have stimulated diverse approaches.

But even where the prime goal is economic development, there appears to be little doubt that the European planners, unlike U.S. developers, usually refuse to buy the growth at the expense of human beings.

Stockholm, for instance, has a strong interest in economic growth. Here is Strong's description of the result of this emphasis when it is melded with a concern for human needs: "An excellent public transportation system links satellite [suburban] centers, located inside and outside the city limits, to the center city and to one another. The satellite centers have a high density and offer a range of shops and cultural facilities clustered about transit stops, all within easy walking distance of most residences."

The contrasts between such developments and U.S. failures in planning are often striking. Stockholm's walk-and-ride system for commuters is in stark contrast to harried U.S. freeway commuters; Dutch developments in the Ranstad (the Amsterdam-Rotterdam-Hague urban agglomeration) which aim at clear-cut boundaries for the cities, and the suppression of megalopolitan linkages, stand in equally stark contrast to U.S. urban sprawl and the creation of ugly commercial strips between urban centers; the successful emphasis in Tapiola on mingling residents of all social and economic classes is a lesson to Americans that social, economic and racial ghettos need not exist.

Perhaps the prime ingredient of the success of the European planners, she says, is public ownership of land in urban areas and thus a stifling of speculation and all of its attendant evils such as leapfrogging development. In the United States, she says, there is an ideological antipathy to such public ownership "and a conviction that the increment in land value . . . should go to the successful speculator rather than the public at large. We have been ready to compensate the landowner damaged by public planning decisions, but, unlike the Europeans, we have refused to charge the landowner benefited by such decisions. . . . The irrationality of our current posture is ever more costly to us as a nation, and to us as individual taxpayers."

The ideological objection to public landownership, that it would destroy the "American Way of Life," is nonsense, says Strong. She points out, for instance, that 90 percent of "socialistic" Sweden's gross national product is produced by private industry and that 90 percent of its citizens are employed in private enterprise.

The book is an excellent summary of European developments, viewed from broad sociological, economic and technological perspectives. But there is a large gap in the author's description of human realities. For instance, she quotes a Tapiola official to the effect that university professors and skilled workmen live side by side in the development in harmony and that the workmen adjust their "standards" upward to those of the professors. It is tantalizing to speculate about what these "standards" are and whether such an upward leveling is really desirable. She suggests no answers. □

Work in holography, molecular structure net Nobel Prizes

The development of holography has brought the 1971 Nobel Prize in Physics to Dennis Gabor. Born in Budapest in 1900, Gabor is now a British citizen. He has been on the faculty of Imperial College, London, since 1949, but he is currently working in the United States as a staff scientist at the Columbia Broadcasting System's Laboratories in Stamford, Conn.

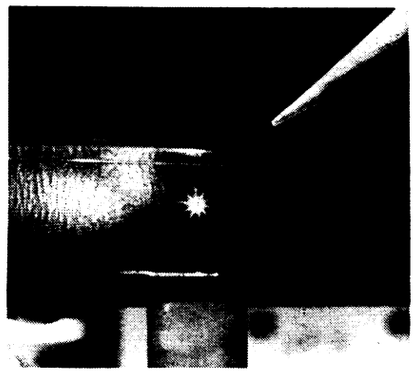
Holography is a method of using coherent light to record and reconstruct images without the necessity of focusing lenses. Laser light reflected from the object to be imaged is combined with an unreflected reference beam. The interference pattern formed by the reflected and reference wave fronts is recorded on photographic film. Proper illumination of this hologram will cause an image of the object to appear in the space near the hologram. If the object is three-dimensional, the image will also be three-dimensional. If the hologram is on color film, the image will be in color. The existence of holography depends on the coherence of laser light.

The Nobel Prize in Chemistry will be awarded to Gerhard Herzberg of the National Research Council in Ottawa for "his contribution to the knowledge of electronic structure and the geometry of molecules, particularly free radicals."

Herzberg was born in Hamburg in 1904. Except for a few years at the Yerkes Observatory in Williams Bay, Wis., he has resided in Canada since 1935. He is particularly known among his fellow scientists for his work in atomic and molecular spectroscopy, the structure of atoms and molecules and the functions of atomic and molecular processes in astrophysics.

Each Prize is worth about $90,000 at current rates of exchange.

The ball stands still in the air



Bell Labs

Ball floats on beam of laser light.

Radiation pressure is the pressure exerted on objects by light. It is the sum of the impacts of the countless photons in a light beam and is similar to gas pressure, which is the sum of the impacts of countless gas molecules.

Until the advent of lasers radiation pressure was more of a curiosity than an effect to be reckoned with. The coherent beam of a laser provides a more concentrated radiation pressure than natural incoherent light beams and raises the possibility of doing things with radiation pressure.

Arthur Ashkin and Joseph M. Dziedzic of Bell Telephone Laboratories at Holmdel, N.J., have made laser light lift tiny glass balls into the air. They report this achievement in the Oct. 15 APPLIED PHYSICS LETTERS.

"When we focus a quarter-watt laser on a small transparent glass particle, the extremely small force exerted by light is then sufficient to lift the sphere off the surface and suspend it," says Ashkin.

The ball remains stable in the light beam and does not slide out because of a so-called optical-well property that Ashkin discovered during earlier work on the effects of laser beams on small particles suspended in liquids.

The laser beam is most intense along its axis, less intense near its edges. If the little glass ball happens to be off-center in the beam, its opposite edges will experience light forces of different sizes. Ashkin found that the net effect of the difference is a transverse force that always tends to return the sphere to the axis of the light beam.

The experimental procedure for levitation begins with a glass ball about 20 microns in diameter lying on the bottom of a box. The ball must be transparent or it will absorb energy from the light and melt.

Since the ball is attracted to the bottom of the box by a chemical force, the van der Waals force, which is much stronger than the light pressure, the