

Computer circuits less than one-seventh blood cell width

(Continued from page 1)

ENIAC, 10,000 times more reliable, which runs on the power of a lightbulb while the ENIAC consumed about the power of a steam engine, 1/30,000th the volume of the ENIAC in size, which costs 1/10,000th as much to buy and you can order it by mail."

In response to his own question — "What kind of information is going to be processed by all these computers?" — Robinson illustrated the growth of the information base in science by noting that in 1750, 10 scientific journals were published in the United States. By 1830 there were 300 and by 1970 the number was 5,000.

"Now," Robinson said, "there are more than 300 journals published in the United States in science that do nothing but abstract other journals, and almost all by computers."

Bubbling with facts

Noting the "steady growth toward miniaturization," Robinson said silicon chips for storing information are designed today with up to a million transistors on a square inch, requiring X-ray lithographic techniques to draw the circuits which are less than a micron wide. The human blood cell, he noted, is seven and a half microns wide and the human hair is about 40 microns wide.



MATHEMATICIAN, COMPUTER EXPERT Dr. Louis Robinson of IBM uses a newspaper to illustrate a story of how a computer was accused and then finally cleared in a misappropriation of checks in Los Angeles. Robinson addressed a dinner meeting of the Duke Management Club. (Photo by John Becton)

He also referred to "bubble technology," explaining that fields of magnetism, which under a microscope look like bubbles, "move around in a regular kind of way so they can serve as memory sources and each bubble can remember a single fact."

If the bubbles are small enough, and compacted together sufficiently, they can provide a mammoth memory field.

"Already there are bubble memories so compact," Robinson said, "that on a chip one-quarter inch on a side, you could put all the information in the Manhattan telephone directory."

Computers in our futures

Robinson also told his management-oriented audience that a recent report projecting data processing into 1980-85 predicts that by then "30 per cent of the entire labor force will have to have some knowledge of how computers work in order to do their jobs."

Meanwhile, as you've been reading this, the picoseconds have been ticking away, if tick they do.

A picosecond, Robinson explained, is a trillionth of a second. In other terms, he said a picosecond is to a second what a second is to 30,000 years.

And he added: "There are circuits today that can do logical things in a picosecond."

Brumley, Creasman, Hammond promoted

Three physicians here have been promoted to full professor, according to Dr. Frederic N. Cleaveland, university provost.

They are Dr. George W. Brumley of the Department of Pediatrics, and Drs. William T. Creasman and Charles B. Hammond of the Department of Obstetrics and Gynecology.

Brumley is a native of Lake City, Fla., who earned his B.S. and M.D. degrees at Duke in 1956 and 1960. After completing an internship in pediatrics at Duke Hospital, he served a residency at Children's Hospital Medical Center in Boston and fellowships at The Johns Hopkins Hospital and Duke.



DR. BRUMLEY

He joined the medical center faculty in 1967 as a research associate, and has been co-director of the division of Perinatal Medicine since 1972.

Brumley's research has focused on the respiratory problems of newborn infants. He is currently studying lung metabolism as it relates to deficiencies of surfactant, the fatty material that lines air sacs and passages in the lungs.

Born in Miami, Ariz., Creasman received his undergraduate and medical degrees from Baylor University in 1956 and 1960. He served an internship at Jefferson Davis Hospital in Houston and a residency in obstetrics and gynecology at the University of Rochester Medical Center.



DR. CREASMAN

Before being named assistant professor at Duke and director of his department's Division of Oncology in 1970, Creasman was assistant professor of surgery at the University of Texas M.D. Anderson Hospital in Houston.

His research has been directed toward finding better ways of diagnosing and treating cancer of the cervix, uterus and ovaries.

Hammond, a native of Ft. Leavenworth, Kan., studied at The Citadel and earned B.S. and M.D. degrees at Duke in 1960 and 1961. He also completed his internship in surgery and his residency in obstetrics and gynecology at Duke, and joined the faculty as an associate in 1968.



DR. HAMMOND

The physician founded the Southeastern Regional Center for Trophoblastic Disease at the medical center in 1966, and he is currently director of Obstetrics and Gynecology's Division of Endocrinology.

His scientific work has been aimed at infertility, tumors associated with pregnancy and the relationship between hormones and cancer.



A LARGE BAG FOR A SMALL NEWCOMER—Cathy Mitchell, assistant administrator for patient services, opens one of the gifts she received at a farewell party-baby shower given by the Surgical Units Support Services just before she resigned her administrative duties to take those of motherhood. Appointed in 1975, she has been responsible for Holmes, Nott, Strudwick and Welch wards and the Neurosurgical Unit. (Photo by Ina Fried)

Advisory board close-up

He sees industry, hospital problems as similar

By Parker Herring
(The fifth in a series.)

Virgil Hager draws extensively from his experiences as an executive at American Tobacco Co. for his position on the Durham Advisory Board to the hospital.

"Problems in a hospital are similar to that in industry," Hager said. "Just as a manufacturing plant must do certain things in management, so must a hospital."

"We always tried to adapt the latest methods and machinery that were known at the time," he said. "We also tried to eliminate unnecessary work, eliminate safety hazards and do things in general that improved the welfare of the employees."

Hager said he thinks all of these management objectives are extremely important for hospitals.

Hager retired in 1969 from American where he was an executive vice president. He received a BS degree in chemical engineering from Purdue in 1927.

"I'm no stranger to Durham," he said. "I know the local people, their mannerisms. I've handled a lot of people during my career."

Suggest the little things

Hager believes that one of the advisory board's functions is to suggest a lot of the little things that can help improve patient and visitor relations.

"Patients are naturally nervous when

they come to the hospital," he said. "They are under a strain . . . Anything that the hospital can do to give them some peace of mind is good."

"Duke North will solve a lot of the problems now felt by patients," Hager said. "The new hospital will be a modern facility with all of the up-to-date equipment."

Looking north

Hager said he hopes Duke North will eliminate the "heavy crisscrossing of traffic" that is now evident at Duke Hospital.

"Of course, you're always going to have a large amount of traffic at Duke because it is a teaching institution," he said. "But the new hospital should eliminate some of the traffic problems."

"Duke is a wonderful place," he said. "A lot of people love Duke . . . it's a contagious thing."

Hager is married and has two children and five grandchildren.



HAGER

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