It began to happen quite recently. Engineers, realizing that the mythical mind of the well-programmed and capacious digital computer does not boggle, put it to work translating mind-boggling complexities of logic into physical form. The ancient philosophers who invented logic as a game that is all in the mind had perhaps never actually encountered minds that do not boggle. To put logical constructs into a physical form that is readily multiplied, one turns to a craft generally credited to Gutenberg. The particular physical form, whether a metal-oxide-semiconductor (MOS) chip, a bipolar integrated circuit, or a charge-coupled device (CCD), rests also on subsequent contributions by the artists who invented photography, by the inorganic chemists who vied to discover new elements in rocks, by the physicists who invented quanta and electrons to explain their experiments, by the organic polymer chemists, even by us in one small way or another.

The physical form comes down to a bit of jewel patterned in lines and dots much finer than those by which a printing press prints pictures. The scanning electron microscope discloses thousands of electronically active and passive components tied together by logic. Economies of duplication and size for costly materials of the rarest purity open mass markets for all manner of artifacts that interact with the customer's central nervous system, homunculi who live in tiny boxes and are looking for new work beyond telling time and performing difficult calculations. When complexity is affordable, one can do almost anything.

The technology that generates the dots for the printing press turned out to be the way to carve and deposit the patterns the computers generate. From serving the printing and graphic arts industry for a long time, we know that technology well and currently serve the photolithographic departments of today's electronics industry not only with high-resolution plates and light-sensitive resists but by encouraging communication within their craft.

Here, for example, are the titles of papers presented at the most recent of the Kodak Microelectronics Seminars:
- The "Oxygen Effect" in Photoresists and Its Manifestation in Processing Parameters
- A Laser Reticule Generator
- Performance of an EBPG (Electron Beam Pattern Generator) as a Link in a Semiconductor Chip Manufacturing Chain
- Mechanistic Aspects of Photocrosslinking in Negative Photoresists
- Modelling Positive Photoresist
- An Electrical Method for Detecting Pinholes
- Effective Water Removal from High-Resolution Plates
- Advances in Contact and Proximity Printing
- Holographically Prepared Gratings for Integrated Optics
- Chrome Is for Car Bumpers and LSI Mask Technology
- The Characterization of Positive Photoresists
- Processing Techniques
- The Chemistry and Control of Processing High-Resolution Plates
- Lenses and Optical System Used in Microelectronics
- Monosubstituted Vinyl Polymers as Highly Sensitive Negative Electron Beam Resists

*If any of them specifically interest you drop us a note at Dept. 55Z, Kodak, Rochester, N.Y. requesting a copy.*

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To the biomedical reader:

Have Dept. 55Z at Kodak, Rochester, N.Y. 14650 send you the Directory of KODAK Products and Services for the Health Sciences. It guides you to products employed in the laboratory, in diagnosis and documenta-
Origins: Speculations and facts on the sources of planets.
Earth, and life by Robert Jastrow, Philip Morrison,
Cyril Ponnamperuma, George Wald.

What is man’s deepest mystery? Perhaps it is his own origin and that of his world. How did life begin? Where? How did primitive life evolve into man? How did the earth form? What of the genesis, life, and death of stars? What do pulsars and quasars signify? How were elements created? How was the universe created? What of the genesis, life, and death of stars? What do pulsars and quasars signify? How were elements created?

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