when the US is fighting not to be drawn down into the gutter while balancing military preparations with national conscience, opinions such as those expressed by Levine and Greenberg do not endear physicists to society. I would suggest that the responsibility referred to by Greenberg lies with every member of the field. If physics in the US can exist without the necessity of designing new weapons of destruction, without professional prostitution, and without the support of "make-work" contracts. then perhaps America is not as sick as some of her symptoms indicate.

In conclusion, may I remind Greenberg that Albert Einstein was a patent clerk when some of his most profound work was performed. One does not necessarily have to have a "productive job" to be productive.

Lt. Charles D. Decker Edgewood Arsenal

Recently, there have been a rash of editorials and letters to the editor about the current poor situation in the job market for physicists. This is an important matter and certainly worthy



of penetrating discussion and appropriate action, but I do not care to discuss these issues further here. I would simply like to comment on a common opinion that "physicists are trained to attain very highly specialized skills and knowledge that is only applicable to a very narrow range of tasks." To a limited extent this may be true; but are not "thinking" and "analysis" the essence of physics? I always thought so! Shouldn't a physicist be able to identify and isolate problems and then solve them with

penetrating thought and decisive action? Isn't the ability to think very generally applicable to an enormous range of problems? Isn't analytical ability very valuable in many situations? I always thought that "thinking" and "analysis" were the essence of physics and that a good physicist could handle an enormous array of tasks.

C. F. GALLO Penfield, N.Y.

Insurance question

After several glowing pronouncements, I have just received the brochure describing the new life-insurance plan that has been given the seal of approval by the American Physical Society for its members. Out of interest I have compared this with the policy that I bought from the Institute of Electrical and Electronics Engineers, because most members of the APS could join the IEEE if they so desired. The APS premiums for \$50 000 insurance in the 35-39 age group is \$180.00; that for the IEEE is \$193.54 but the current rebate is at 20%, so that the net premium is only \$154.84. As far as I can see the conditions of insurance are identical. I hope that the APS has some explanation for this anomaly, which I feel is of interest to the general membership.

> J. R. WATERS Towson, Md.

REPLY FOR APS: As was reported to the Society's members on page 1274 of the Bulletin (Index issue), the Trustees of The American Physical Society Group Life Insurance Trust addressed the matter of dividends, stating that all insurance is experience rated. All plans accumulate reserves, from which dividends are paid, as the result of experience after the plan has been in existence for a period of time. However, the Trustees warned that no plan should be entertained purely from the standpoint of dividends, because these are never guaranteed.

The IEEE plan is an excellent one, and a proposal very similar to it was among the finalists when plans were considered by the Council of the Society. The IEEE plan has been in existence for a number of years and has achieved a creditable dividend record from its built-in reserve structure. The APS plan finally accepted, being a new plan, has not yet generated re-



First, we build the Channeltron Electron Multiplier. A small, sophisticated high quality electron measuring device. It's the best in its field



Next we took the Channeltron, put it in a glass tube, added an S-20 photocathode with high red spectral response and a sensitivity of at least 80 microamperes per lumen. Then, we put these high quality parts together with the typical skill that has made Bendix a leader in electronics for decades. We ended up with a Channeltron Photon Counter Tube, which is also the best in its field.

We call it the Bendix Model BX 754. It features very low dark noise without cooling, insensitivity to voltage when used as a photon counter, narrow pulse height distribution, only four active terminals, and has relative insensitivity to magnetic and electrostatic fields.

As frosting on the cake, we took the BX 754, which has a wavelength response from 8500Å to 3500Å switched around a few gizmos, and came up with the BX 764, which has a wavelength response from 8500Å to 2050Å.

That's what we mean by "Bendix Quality" – which, by the way, is a very meaningful redundancy. Write to us today for more information about the BX 754 and BX 764.

Marketing Department Electro-Optics Division 1975 Green Road Ann Arbor, Michigan 48107 TEL: (313) 663-3311.



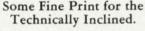
Twist the knobs yourself.

We'd like to bring our analyzer over to your place for a demonstration.

It could be the beginning of a beautiful friendship.

One of these bright mornings our man would like to call on you with his 4096-channel analyzer demonstrator-unit.

It's our hope that once you've spent a few hours in command



Those who wish to do some homework in anticipation of the demonstration (the better to cope with our man's enthusiasm for his product) may profit from a brief review of our analyzer's salient features and benefits as condensed here:

The Nuclear-Chicago 4096 is a wired-program computer designed to perform as a versatile and sophisticated multichannel analyzer system.

Memory capacity of 4096 to 16,384 channels together with the ability to operate with from one to eight ADC's provide for high-resolution, single-parameter analysis; multi-parameter analysis; or multiplex, single-parameter analysis.

The ADC's are NIM-compatible and use a 100-MHz Digitizer to provide up to 8192 channel full-scale conversion with full-range digital suppression.

The 4096 Memory alone provides highspeed, zero-deadtime multi-scaling and serves as a 21-bit, random-access buffer memory.

Full digital and analog Region-of-Interest selection is provided for data display intensification, read-in/out, and data processing.

tion, read-in/out, and data processing.

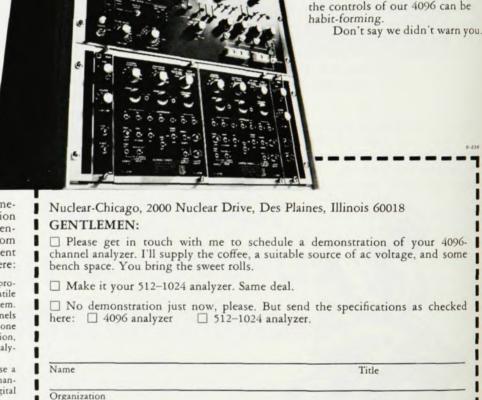
Optional Nixie® display provides digital indication of address, data, time, etc.

The built-in Data Processor performs meaningful, in-lab data manipulation and reduction including integration, differentiation, smoothing, resolving, etc.

The built-in Auto-Programmer allows up to six time-sequential operations (analysis, processing, I/O, etc.) to be performed on a routine, automatic basis.

The built-in CRT display furnishes a useful data examination and diagnostic capability for single- and multi-parameter data.

Extensive use of silicon T²L integrated circuitry coupled with imaginative packaging and design offers a performance-to-size-to-price ratio previously unavailable in a commercial, wiredprogram multichannel analyzer.



of this analyzer, you'll have some

design refinements and operating

subtleties you may begin to agree with us about its remarkable

versatility and elegance.

Once you get the feel of its

But caution: a few hours at

Zip

difficulty settling for any lesser

instrument.



Address

Telephone

City

NUCLEAR-CHICAGO A SUBSIDIARY OF G. D. SEARLE & CO.

2000 Nuclear Drive, Des Plaines, Illinois 60018, U.S.A, Donker Curtiusstraat 7, Amsterdam W. The Netherlands APS-296 serves. Its acceptance by the Society's Council was predicated on the facts that not only are the initial premium rates lower than those provided under the IEEE plan, but also that other group plans issued by the APS insurer to similar nonprofit organizations' members have achieved dividends as high as 40%, as opposed to the IEEE-plan dividends of 20%. The Society would hope that, after its plan has been established, a dividend record at a much higher rate than 20% will be achieved. As to how these dividends would be applied, as was discussed by the Trustees in the Bulletin article, it could have the effect of providing not only a lesser net premium rate but also increased value to the now \$10 000 units.

MELVIN R. DOWNES Trustee, APS Group Insurance Trust

Amorphous versus crystalline

I should like to clarify one of the remarks in my (1969) review of the Amorphous Semiconductor Conference published in the October 1969 issue of PHYSICS TODAY. At the beginning of the review, I referred to the need for structural work on all experimental samples, citing the facts that early optical measurements seemed to suggest that important details of the crystalline band structure remained applicable to the amorphous state and that recent density measurements had found densities for "amorphous" material very close to that of the bulk crystal. I suggested that this "invited the interpretation that the 'amorphous germanium' was composed of small crystallites small enough to escape detection as ordered arrays in x-ray examination, but large enough to yield the optical properties of the crystalline material." I then added "Such a possibility clouds the interpretation made from William Spicer's photoemission studies that the energy-band structures of amorphous and crystalline germanium are similar but that the disorder breaks down the k selection rules."

I wish to make clear that I have no reason to doubt the accuracy of Donovan and Spicer's photoemission measurements. Furthermore, these authors emphasize that, in their view, their results denote importantly different optical properties and band structures for crystalline and amor-

Telescope Reputations are Made at Night...



Write for your free brochure on 8, 12, 16, and 24-inch Cassegrain telescopes.

The Ealing Corporation,
Optics Division;
2225T Massachusetts Avenue;
Cambridge, Massachusetts 02140.
Tel: (617) 491-5870.
In California, Tel: (213) 357-3330.

England: 15T Greycaine Road, Bushy Mill Lane; Watford, Herts (WAtford 42261). Canada: 719T Lajoie Avenue, Dorval 760, Province of Quebec. (514) 631-5171.