



# PATH TO THE FUTURE

## Generous Gifts Support

### Department of Pathology and Laboratory Medicine

The Department has received two very generous endowments in the last few months, one, a research fund in transfusion medicine, and the other, a professorship in medical microbiology. Endowments are self-perpetuating philanthropic donations in which the principal remains intact and the income from investing this principal creates a source of income for the Department.



**Dr. Carolyn H. Lingeman in 1964**

Carolyn Harvey Lingeman, MD has endowed the Department with the **Ralph Burgess Lingeman, Jr. Research Fund in Pathology**, a fund for research by a full-time faculty member in transfusion medicine. This endowment is made in memory of her husband, Dr. Ralph Burgess Lingeman, Jr. who graduated from the Indiana University School of Medicine, served his residency in the Department of Pathology and Laboratory Medicine, and was a member of the faculty of the Department from 1958 to 1965.

In Dr. Carolyn Lingeman's words, "Under the direction of his mentor, Dr. John Arbogast, who directed the Clinical Laboratory, my husband found the inspiration and opportunity to study automation of blood testing and the application of computers to medical science, a field that was just in its infancy. Dr. Arbogast was a forward thinker, ahead of his time. He and my husband were among the founders of the Marion County Blood Bank. My husband's interest in blood banking actually went back to his medical school days when he manned the blood bank nights and weekends in what is now Wishard Hospital. He was able to continue working in blood banking and the applications of computers in laboratory medicine at the Veterans Administration Hospital in Washington, DC, from 1966 to 1992, where he also held a faculty position at the George Washington School of Medicine."

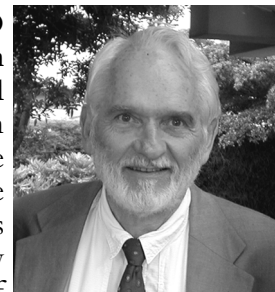
Dr. Carolyn Lingeman also graduated from the Indiana University School of Medicine and served her residency in the Department of Pathology and Laboratory Medicine. She was a faculty member from 1954 to 1965.

"I had begun working with mouse leukemia while I was a medical student in experiments directed by Dr. Edward B. Smith, a 1938 graduate of IU, who was Chairman of the Department of Pathology from 1952 until he left IU in the 1960s.

Much of my early cancer research was funded by small grants from organizations in Indiana such as the Delaware County Cancer Society which invested \$5000 in my cancer studies (\$5000 was worth a lot more in the early 1960s

(Continued on page 2)

James Warren Smith, MD established the **James Warren Smith Professorship in Clinical Microbiology** to recruit and retain outstanding faculty for the Microbiology Division of the Department. Dr. Smith was director of the Microbiology Division of the Department of Pathology and Laboratory Medicine from 1970-1992 and Chair of the Department from 1992-1998. He held the Carleton Nordschow Professorship in Laboratory Medicine and is now an Emeritus professor in the Department. The James Warren Smith Professorship will be awarded to a physician-pathologist who is board-certified in the subspecialty of medical microbiology, and has the principal responsibility for directing the microbiology laboratories of the Department of Pathology and Laboratory Medicine. If, at any time this Professorship remains vacant for three years because there is no suitable recipient, these funds will be used to support the IU-Kenya Partnership at Moi University until an individual is found who qualifies for the Professorship. A story about Dr. Smith's current work with Moi University in Kenya can be found on page 5.



**Dr. James Warren Smith**

Anyone interested in making a philanthropic gift to the Department should contact Dr. George Schenetzke to learn of the many programs in place to make your generosity as easy as possible. Dr. Schenetzke can be reached by telephone at 800-643-6975, or by email at [gschenet@iupui.edu](mailto:gschenet@iupui.edu).

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than it is now). The published results of my independent studies at IU later came to the attention of scientists at the National Cancer Institute who offered me a position there that I held for 19 years.

Both my husband and I have always planned to at least partially repay IU for our unsurpassed medical education, supported primarily by the taxpayers of Indiana . . . I am proud to be able to make funds available for young investigators who need support for research.”

### *Mission Statement*

*The Department of Pathology and Laboratory Medicine will be an international leader, training outstanding physicians, scientists, and laboratory professionals, advancing understanding of mechanisms of disease and improving medical practice through research, and providing our patients and clinical colleagues with advanced diagnostic services, on-time, and at low cost.*

## New Positions for Faculty



**Constance Danielson, MD** has been named Chief of Pathology Services at Wishard Memorial Hospital.



**Helen Michael, MD** was appointed Chief of Pathology and Laboratory Medicine at Clarian North Medical Center.

## Update on Clarian Pathology Laboratory



**The Clarian Pathology Laboratory as viewed from the canal**

their co-workers from other hospitals, there will be a party and an Amazing Lab Race at the Canal on Friday, April 28. The race will feature teams of four employees using four person boats and four person bikes to follow clues up and down the canal. There will be other game activities for everyone.

This event will serve as the Department's National Medical Laboratory Professionals Week celebration with a catered meal and gift for all employees of the Department of Pathology and Laboratory Medicine. National Medical Laboratory Professionals Week is a special time set aside to recognize medical laboratory professionals; for thirty years it had been called National Medical Laboratory Week, but was changed to reflect the fact that a functioning medical laboratory is more about people than a place.

Our building is finally finished; furniture and lab benches are in place, pathologists are inspecting their offices and laboratories, and final plans are proceeding for the big move. The first people to occupy the Clarian Pathology Laboratory are the support staff of Information Services and the people who place orders and handle bookwork to keep everything running smoothly. These staff members began moving on March 1, 2006. Equipment will be set up for the chemistry and microbiology labs next with laboratory personnel to follow. All lab personnel and pathologists should be moved in and have laboratories functioning by mid-May.

To celebrate the consolidation and allow everyone to meet

## History of the Department of Pathology and Laboratory Medicine

Written by **Dr. Kathleen Warfel Hull**



**Charles P. Emerson, MD**

### **Part 4: The Department of Pathology: 1931-1961**

During much of the early period of the department, the Indiana University School of Medicine had been led by Charles P. Emerson, MD, who was dean from 1911-1931.<sup>1</sup> Dr. Emerson was a specialist in internal medicine and firmly believed that most tests should be done on the wards by the clinicians, and that a separate laboratory

should be responsible only for the more complicated tests.<sup>2</sup> He had been in charge of the laboratory at Johns

1. Actually Dr. Emerson and later Dr. Gatch were deans of the Indiana University School of Medicine at Indianapolis. Dr. Burton Myers was dean of the Indiana University School of Medicine at Bloomington until 1940, when Meyers became Dean Emeritus.
2. Charles P. Emerson, a native of Massachusetts; BA from Amherst in 1894; MD from Johns Hopkins University in 1899; postgraduate training in Europe 1900-01 and 1903. Taught at Johns Hopkins Medical School; assistant professor of medicine at Cornell University. President of AAMC in 1923. Research professor of medicine at Indiana University School of Medicine until his death on September 26, 1938.

Hopkins and had written *Clinical Diagnosis*, which was a textbook of clinical microscopy and clinical chemistry for medical students, lab workers, and practitioners.<sup>3</sup>

In 1932, Willis D. Gatch, MD became dean of the Indiana University School of Medicine.<sup>4</sup> Dr. Gatch was a surgeon and was much in favor of modernizing and centralizing the practice of laboratory medicine on the campus. Both Emerson and Gatch were from Johns Hopkins School of Medicine and perpetuated that school's rigorous model for scientific medicine and thorough education at Indiana University School of Medicine.



**Willis D. Gatch, MD**

### **The Central Laboratory: Dr. Culbertson**



**Clyde G. Culbertson, MD**

In 1928-31, while a medical student, Clyde Gray Culbertson began his work in the department as student assistant in pathology and bacteriology. He also worked as an extern in the medical laboratories at Methodist Hospital in 1928-31 to help fund his medical school education. In 1931, he received his MD degree from Indiana University School of Medicine. In spite of his very recent completion of medical school and junior position, that year Dr. Culbertson was appointed by Dean Gatch to be the director of a new Central Interdepartmental Laboratory.<sup>5</sup> The new central lab was located in the basement of the south wing of the Medical School Building (late named Emerson Hall). It was created to consolidate the many small labs operated in the various departments of the school. An advisory committee composed of the heads of all the major departments oversaw the organization and operation of the lab. In later memoir articles, Dr. Culbertson acknowledged the help he got in this endeavor from member of the



**Central Lab 1932**

American Society for Clinical Pathologists, in particular from Dr. Alfred Giordano, who had an outstanding lab in South Bend, Indiana.<sup>6</sup>

This was the time of the Great Depression, and governor Paul V. McNutt asked Dean Gatch to have the Indiana University School of Medicine help with the State Health Department.<sup>7</sup> As a result, in 1933, Dr. Culbertson also became director of the Laboratory for Hygiene of the State Board of Health. This was a political hot seat. Many pathologists in the state wanted the tests to go to private labs for fees rather to the State Board of Health for free.<sup>8</sup>



**State Board of Health Building, 1933**

The State Board of Health labs were downtown in the State House and received a large number of specimens by mail. The labs moved from downtown when the first SBOH Laboratory Building was opened on the West Michigan Street campus in 1939-40. Initially Dr. Culbertson provided the only link between the two labs, although the labs were partially merged for a time. At first, Culbertson's central laboratory at the medical school

pathologists to that of consultants in medicine. The organization was to foster precision in chemical, bacteriological, immunological, and pathological examinations of tissues and fluids. Dr. Alfred S. "Gerry" Giordano was secretary-treasurer of the ASCP in 1930-48, during which time ASCP headquarters were in South Bend, Indiana. In 1948, Culbertson became secretary-treasurer of ASCP, driving to South Bend on weekends to take care of society business. The headquarters were moved to Indianapolis in 1949. Culbertson was president of the ASCP in 1969. The Indiana Association of Pathologists was organized by a group of eight pathologists, including Dr. Giordano and Dr. Forry, at the 1933 meeting of the Indiana State Medical Association in French Lick.

7. In 1932, Dr. William F. King was State Health Commissioner and Dr. C. F. Adams was Director of the State Board of Health Laboratory of Bacteriology and Pathology. Dr. Culbertson's appointment in 1933 reportedly caused some consternation within the medical community.
8. Dr. Culbertson stayed with the SBOH until 1946.

3. Lippincott 1906; fifth edition, 1921.
4. Willis D. Gatch was acting dean 1931-32. He served as dean until June 1946. Born in Aurora, Indiana in 1877; AB Indiana University, 1901; MD Johns Hopkins University, 1907; surgery training with Halstead at Johns Hopkins University, and then at Washington University School of Medicine; invented the "Gatch bed," a crank and screw bed for positioning patients, 1909, the Gatch mask for ether administration, and an early machine for delivery of nitrous oxide/oxygen anesthesia, 1910. He was a founding member of the American Board of Surgery, c. 1937.
5. Dr. Culbertson was born in Vevay, Indiana in 1906. He earned a BS in Anatomy and Physiology from Indiana University in 1928 and an MD from Indiana University School of Medicine in 1931.
6. The ASCP was organized in 1922 at the annual meeting of the American Medical Association in St. Louis. The object of the new organization was improving the scientific status of clinical pathology and elevating the status of clinical

## History of the Department

(continued)



**Edith Haynes, MD**

was staffed by a bacteriologist named Edith Haynes, a serologist named Mr. Louis Y. Mazzini, and six technicians.<sup>9</sup> Mazzini, who was originally from Lima, Peru, had come to work in Dr. Moon's lab in 1924, where he took over the student assistant position in serology, previously held consecutively by medical student Sallee Summers, Thurmond Rice, and Frank Forry. Mazzini became

well known for developing a new, extremely cost-effective, sensitive and specific test for syphilis, the Mazzini test, an alternative for the Wasserman test.<sup>10</sup>

As was usual for the period at hospitals and medical schools, at Indiana University School of Medicine surgical pathology had always been the purview of the Department of Surgery. In 1931, Dean Gatch appointed Dr. Frank Ramsey, a senior surgery resident from Indianapolis City Hospital to be in charge of the Indiana University School of Medicine surgical pathology laboratory, which consisted of two rooms in the basement of Emerson Hall. Ramsey was helped in this endeavor by Dr. Trusler, who was an



**Louis Mazzini**



**Dr. Trusler with a young patient about 1932**

assistant professor of surgery. When the latter went into plastic surgery and Dr. Ramsey into private practice, Dean Gatch asked Dr. Culbertson to take over. So surgical

pathology and the Central Laboratory were merged.<sup>11</sup> One of the first things Dr. Culbertson did after that was to run batches of surgical specimens overnight rather than once a week. He also went to the Mayo Clinic to learn frozen section technique.

In 1933, in the surgical pathology area, a Division of Medical Art was added and was listed as part of the Central Interdepartmental Laboratory. This division took pictures of patients and of pathological specimens. The lab used the Finley process for photomicrographs to produce lantern slides—an expensive precursor to Kodachrome slides. The division consisted of medical artist James Frank Glore, a graduate of the Chicago Art Institute, and photographer Herbert Salinger. It grew to be the separate Department of Medical Illustrations.<sup>12</sup>



**Artist James Frank Glore**

The Central Interdepartmental Laboratory was listed for a few years in the *Bulletins* as a department of the school, but it was not, in fact, separate from the Department of Pathology and Bacteriology. Dr. Culbertson was listed as faculty of the Department of Pathology and Bacteriology, achieving the rank of assistant professor of pathology in 1934.

In 1937, Dean Gatch named Culbertson as Chief of the Division of Laboratories of the Indiana University Medical Center in Indianapolis. This move consolidated all laboratories of the medical center, including the central laboratory, “the research” laboratory, the labs of the State Board of Health, “and another to be established medico legal laboratory.”<sup>13</sup> By 1937, Dr. Culbertson supervised 35 technicians. During 1937-38, the laboratory did approximately 300,00 lab tests and examinations. That year, a medical school assistant administrator named Albert Scheidt worked with Dr. Culbertson on a study of the costs of laboratory investigations and tests.

In 1938, Culbertson's laboratory moved from Emerson Hall across the street to a larger space: the second floor of the east wing of the new Clinical Building. The Clinical Building was an addition on the north side of Long Hospital. Along with space for the laboratories, the building also provided new space for outpatients, inpatients, operating rooms, and radiology. On the top floor there were rooms to house interns and residents.

9. Daniels, Main, Dykhuizen, Williamson, Fouts, and Hollingsworth.

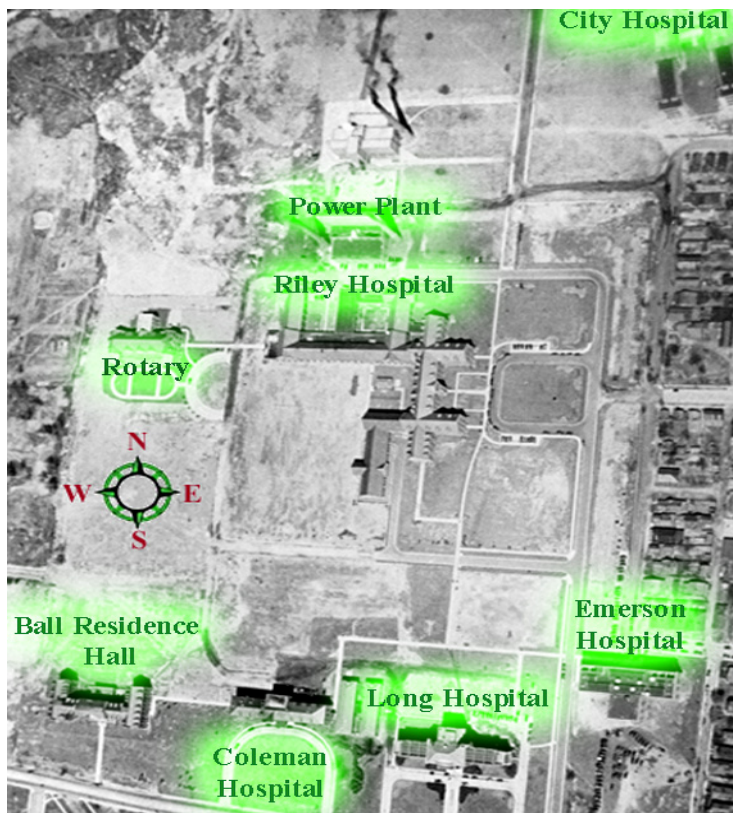
10. The Mazzini test was adopted for use by the United States government during World War II. On the south side of Michigan Street near Barnhill and the School of Dentistry, there is a monument in honor of Mazzini.

11. The exact date of transfer for surgical pathology is uncertain. The *Indiana University School of Medicine Bulletins* list a Division of Surgical Pathology and Experimental Surgery in the

Department of Surgery between 1928-29 and 1940-41, and Dr. Trusler is listed as Chairman of the Division of Plastic surgery in the 1940-41 *Register*.

12. Glore recruited Craig Gosling to join his department. Gosling worked with Dr. Isadore Mandelbaum in the Department of Surgery to create the BETSI, the “breast examination tactile simulator instruction device.” Gosling subsequently worked with other faculty members to create a variety of teaching simulator models.

13. *JISMA*, Aug 1937.



**Aerial View of Campus 1932**

That same year, the Blood Bank holding refrigerated stores of citrated blood was added to the laboratory in the Clinical Building.<sup>14</sup> The era of direct patient to patient transfusion was over. The Indiana University School of Medicine Blood Bank was the first in Indiana to offer a relative/friend donation program for patients, and Dr. Culbertson asked the chairman of the Department of Obstetrics and Gynecology, Dr. Carl Huber, to arrange for the husbands of pregnant women to donate blood. Through earlier work of Dr. Culbertson and Albert Ratcliffe introducing the use of centrifugation to detect weak irregular agglutinins in cross-matching blood, the Indiana University School of Medicine laboratory played a role in solving the puzzle of Rh factor.<sup>15</sup> Dr. Culbertson also became director of the Red Cross Blood Donor Center in Indiana.<sup>16</sup>

**Continued in the summer 2006 edition of  
Path to the Future**

### **Acknowledgments:**

Writing the history of the first one hundred years of the Indiana University Department of Pathology has been an undertaking larger than I had expected, but one that became more interesting month by month. I would like to acknowledge the jump-start I was given by the records kept by professor J. Donald Hubbard, an earlier "Brief History of the Department" written by professor Jans Muller, and a history of the medical technology program written by professor Mary Feeley. Professors emeritus Leo McCarthy, John Pless, and James Smith have provided extensive information and advice, as did professor Linda Kasper and Dr. Robert McDougal, retired pathologist and former IU School of Medicine pathology resident. Nancy Eckerman, History of

Medicine Librarian at the Ruth Lilly Medical Library, and Stephen Towne of the IUPUI Archives led me to wonderful resources. Many others have given their time in sharing their memories and materials, and I hope to acknowledge everyone's participation when the history is published as a whole.

Kathleen Warfel Hull, MD, Professor emerita of the Department of Pathology and Laboratory Medicine.

14. The Indiana University School of Medicine Blood Bank became a charter member of the AABB in 1948.
15. Culbertson CG and AW Ratcliffe: Reaction following intra-group blood transfusion: irregular agglutinin demonstrated by the sensitive centrifuge test method. *American Journal of Medical Science*, 192:471-475, 1936. Ratcliffe was assistant in the Division of Clinical Pathology 1938-39, on LOA 1939-40.
16. During WWII many citizens donated blood. The war brought a great demand for dried blood plasma.

## **Adventures in Africa**



**Dr. Smith in Eldoret, Kenya**

Dr. James Smith became a Professor in the Department of Pathology and Laboratory Medicine at Indiana University in 1970 and served as Chairman of the Department from 1992-1998. He and Marilyn Bartlett (Professor emerita) began studying *Pneumocystis carinii* in 1974. *Pneumocystis carinii* is a microscopic, opportunistic fungus that causes pneumonia (PCP) in immunocompromised patients. PCP was rare at that time, mainly occurring in children receiving chemotherapy for acute lymphocytic leukemia, or in patients on long-term high doses of corticosteroids. In the early 1980s homosexual men who had previously been healthy presented with devastating pneumonias caused by *P. carinii*. It was the beginning of the AIDS epidemic and, in the early days, PCP was the initial finding in nearly 60% of these patients. The emergence of AIDS made Dr. Smith's work much more intense and important and led to funding from NIH to discover a better therapy for PCP.

In 1990, a partnership was developed between Indiana University and the Moi University of Medicine in Eldoret, Kenya to confront the shortage of physicians in Kenya by establishing a second medical school in that country. At that time only the major cities of Nairobi and Mombassa had enough doctors to provide adequate medical

care. Indiana faculty joined in planning the new medical school and has been active in education, research and clinical care at Moi University and the hospital affiliated with it since the partnership was formed.



**Eldoret, Kenya**

With an estimated population of 400,000, Eldoret is located in the northwest Great Rift Valley in western Kenya. The 7,000 ft elevation provides relief from the equatorial heat with warm, sunny days (70-80 F) and cool, pleasant nights (60-70F).



**Part of IU House**

**A six-building complex for visiting staff and faculty from IU**

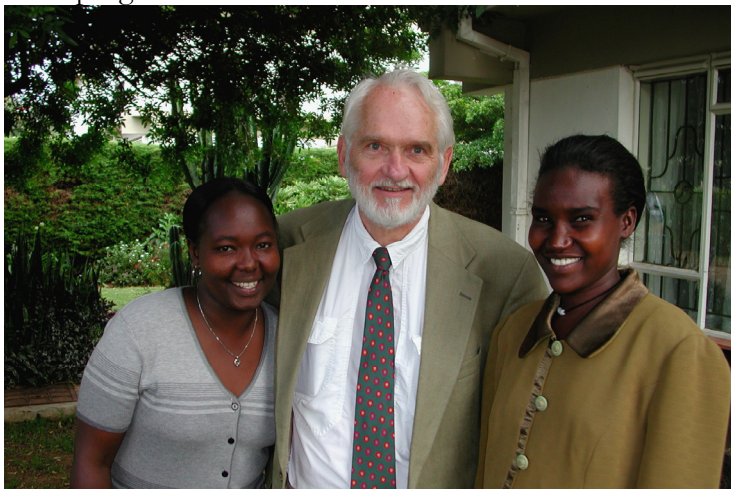
Program participants from IU live in "IU House", a compound consisting of 6 houses. Participants work at the Moi Teaching and Referral Hospital in Eldoret and in numerous urban and rural health centers that treat a population of several million people. The Moi Teaching



and Referral Hospital serves the indigent population of Eldoret and a referral population of nearly 13 million in northern and western Kenya.

Although one of the original goals of the IU-Moi affiliation was to provide an opportunity for IU faculty, residents and medical students to have a third world experience, the HIV/AIDS problem soon became the major thrust of the program. Nowhere in the world is the AIDS crisis worse than in Africa. When Dr. Smith retired in 1998, he recognized that Moi needed to improve its laboratory capabilities in order to diagnose opportunistic infections (OIs) associated with AIDS. Marilyn Bartlett was on a three-month Fulbright fellowship in 2000 when Dr. Smith joined her in training Kenyan personnel to diagnose these OIs. By establishing laboratory procedures and training personnel to diagnose parasitic infections that Kenyan labs had not been able to detect, they helped implicate organisms like cryptosporidium and cyclospora as the cause of HIV-related diarrhea in that part of Kenya. During several additional trips, Dr. Smith used his experience in diagnosing *P. carinii* and other OIs to teach the Moi personnel to evaluate bronchoalveolar lavage specimens for OIs commonly found in AIDS cases. Meanwhile Marilyn Bartlett helped set up a basic mycology laboratory in Eldoret.

The IU/Kenya program currently cares for over 20,000 HIV/AIDS patients, treating more than half of these cases with anti-retroviral drugs. In Dr. Smith's words, "We have become one of the best centers for HIV/AIDS care in the developing world. Our role in helping identify opportunistic infections is only a small part of the bigger HIV program at Eldoret."



**Dr. Smith with Christine Akoru (R) and Sheila Cherbore (L), technicians in the laboratory at Eldoret, Kenya**

Recently the Moi facility expanded into a new HIV/AIDS building that contains both laboratory and clinical areas. The building was funded largely by contributions from people in Indianapolis. Dr. Smith recommended designs and equipment for the laboratories in the building, and is now focusing on internal and external quality control for the Eldoret laboratory to improve accuracy of test results. The American Proficiency Institute in Michigan is providing external control materials.

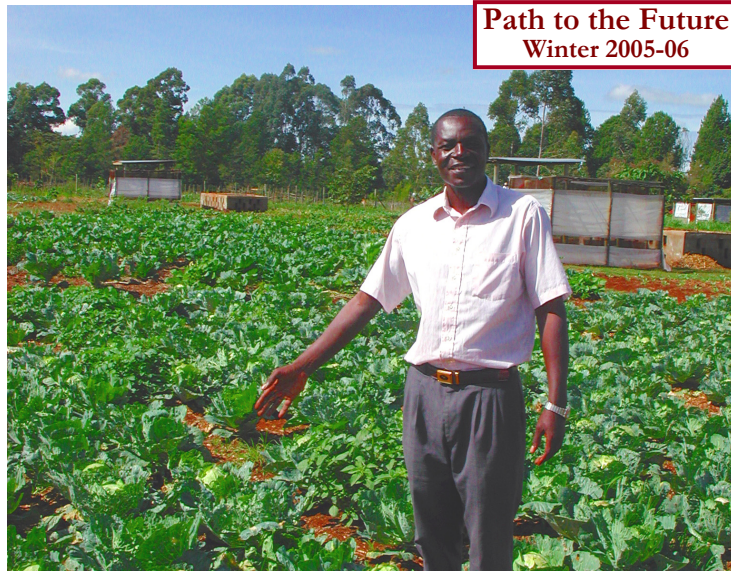


**A nursery at the Moi Teaching and Referral Hospital**

Another goal of the Moi program is to prevent mother-to-infant transmission of HIV at birth. From 8%-30% of pregnant women (depending on where they live) in this part of Kenya are HIV positive. These women receive treatment with anti-retroviral medications during their pregnancies to help prevent infection of their infants during delivery, and their babies receive treatment after birth. Mothers are given infant formula so that the virus is not transferred by breastfeeding. Other infected family members are treated as well to preserve the family unit; it is important that parents raise their own children in order to decrease the huge number of orphans in Kenya. Long term monitoring for compliance with prophylactic efforts and HIV follow-up care are stressed. Unfortunately, male social customs discourage the use of condoms to prevent new infections. Despite the political obstacles, efforts like these at Moi to produce an uninfected new generation may offer the best hope for control of the disease in Africa and other parts of the world.

Yet another aspect of the IU-Moi partnership is the development of farms to provide adequate nutrition for AIDS patients so that their immune systems can rebuild. Prescriptions for food are often given to patients. Besides the crops grown at Eldoret, the farms produce fruit, meat, eggs, and dairy products.

It is important to realize that Dr. Smith and Marilyn Bartlett are not the only members of the Department who have worked in Kenya. Dr. John Pless, Emeritus professor, has gone to Kenya several times to teach forensic medicine to medical students; Deanna Fuller from Wishard Hospital microbiology has gone twice, most recently in January of this year to develop a new tuberculosis lab. Tuberculosis is a major problem in Kenya, especially in AIDS patients. Jane Dumond, formerly in microbiology at Wishard has also worked in Eldoret.



**The farm foreman stands in front of a crop of cabbages**

The IU-Moi Partnership is a large, cooperative group that provides assistance in many areas in addition to pathology. There are IU medical students, house staff, and faculty there at all times along with IU employees from non-medical departments. Kenyan faculty and students are sent here at IU for education as well. To learn more about the IU/Kenya partnership, please visit <http://medicine.iupui.edu/kenya/program.html> or <http://www.iukenya.org/>.



**Dr. Smith feeds a rhinoceros that was raised in captivity**

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**Indiana University**  
**SCHOOL OF MEDICINE**



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