mania. "I don't think that you could design a better drug," he points out. "It has little effect in the normal operational range, but becomes increasingly effective when the receptors are hyperactive."

The other product released by hydrolysis of PIP_2 is diacylglycerol. A few years ago, Yasutomi Nishizuka and his colleagues at Kobe University School of Medicine in Japan showed that diacylglycerol activates a protein kinase, which has been given the designation protein kinase C because it requires calcium ions for its activity. Phosphorylation by kinases is a common method for controlling the activities of enzymes. Cyclic AMP produces its effects as second messenger by activating protein kinase A, which can in turn influence enzyme activities by phosphorylating the proteins. Kinase C presumably plays an analogous role, although less is known about its important physiological targets and actions.

One of the more intriguing results with protein kinase C is its implication in the control of cell division and differentiation. About a year and a half ago, investigators learned that the tumor-promoting phorbol esters can activate the enzyme (*Science*, 15 April 1983, p. 291). Apparently, the tumor promoters, which are hydrophobic, can penetrate the cell membrane and effectively substitute for diacylglycerol in activating the kinase.

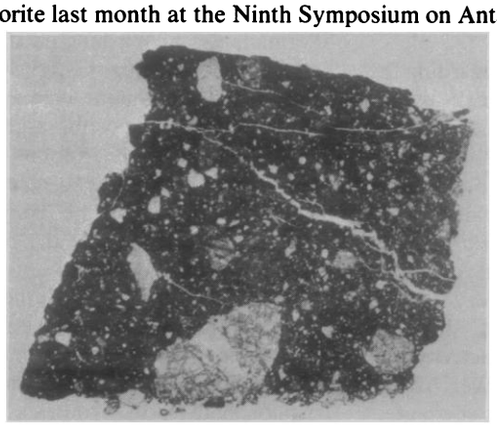
In addition, investigators from several laboratories have shown that growth factors, including epidermal growth and platelet-derived growth factors, stimulate the turnover of inositol phospholipids and the breakdown of PIP_2. "It seems that there is, irrespective of the stimulus you look at, a correlation between cell division and inositol lipid turnover," Michell points out. The possibility that some oncogene products might act by increasing the availability of the polyphosphoinositides has not exactly diminished interest in the research.

Even before the discovery of the suggested oncogene connection, polyphosphoinositide research was generating a great deal of interest and attracting new investigators to the fold because of what it is revealing about hormone and neurotransmitter action.—**JEAN L. MARX**

Second Lunar Meteorite Identified

Japanese researchers have announced that a search of their collection of meteorites found in Antarctica has uncovered a rock that must have been blasted off the face of the moon. It is only the second such lunar meteorite ever found and offers the possibility that a second new site on the moon never visited by man or machine has been sampled.

The analyses in hand, although few in number, seem convincing. Keizo Yanai and Hideyasu Kojima of the National Institute of Polar Research in Tokyo presented their mineralogical and chemical evidence for another lunar meteorite last month at the Ninth Symposium on Antarctic



Meteorites, held in Tokyo 22 to 24 March. When the 25-gram, dusty-gray meteorite designated Yamato 791197 was cut into thin, translucent sections, small fragments or clasts of lighter minerals stood out against a dark brown background. The larger clasts contained mostly the mineral plagioclase and minor amounts of pyroxene and olivine. The smaller clasts were individual mineral fragments. Most of the clasts showed signs of having been shocked as by an impact. The Japanese researchers also found a few small glass spherules.

This appearance alone was enough to convince two Americans who were given an opportunity to inspect a thin section of the meteorite. Jeffrey Taylor and Klaus Keil of the University of New Mexico, who have worked extensively with both meteorites and Apollo moon rocks, could see immediately that this meteorite closely resembled rocks from the lunar highlands called regolith breccias, rocks formed from lunar soil and rock fragments under the pressure of a meteorite impact.

The evidence goes beyond the meteorite's appearance. Yanai and Hideyasu found that the ratio of manganese to iron in pyroxene and olivine minerals of their Yamato meteorite is about half that of the most similar type of meteorite but about the same as that of lunar rocks. In addition, Robert Clayton of the University of Chicago has determined the oxygen isotope composition of a sample supplied by the Japanese researchers. The meteorite value is "bang on the lunar value. There's not much data in yet, but it's all consistent. I'm convinced," says Clayton. He and others have not waited for the extensive analyses accorded the American find of last year (*Science*, 15 April 1983, p. 288) because these results by themselves form a strong argument for a lunar origin. Only one class of meteorites has an oxygen isotope composition that is close to the lunar composition, but the mineralogy of these meteorites is entirely different from that of lunar rocks and the Yamato meteorite.

Perhaps the most exciting possibility is that the new discovery is the product of a second impact at a different site on the moon from the first. Lunar specialists were pleased to find chemical indications that the lunar meteorite in the U.S. Antarctic collection is not from the vicinity of the sampling by Apollo astronauts or Soviet landers. A second impact site, possibly from near the visible edge or even the far side of the moon, would be a real find.

Researchers are anxious that any new lunar meteorites be opened to the kind of consortium study that quickly produced such a variety of analyses of the first specimen. Since the ultimate number of lunar meteorites may not exceed two or three in the present combined Antarctic collections of more than 6000, the need for close cooperation is obvious.—**RICHARD A. KERR**