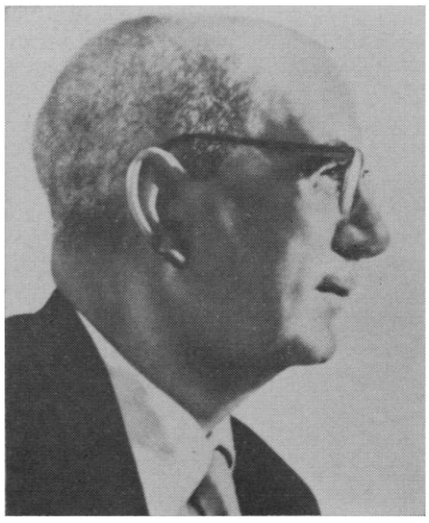
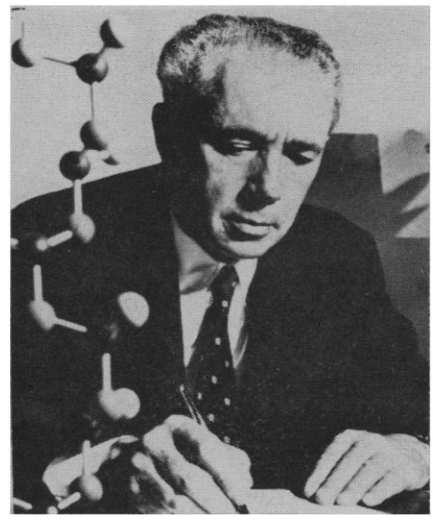


Karl Ziegler



Giulio Natto [both Wide World Photos]

fessor and director of the chemical institute at the University of Halle where he continued his work in fundamental organic chemistry, particularly in the field of organometallic compounds. In 1943 he was appointed director of the Kaiser Wilhelm Institute, now known as the Max Planck Institute, and left the formal academic atmosphere. However, Ziegler never left the academic pattern. He continued his work on organometallic compounds and discovered that aluminum alkyls and ethylene undergo addition reactions that produce short-chain aluminum alkyls. Since ethylene was available in large amounts from the coal industries in the Ruhr, this area of investigation was pursued. In 1952, a new catalyst for adding ethylene to aluminum alkyls was discovered when an experiment was conducted in an autoclave that contained traces of nickel remaining from an earlier experiment. During the ensuing search for other metal catalysts, titanium was tried and a white solid was obtained instead of the normally liquid product mixture. The recognition that this white material was polyethylene and its characterization as a high molecular weight polyethylene with very few branches was the significant breakthrough. The idea of the complex metal-catalyst system of the transition-metal type to produce high molecular weight material was born. Ziegler also recognized the technical possibilities of his discovery and industrial participation was initiated.

This discovery of the titanium catalyst system, titanium tetrachloride, and aluminum alkyl immediately intrigued Natta. Having previously developed catalytic syntheses for methanol, formaldehyde, and butyraldehyde, and visualizing the type of mechanism that might explain this unique type of polymeric catalyst system, he experimented with the monomer propylene and found a high molecular weight crystalline material. He immediately suggested that the crystallinity was due to the fact that all of the secondary carbon atoms of the polymer chain have almost the same configuration. Drawing on his earlier background in x-ray crystallography, Natta's group determined the unit cell of crystalline isotactic polypropylene. These polyproplylene molecules crystallize in a "so-called" 3 to 1 helix with a unit cell of about 6.5 Å containing three propylene units. With appropriate modification, virtually any alpha-olefin was then polymerized. The Natta group also investigated the asymmetric synthesis of optically active polymers and stereoregular alternation copolymers.

These are only a few of Natta's research interests. His work has made the Polytechnic Institute of Milan one of the major centers for macromolecular chemistry throughout the world. Natta believed that scientists should orient their research efforts toward something useful, but at the same time they should also work on problems of pure research which may not have immediate practical interest. He recognized the great practical significance of the new polymers and their application to commercial processes. With the aid of the Montecatini Organization, he developed processes and techniques for producing isotactic polypropylene, and other polymers and copolymers from alpha-olefins.

Natta received his doctorate in chemical enginering from the Polytechnic Institute of Milan. Before his present post, he was professor of general and inorganic chemistry at the University of Pavia, then professor of physical chemistry at the University of Rome, then professor of industrial chemistry at the University of Torino.

Both Ziegler and Natta have demonstrated their unique abilities to excel as chemists not only in exploratory research of a basic type but also in pursuing an interest in the utilization of these materials.

Unfortunately, Natta has Parkinson's disease and this has immobilized him to some extent. However, his interest and enthusiasm for research has not abated.

The scientific community extend their best wishes and most sincere congratulations to Ziegler and Natta, to their co-workers, and their families.

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Wiesner Successor: Donald Hornig, Princeton Chemistry Head, Named To Take Over Top Science Posts

Donald F. Hornig, chairman of the department of chemistry at Princeton University, has been named to succeed Jerome F. Wiesner as the President's science adviser and director of the White House Office of Science and Technology.

Hornig, 43, is expected to take up his new duties at the beginning of February. Wiesner, who came into office at the beginning of this administration, is returning to M.I.T., from which he has been on leave. The position he will occupy there has not been announced.

Hornig, a physical chemist, received his undergraduate and doctoral degrees from Harvard and served as a group leader at Los Alamos during World War II. He subsequently was on the faculty of Brown University, joining the Princeton faculty in 1957. As a member of the President's Science Advisory committee, to which he was appointed in 1960, he is said to have been particularly involved with matters relating to space.

Hornig's appointment breaks Cambridge's hold on the office (Wiesner

and his two predecessors, James R. Killian and George B. Kistiakowsky, were from that area, a pattern that has nettled some people in other regions), but continues the precedent of the White House science adviser's serving as OST director. In the former capacity he is a confidential adviser to the President, immune, by custom, from congressional inquiry; in the latter, he is summonable by Congress.

Hornig is taking the post on a 1-year leave of absence from Princeton. A university spokesman said there is no doubt that the leave would be extended upon request, but if the service of Hornig's predecessors is any indication, it is unlikely that he will make the job a long-term affair. Both Kennedy and Eisenhower have sought the sort of men whose hearts seem to remain on campus or in the laboratory, and for better or for worse, the top science post in government seems fated for relatively short-term occupancies.

—D. S. GREENBERG

Washington Ramble: News in Brief on Investigations, Accelerators, Anger in NSF, and Other Matters

Over the past year, the study, survey, and investigation of science and government has probably become Washington's leading growth industry. During the past few weeks, a new study has been disclosed, this one dealing with NIH, and last week a recently authorized investigation announced its first public hearings. The NIH study, under the auspices of the White House Office of Science and Technology, will be headed by Dean E. Wooldridge, a physicist and highly successful managerial leader in the aerospace and electronic fields, who was co-founder of the Ramo Wooldridge Corporation, which has since evolved into Thompson Ramo Wooldridge.

Wooldridge brings two valuable qualifications to the task: he is well known and respected in science and government circles; and, by the nature of his career, he is immune to the old congressional charge that NIH depends upon creatures of NIH to evaluate its own operations.

The Wooldridge study, which is expected to take 6 months, comes at a time when NIH is increasingly the target of congressional ire. Since ignoring Congress has conspicuously failed in the past, and the limited measures adopted on accountability of researchers' funds seem to leave many congressmen less than fully satisfied, political realism calls for a high-level study aimed at defending the good, and quickly setting straight whatever may be amiss. The administration's objective, presumably, is to fill this order in a fashion consistent with NIH's desire to keep research unhampered by excessive paper work, while simultaneously responding to the legitimate concerns of Congress. It is probably impossible to accomplish this to the satisfaction of all parties, but an intelligently directed study is certainly preferable to the condition of drift that now prevails.

Meanwhile, a previously ordered investigation, that of Representative Carl Elliott's House Select Committee on Government Research, has announced that its first hearings will begin on 18 November and will continue for 10 days. In conjunction with the announcement, the committee issued a witness list, running to 70 names, including many who comprise a who's who of American science and science administration but also a few others whose appearance might reasonably be considered a marginal utility for the purpose of investigating federal support of research and development. These include Secretary of State Dean Rusk, AFL-CIO president George Meany, and Edwin P. Neilan, president of the U.S. Chamber of Commerce. The witnesses have been told that if they are unable to appear they may send a representative or submit a statement.

Elliott's committee, which has been given $553,000 to accomplish its task, has so far hired about a half dozen professional staff members, but it is yet to acquire its first scientific or technical personnel. A search for such assistance is under way.

While all this is going on, Representative L. H. Fountain's subcommittee, which has been the bugbear of NIH for several years, is showing a few signs of returning to action. Nothing has been definitely scheduled, but among other things, the committee is bestowing a lot of interest on NIH's fellowship and traineeship policies and practices, and there is a chance that hearings may be held before the end of the year.

To the question, "Why all this interest in research?" the answer, briefly put, is that science has become a terribly expensive item in the federal budget and Congress likes to feel that it is in control when it is appropriating massive sums for any purposes. Often, of course, it is not, as in the case of defense policy, a matter on which the administration manages to exercise dominant control, despite the noises that regularly emanate from Capitol Hill. But with research and development, which are usually lumped together as one item in congressional thinking, now costing close to $15 billion a year, Congress wants to feel that it is getting its money worth, and investigation is the first step toward obtaining such assurance.

On another front, the National Science Foundation, which is having a hard time convincing Congress that it *is* getting its money's worth, was highly agitated last week to learn that a leading scientific supply firm has been distributing promotional literature offering NSF applicants a copy of a "successful NSF [grant] application." The firm, the CENCO division of the Central Scientific Company, of Chicago, has responded by temporarily discontinuing the offer, but according to a company announcement, "the delay will be a short one." However, NSF feels that it had better be permanent.

CENCO, of course, is not the first commercial organization to counsel its customers on the in's and out's of obtaining access to the federal treasury, but it apparently is the first to come to the attention of NSF's new leadership. And they weren't very happy about it. As one NSF official put it, "The competitive system [for grants] should not be contaminated by professional proposal writing." He added that this is going to contribute to Congress' impression that science is getting commercialized. "It's no secret," he went on, "that many universities have professional proposal writing operations, but we feel it's going a bit far to offer successful applications—which are not public property—for commercial purposes."

CENCO firmly disagrees about the property interpretation, arguing that since public funds are involved, successful grant applications *are* public property, a position that is supported by standing congressional sentiment for generally full disclosure on public expenditure. NSF goes along with this theory for some distance, pointing out that it has a policy of supplying copies of successful applications to qualified investigators, but it says it draws the line at commercial exploitation.

CENCO also argues that it is doing both NSF and the scientific community a service through its offer, "since," it claims, "NSF hasn't done a good job