*

The Tyler Prize was established in 1973 by John and Alice Tyler. The prize grew out of their respect for nature and their hope that this award would foster the growth of knowledge and enable humanity to restore and preserve the environment.

Since its inception the Tyler Prize has been America's foremost environmental award and is now recognized as a premier world prize. With the election of Drs. C. Everett Koop and M.S. Swaminathan as the 1991 Tyler Laureates, twenty-nine Laureates will have been honored for outstanding achievements benefiting humanity. In past years the prize has been presented annually in Los Angeles; at the White House, Washington, D.C.; and in Nairobi, Kenya, celebrating the tenth anniversary of the first United Nations Conference on the Human Environment.

Tyler Laureates have been honored for outstanding contributions in many environmentally related fields. Laureates have included scientists, policy makers and two institutions. The work for which they have been honored includes the following:

- ✧ Landmark studies in animal ecology and maintaining species diversity.
- ✧ Preserving and understanding tropical forests.
- ✧ Pioneering atmospheric chemistry and warning against ozone depletion.
- ✧ Detecting carcinogens in the environment and in food.
- ✧ Discovery and analysis of the chemical nature of smog.
- ✧ Increasing the world's understanding of the importance of chemical signals in nature.
- ✧ Worldwide leadership in wildlife protection.
- ✧ Understanding and defining future strategies for global energy supply.
- ✧ Pioneering research in oceanography and ocean pollution.
- ✧ Designing and implementing renewable sources of energy.
- ✧ Pioneering waste purification and water quality standards.

*Tyler Prize
For Environmental
Achievement*

*"Man masters nature not by force
but by understanding."*

Jacob Bronowski
Science and Human Values

Tyler Prize Laureates

"They are the guardians of the future."

Alice C. Tyler

*Tyler Prize
For Environmental
Achievement*

ARIE JAN HAAGEN-SMIT* – Discoverer of the chemical nature of smog and advocate for change, the air pollution research he started at Caltech has expanded to air quality research worldwide.

G. EVELYN HUTCHINSON – One of this century's preeminent ecologists, his work in theoretical ecology provided the foundation of modern ecological practice.

MAURICE STRONG – Founding director of the United Nations Environment Programme, he has provided leadership in the international political-environmental arena.

RUTH PATRICK – A lifetime researcher on the ecology of rivers, she has been instrumental in providing a link between science and industry for the protection of the nation's rivers.

ABEL WOLMAN* – A pioneer in water resource management and waste water treatment, and a professor at Johns Hopkins University from 1921 until 1989, he trained generations of young people in the field of water conservation.

CHARLES S. ELTON – Often considered as the father of the science of animal ecology, his fundamental research has led to a greater understanding of ecological competition, and the organization and disruption of animal communities.

RENE DUBOS* – Scientist and internationally influential author, his books and articles provided society with a new perspective on the interaction between the environment and humanity.

EUGENE P. ODUM – One of the first educators to establish an institute for the training of ecologists, his research and writings have influenced countless students throughout the world.

*Tyler Prize
For Environmental
Achievement*

RUSSELL E. TRAIN – A leader in the United States political-environmental arena, and as first chairman of the Council on Environmental Quality he was instrumental in formulating environmental policy and in developing environmental quality standards in the United States.

CAROLL L. WILSON* – Contributor to fundamental work in the modeling of world energy supplies, he enlisted governmental and industrial leaders from around the world in studies of global energy prospects through the year 2000.

SOUTHERN CALIFORNIA EDISON COMPANY – The first major utility in the United States to establish as policy a shift to alternate and renewable energy sources, they continue to provide strong corporate leadership.

HAROLD S. JOHNSTON – One of the world's authorities in atmospheric chemistry, he was one of the first to call attention to the possibility that stratospheric contamination by nitrogen oxides might threaten the Earth's ozone layer.

MARIO J. MOLINA – Co-developer of the Rowland-Molina hypothesis on ozone depletion by chlorofluorocarbons, he has been studying the disruption and perturbation of natural cycles in the stratosphere.

F. SHERWOOD ROWLAND – Co-developer of the Rowland-Molina hypothesis, his policy initiatives led to regulations that controlled the use of chlorofluorocarbons as aerosol propellants in the western world.

*Tyler Prize
For Environmental
Achievement*

ROGER R. REVELLE – A scholar of great breadth in oceanography, world population studies, and global climactic perturbations, he is a pioneer in the understanding of global resources.

EDWARD O. WILSON – Co-developer of the theory of island biogeography, he was instrumental in its application to conservation. His research into population dynamics and chemical ecology has led to new insights in modern biology.

BRUCE N. AMES – Developer of the Ames Test for the rapid screening of environmental carcinogens, his test has proven invaluable in protecting against unnecessary exposure to cancer-causing agents.

ORGANIZATION FOR TROPICAL STUDIES – A consortium of U.S. and Costa Rican universities, OTS provides the world's finest facility for on-site education and field research on tropical forest ecology.

WERNER STUMM – The preeminent water chemist in the world, his fundamental research on chemical equilibria in water systems and its relationship to the distribution and circulation of chemical substances has made possible the protection of lakes and rivers throughout the world.

RICHARD VOLLENWEIDER – A theoretical limnologist whose research led to the development of predictive models of eutrophication of fresh waters, his theories resulted in major advances in water pollution control throughout the world.

RICHARD E. SCHULTES – The preeminent ethnobotanist in the world, he promoted tropical forest conservation at the level of the developing country by demonstrating the value of tropical plant species to industry and medicine.

GILBERT F. WHITE – An outstanding geographer and world leader on problems of the environment, he promoted the scientific basis for, and the consequent application of, innovative alternative water resource and river basin management policies and practices.

*Tyler Prize
For Environmental
Achievement*

BERT R.J. BOLIN – A pioneer in global climate changes, he helped focus international attention on the potential dangers to the world's climate posed by the greenhouse gases and acid rain. His lifelong research has contributed to knowledge about the carbon cycle, and the phosphorus, nitrogen, and sulfur cycles.

PAUL J. CRUTZEN – One of the world's authorities on atmospheric chemistry, he made landmark discoveries on stratospheric and tropospheric ozone, nuclear winter, and humanity's capacity to upset the global atmosphere.

EDWARD D. GOLDBERG – One of the premier marine geochemists and chemical oceanographers investigating global ocean pollution problems, he greatly advanced understanding of radionuclides, wind-borne DDT, petrochemicals, and heavy metals. He pioneered coastal pollution monitoring with "Mussel Watch" using living bivalve organisms.

THOMAS EISNER – Partner with Meinwald in founding chemical ecology, he provides biological explorations to unravel many intricate strategies that insects use for survival. To safeguard the chemical treasury of nature, he has acted forcefully for the preservation of species.

JERROLD MEINWALD – Partner with Eisner in founding chemical ecology, he provides molecular characterizations of the chemical signals insects, plants and animals use to communicate. His chemical insights have heightened awareness of the importance of "secondary metabolites" in nature.

* Deceased

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*Adjunct Professor
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Manager, Orange County
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University of Southern California*

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
03c. Resume	Highlights - Environmental Contributions of Robert White [personal information redacted] (2 pp.)		(b)(6)	

Collection:

Record Group: Bush Presidential Records
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