# PHIMSY

### *Launching pad at Jodrell Bank*

"That's our satellite launcher," John Davies told one of our editors who was touring Jodrell Bank, the Manchester University radio-astronomy observatory. Davies, acting as guide, proudly pointed to this strange wooden hut, ten feet high at the eaves and seemingly made of old tea boxes. Above it is a gallows complete with ropes and pulleys.

The third American-launched satellite to carry British instrumentation, Ariel III, included a radio telescope designed at Jodrell Bank. The nonmagnetic hut housed a prototype of

the satellite with which experimenters, using a nearby transmitter, measured antenna sensitivity. "After countdown," said Davies, "we pressed a button; the roof flew open, and our satellite rose majestically into synchronous orbit 20 feet above the earth."

### *Ruark named positronium*

Not one to leave anything half done, Arthur E. Ruark, when I asked him for it, gave me the whole history of positronium including his part in it. For a long time, he said, he thought he was the original predictor by virtue of a letter he wrote to Ross Gunn in 1937: "A few days ago it occurred to me that there may be observable effects in astrophysical spectra due to atoms composed of a positron and an electron. Let us call the stuff positronium . . ." Then he found that S. Mohorovicic (not the man of the discontinuity in the earth's mantle) had anticipated him with a 1934 prediction, and D. M. Bose and Negh Nad Saha had also predicted in 1936. Mohorovicic and Saha discussed the possibility of positronium lines in the solar corona; Mohorovicic considered other celestial sources without results. Ruark preferred to study the existing spectra of gaseous nebulas and found nothing.

In a paper titled "Positronium" (*Phys. Rev.* **68**, 278, 1945) Ruark listed properties including spectral frequencies, Bohr radius, singlet and triplet states. John A. Wheeler made similar predictions at about the same time before the New York Academy of Sciences. (He and Ruark, formerly colleagues at Chapel Hill, were keeping each other informed.) Martin Deutsch made the actual discovery (*Phys. Rev.* **82**, 455, 1951), not with the spectral lines, which, as far as I know, no one has seen yet, but by watching delayed coincidences between $Na^{22}$ gammas and annihilation quanta from positrons emitted at the same time.

Ruark, now in the research division, US Atomic Energy Commission, wrote to me: "I was not the first to predict positronium, but I named the stuff. The name caught on very well, and so perhaps I am the only person who has named an 'element' without being the first predictor or the one who made the experimental discovery."

### *A little learning—and too much*

I had a pleasant chat with a perpetual-motion maker. Like many of his kind, he was wrong—but not aggressive about it. This machine of his would turn through a revolution and a half after he had pushed it through a half a revolution. He figured he was getting more energy out than he was putting in. Wasn't it possible, he wanted to know. What about breeder reactors?

He struck me as the interesting type of man who has ideas but none of the learning one needs to evaluate them. Even when one of the editors had time to talk to him about conservation of energy, theoretical analysis, proof of principle, he didn't really have the language or the basic physics to go into the matter. Too bad. Perhaps his imagination would have had a contribution to make if it had had a foun-

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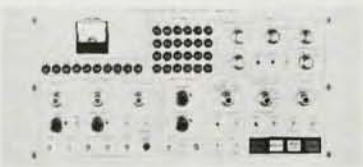

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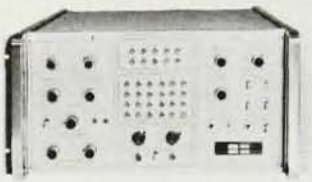

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Multi-purpose data processing unit for expanding application capabilities of all 400 and 1000 series analyzers . . . allows selective readout control, spectrum stripping . . . any selected area can be integrated in either a normal or running sub-total manner.

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dation from which to start building.

The fellow's opposite is also interesting. He is the man who has developed a critical and analytical sense that outruns his creative instincts. You find them everywhere. For example there is the literature teacher who can write beautifully but, because he doesn't match Shakespeare or Shaw, doesn't feel the product is worth the effort. How many physicists, I wonder, withhold creative ideas out of respect for better ones?

### *Telescope king dethroned*

Signs of my advancing years come thicker and faster every day. Not only are policemen younger now, but astronomers' telescopes come in sizes unthought of when I was a boy. The apertures of radio telescopes are measured in hundreds of feet, and progress continues on optical telescopes bigger than the 200-inch giant at Mount Palomar. Nevertheless I was unprepared for the caption over a photograph in Isaac Asimov's new book *To the Ends of the Universe,* which reads, "Ordinary 200-inch Telescope." I looked in vain for a picture of an extraordinary 200-inch telescope.

### *Particles and Zen tunnels*

Poetry, eastern cultures, the science of science (your own definition) and crystallography are among the interests of Alan Mackay of Birkbeck College, University of London. He sent me some poems. Here is one:

*Physics in Japan:*
*the Tunnel Effect*

A particle approaches a high
barrier . . .
How can it pass?
Just say, "There, it's through."
Quantum mechanics and Zen give the
same answer.

### *Sorry about that*

The editors have been giving me a hard time ever since I mentioned the new "24-meter" reflecting telescope at Ondrejov in Czechoslovakia (PHYSICS TODAY, April, page 17). They told me to be more careful or they would use this space for something else. The Czech mirror is, of course, 2.4 meters across. □