

in new areas. These letters, of a proposal or stimulus rather than a research nature, could serve to entice researchers in sluggish or played out areas more into the mainstream of physics research. It is my belief that *Physical Review Letters* does and should continue to serve the physics community as both its primary current awareness and preliminary result channel. If changes are required, they might come not in the editorial practice (as distinguished from policy) of *Physical Review Letters*, but rather in the form of a new journal (such as the old letters section of *The Physical Review*) designed to publish relatively quickly short articles or research notes presenting new results which are not of overwhelming urgency but nonetheless do not require the space of full articles.

It should be emphasized that a majority of the points made deal with matters such as style, which are beyond editorial control. My remarks have been directed toward an idealized situation with no particular concern for practicability.

Paul P. Craig
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Patent dispute

The article on "Low-Energy Electron Diffraction", by Dr. L. H. Germer, in the July 1964 issue of *Physics Today*, is both enlightening and of outstanding promise for the study of crystalline surfaces. We recognize the author as the younger member of the Davisson-Germer team that in 1927 demonstrated the wave nature of the electron.

Dr. Germer's historical "digression" is interestingly pertinent to his paper but, since some of it goes back before his time, is in need of amendment. For, it can hardly be said that "The discovery of electron diffraction was an offshoot of the Arnold-Langmuir patent suit"—which famous suit extended from about 1916 to 1931. By the time there were undertaken the electron emission studies of Davisson and Germer, about 1920-odd, the efficacy of the oxide-coated filament in a highly evacuated tube had been proved by Dr. Arnold's decade of

experience with such tubes in the Bell System. Probably Arnold's urging of Davisson and Germer was a case of his wanting to know all it was possible to learn in view of his commitment to such filaments, rather than for any bearing the measurements might have on the high-vacuum controversy. In the outcome of that controversy, favorable to Arnold, the oxide-coated filament did not enter. That the Supreme Court decision "awarded the patent to Arnold" was not the case; no patent was issued to Arnold on this matter; it was simply that the Langmuir patent was held invalid (No. 1 558 436 issued October 20, 1925, and a nice exposition in itself).

It will be appreciated that these corrective remarks on some historical points have nothing to do with Dr. Germer's paper in substance. To continue the corrections: it was not the case that "De Forest's invention had an oxide-coated platinum filament . . ." Instead, it was a plain tantalum filament, which he used and which he demonstrated to the Bell engineers on October 30, 1912. When Arnold first saw the tube in operation, on November 1, 1912, he almost immediately diagnosed its ailments and went about improving its vacuum, and soon thereafter its filament emission. Arnold had known of the use of the Wehnelt cathode by the von Lieben group of Austria and Germany. He sent to Germany for the latest vacuum pump, by Gaede, and upon receiving it in the spring of 1913, undertook the development of the oxide-coated filament. By the fall he and his assistants were producing telephone repeaters of stability, and adequate emission and energy capacity.

Strange it is that Langmuir in his 1913 paper [*Phys. Rev.* 2, 450 (1913)] declared himself to be "strongly of the opinion that the Wehnelt cathode is not a primary source of electrons at all. . . ." It just shows the best of men can make mistakes. That it was a mistake was soon evident by the outstanding success of Arnold's oxide-coated filament tubes. They constituted the repeaters for the first transcontinental telephone line in 1915,

and are still in use in improved form. In his successful challenging of the Langmuir claim to invention in the high-vacuum tube, Arnold for his date of conception, went back to his first steps in improving the De Forest tantalum-filament audion. So, that famous controversy began on the basis of the plain filament, and ended there, the Supreme Court recognizing as Arnold had originally assumed, that the higher vacuum was the teaching of science and not invention.

Lloyd Espenschied
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I had thought of myself as so old that no one could possibly correct my reminiscences. Both Dr. Davisson and I always felt that our measurements of secondary electron emission from oxide-coated cathodes were of some importance in the Arnold-Langmuir patent suit, or at least so it seems to me now.

I am grateful to my friend Lloyd Espenschied for correcting my errors and leaving on record a reliable account.

Lester H. Germer
Cornell University

Lab space

There appears to be some possibility that the gun assembly plant in the former Naval Gun Factory in Washington, D. C., could be made available to science, if the right group of scientists were to propose experiments for which the building is suited.

Among the characteristic features of the site is an excavated shaft, reinforced by concrete, of cross section 20 × 10 meters and about 50 meters deep. This shaft is equipped with elevator, electric power lines and draining facilities. An overhead crane with a capacity of 380 tons moves over the shaft at a height of about 50 meters. The entire area is enclosed in a steel frame building with frame windows. Plenty of adjoining space for supporting facilities is available.

For lack of a better use, GSA plans to raze the building and to use the area for an office structure.

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