state & society

Piccioni sues for share of antiproton credit

Oreste Piccioni (University of California, San Diego) has filed suit against Emilio Segrè and Owen Chamberlain (University of California, Berkeley) asking damages of $125 000 because the two men allegedly did not give him proper credit for his contribution to the discovery of the antiproton. Segrè and Chamberlain received the 1959 Nobel prize for the discovery, which they reported in a Letter to the Editor of *The Physical Review* on 1 November 1955 (*Phys. Rev.* **100,** 947, 1955); the paper was signed by Chamberlain, Segrè, Clyde Wiegand and Thomas Ypsilantis. Although Segrè and Chamberlain refuse to comment on Piccioni's allegations, Wiegand and Ypsilantis have both presented their viewpoints to PHYSICS TODAY.

In the legal brief, filed in June in the Superior Court of the State of California for the County of Alameda, Piccioni says that in December 1954 he revealed a design for the antiproton experiment to Segrè and Chamberlain after the two men had agreed to work together with him on the experiment at the Berkeley Bevatron. The following October, according to the brief, Segrè and Chamberlain did the experiment using Piccioni's design, without letting him take part, and then did not acknowledge his contribution in any of their publications or lectures.

Subsequently, the brief says, Segrè and Chamberlain cautioned him not to mention his contributions publicly or he would be denied access to the Lawrence Radiation Laboratory. Further, the brief continues, Segrè and Chamberlain promised to grant Piccioni favors if he would refrain from making public disclosures. The brief asks for damages and an injunction that would prevent Segrè and Chamberlain from continuing to ignore Piccioni's contribution.

Piccioni told us that he had three important ideas for observing the antiproton: The common point of view, he said, was to observe the annihilation of the antiproton with a proton. Instead he felt one should observe the mass and charge and determine if the particle had a long mean life, in contrast to pions. His second idea was to determine the mass by measuring the velocity in a time-of-flight measurement. The third idea was to make a long flight path and to use a double magnetic spectrometer. Furthermore, Piccioni told us, he suggested using a Cerenkov counter, which he felt need not be very complicated. The one used in the actual experiment, he said, was much more complicated. Later Piccioni, Glen R. Lamberton, Bruce Cork and William A. Wenzel observed the antineutron, and Piccioni told us that this experiment used no Cerenkov counters at all, although it was more complicated to do. (Piccioni feels that the observation of the antineutron provided proof that the first particle was indeed the antiproton.)

Writing to a colleague about the lawsuit, Piccioni said, "I can compare my life in science to that of a fisherman, who tries his best in devising a way to fish better, for himself and for others, and of course his reward is to catch as large a fish as he can. To catch a good fish, not only you have to have a good hook, but you must have the opportun-

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PICCIONI

No visas or jobs for two Russians

Two leading Soviet physicists, after applying for exit visas to emigrate to Israel, have apparently lost their jobs and experienced other forms of retaliation. They are Aleksandr Voronel', an experimenter in critical phenomena, and Veniamin Levich, who is both a theoretical physicist and an expert on physicochemical hydrodynamics. Both men were corresponding members of the Soviet Academy of Sciences.

In interviews with several US physicists, with Murray Todd (executive secretary in the Office of the Foreign Secretary, National Academy of Sciences), and with spokesmen for the National Conference on Soviet Jewry and the Academic Committee on Soviet Jewry, PHYSICS TODAY has pieced together the story.

Voronel' is best known for his discovery, in 1963, that the specific heat at constant volume of a fluid seems to diverge at the critical point. The result came as a great surprise because the classical theory of phase transitions, whose generic name is "mean-field theory," predicted a completely different result for the simple fluids Voronel' studied, such as nitrogen and oxygen. His discovery was one of the key experiments that showed that mean-field theory had to be replaced with a new theory. Regarded as one of the best Soviet experimenters in condensed-matter physics, he has mainly concentrated on the thermal properties of magnetic systems and fluids.

Voronel' graduated from Kharkov State University, where he specialized in low temperatures. From 1957 to 1964 he was head of the phase-transitions laboratory at the Institute of Physical-Technical and Radiotechnical Measurements near Moscow; subsequently he was demoted to senior research worker.

Last spring Voronel', his wife, son

(a physics student), mother and stepfather apparently applied for emigration; no action has yet been taken on their request. Subsequently Voronel' is reported to have been forced to resign his job and been called to active duty with the Army, although he is 41 and the upper age limit on military service is 36. Because he has a chronic back problem, he has been able to get a medical certificate, we were told.

Levich's work is a cross between electrochemistry and hydrodynamics, and he has written books on physicochemical hydrodynamics, theoretical physics, and statistical physics, and he has written on surface phenomena. Levich graduated from Kharkov State University in 1938. He was a former pupil and close friend of the late Lev Landau. Since 1958 he had been head of the theoretical department in the Institute of Electrochemistry of the Soviet Academy of Sciences.

Early this year Levich apparently applied for an exit visa; he had been offered a job as professor of chemistry at Tel Aviv University and had accepted it by phone. Subsequently he is reported to have lost his job at the Institute, his chair at Moscow University, and been expelled from the Academy of Sciences and other scientific organizations. At the end of June Levich is believed to have been called to the Office of Visas and Registration, where the director told him that he would never be given an exit visa and that an appeal was futile.

Meanwhile a letter dated 4 April and signed by Voronel' and Levich (to the heads of the Soviet and US Academies, the Royal Society of Great Britain and the heads of the International Union of Pure and Applied Physics and the International Union of Pure and Applied Chemistry) was widely circulated. The letter said, "It is well known that a Soviet scientist who announces his desire to go to Israel is automatically deprived of the possibility to continue his scientific activity and feels his high qualifications are a superfluous burden. Evidently, nobody is interested in using him. On the contrary, there is a tendency to lower him in the social ladder and to make difficult in every way his admission to his profession and to the society of his colleagues. The conclusion is reached that, speaking of the value of scientists, the Authorities have in mind not us, but those of our colleagues whom they suppose to frighten with the sight of our outcasting and, so to say, fall. The scientists must see in our example what awaits them in case of disobedience—the loss of work, the end of the scientific career, personal insecurity and a quite doubtful possibility of emigration."

Todd told us that an enormous amount of interest, particularly in the Levich case, has been stirred in the US. In June the National Academy council decided that private action was the tactic to be used. Many letters have been written by individual officers and members of the US Academy to individual officers and members of the Soviet Academy; no replies have been received as far as Todd knows. What a lot of the letters stress, Todd said, is that scientists should be free to live wherever they want to do their work. "The tragedy of the situation is that men of very high competence are being lost to the world of science by being denied an opportunity to do research where they want to."

Paul McDaniel retires from AEC

After 32 years of government service physicist Paul McDaniel, director of the AEC Division of Physical Research, has retired. Until a successor is named nuclear chemist, Daniel R. Miller, who has been deputy director, will be acting director. With a budget request for operating expenses and capital expenditures for fiscal year 1973 of about $330 million, most of which is for physics, the division is the largest source of physics support in the US.

After receiving his PhD in nuclear physics at Indiana University, in 1941 McDaniel went to the University of Chicago, which had a contract with the Office of Scientific Research and Development. After a few months he went into the Army for 3½ years, where he headed a chemical laboratory in Australia. He then went to the research group at Oak Ridge, which was then part of the Manhattan District. After AEC was established in 1947 his group went to Washington where he has been ever since.

The Division of Physical Research got its start under James Fisk, who is now president of Bell Telephone Laboratories. He established the basic policies of the division. In that period they spent $20–30 million per year; direct comparisons with today's budget are difficult because the bookkeeping scheme was different.

McDANIEL

When Fisk left in 1948 Kenneth Pitzer, who later became president of Rice University and Stanford University, took over. In 1951 Thomas H. Johnson became director. Meanwhile McDaniel had been named deputy director in 1950. Johnson stayed until 1957. He was succeeded by John Williams, who became a commissioner in 1959. At that time McDaniel became acting director. The following year he became director, a post he has held until his retirement at the end of June.

The Division's growth has been a steady one, following the general pattern of R&D in the US. But in 1957 after Sputnik there was a quantum jump. Physics has always been the major recipient of the Division's funds, occupying roughly the same percentage throughout its existence. Besides the programs labeled "Physics," the program in metallurgy and materials is about half solid-state physics and the chemistry program contains a lot of nuclear chemistry. Until last December the division also supported controlled thermonuclear research; at that time the program (whose FY 1973 budget request is about $40 million), became a separate division under Roy Gould. Gould is stepping down as director and has returned to Cal Tech; a successor has not yet been named.

The Division has always supported 90–95% of the high-energy physics research in this country, McDaniel told us. In recent years the National Science Foundation has picked up some high-energy physics, and earlier the Office of Naval Research had supported some. The field really came into its own early in the 1960's, and the division recognized it as a separate program in 1964. That was the time when the 200-GeV accelerator was just in the planning stage. (A few years later the Los Alamos Meson Physics Facility was begun; this is part of the medium-energy physics program.)

McDaniel says he has no plans. "I'll just sit in a rocking chair for a while."

—GBL

Piccioni lawsuit

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ity to have your boat around waters where a large fish happened to be at that time. This opportunity is rare. Like to the old man of Hemingway, to me it happened perhaps just once. That time, I also happened to have understood not only the importance of that experiment (which I had to *explain* to Segrè), but I also understood the timely value that the experiment would have if done early, and not later. I had concen-