TO SAY THAT CHILD SURGERY WAS AN UNPOPULAR DEVELOPMENT IN THE FIELD OF SURGERY IN 1946 IS A GROSS UNDERSTATEMENT. GENERAL SURGEONS FELT THAT THE LOG OF SURGERY HAD BEEN SPLINTERED ENOUGH; THERE WERE ENOUGH SUB-SPECIALTIES WITHOUT CONTEMPLATING A NEW ONE.

BUT THE INSULT ADDED TO THAT POTENTIAL INJURY WAS THAT CHILD SURGEONS SAID THEY COULD DO ANY SURGERY IN CHILDREN BETTER THAN ANATOMICAL SPECIALISTS BECAUSE OF THEIR UNDERSTANDING OF THE PATHOLOGICAL PHYSIOLOGY OF INFANTS UNDER STRESS AND UNDERSTOOD BETTER THE MANAGEMENT OF THEIR VERY LIMITED RESERVE. IT MAY SOUND BRASH AT THIS LATE DATE, BUT IT REALLY WAS TRUE IN 1946.

IN SPITE OF THE VERY SINCERE AND STRONG SUPPORT OF I.S. RAVDIN AND JONATHAN E. RHOADES, EVEN THE UNIVERISTY OF PENNSYLVANIA WAS HOSTILE TO RAVDIN'S NEW PLANS FOR CHILD SURGERY. SO WAS THE HOSPITAL WHERE I WAS TO BECOME CHIEF, AND THE SURGEONS IN THE FOUR OTHER MEDICAL SCHOOLS IN PHILADELPHIA DID NOT WELCOME A 29-YEAR-OLD UPSTART AS THE CHIEF OF SURGERY IN THE OLDEST CHILDREN'S HOSPITAL IN AMERICA--INTENT ON MAKING IT THE CENTER OF A NEW SPECIALTY.

LAMENTABLY, AT FIRST, THERE WASN'T MUCH TO DO IN SURGERY. PEDIATRICIANS HAD BECOME SO DISCOURAGED WITH THE OUTCOME OF ATTEMPTED SURGERY ON THE NEWBORN THAT INFANTS DIED ON THE MEDICAL WARDS OF THE CHILDREN'S HOSPITAL IN 1947 WITH ATRESIA OF THE SMALL BOWEL WITHOUT EVEN THE BENEFIT OF A SURGICAL CONSULTATION.

THIS RELATIVE INACTIVITY PERMITTED ME TO SPEND HOURS IN THE RECORD ROOM. ONE OF THE FIRST PROJECTS I UNDERTOOK WAS TO TRY TO REVIEW THE RECORDS OF PATIENTS WHO HAD A DISCHARGE DIAGNOSIS OF A MALIGNANT TUMOR. IN RETROSPECT, SOME VERY INTERESTING ANECDOTES SURFACED. ONE I REMEMBER WELL WAS FINDING THE RECORD OF A CHILD WHO HAD BEEN TREATED, BY SURGICAL EXCISION, FOR A MALIGNANT TUMOR OF THE PAROTID.

THE SURGERY HAD BEEN DONE 60 YEARS BEFORE. TO MY UTTER AMAZEMENT, I FOUND THE PATIENT STILL LIVED AT HER CHILDHOOD ADDRESS--WITH NO EVIDENCE OF CANCER. SHE WAS THEN, AND MAY REMAIN NOW, THE LONGEST FOLLOW-UP ON A MALIGNANT TUMOR OF THE PAROTID ENCOUNTERED IN CHILDHOOD.

OF THE FIRST 100 RECORDS I STUDIED RETROSPECTIVELY, 25% HAD A DISCHARGE DIAGNOSIS OF NEUROBLASTOMA. THIRTEEN OF THESE PATIENTS HAD BEEN ADMITTED TO THE HOSPITAL BY A REFERRING PHYSICIAN OR HAD BEEN ADMITTED AFTER EXAMINATION IN THE EMERGENCY ROOM WITH A DIAGNOSIS OF RHEUMATIC FEVER,--A DIAGNOSIS MUCH MORE COMMONLY ENTERTAINED AND FEARED IN THOSE DAYS THAN NOW.

WHY WOULD SO MANY NEUROBLASTOMAS BE MISDIAGNOSED AS RHEUMATIC FEVER? MANY OF THESE YOUNGSTERS HAD BONE METASTASES WHEN THEY WERE FIRST SEEN AND THE LEG PAIN SO COMMON WITH THAT COMPLICATION WAS INTERPRETED AS THE JOINT PAIN OF RHEUMATIC FEVER.

THEN THESE YOUNGSTERS, BY THE TIME THEY WERE SEEN, WERE OFTEN ANEMIC AND FRAIL AND PRESENTED WITH A TACHYCARDIA. AND FINALLY, THE SEDIMENTATION RATE, ON WHICH PEDIATRICIANS RELIED SO HEAVILY IN THE DIAGNOSIS OF RHEUMATIC FEVER, WAS ALWAYS ELEVATED IN NEUROBLASTOMA.

EXCEPT FOR LEUKEMIA, CANCER WAS NOT A DIAGNOSIS FREQUENTLY ENTERTAINED BY PEDIATRICIANS, NO MATTER HOW OBVIOUS THE SIGNS AND SYMPTOMS MIGHT BE TO US TODAY.

I THINK I KNOW PEDIATRIC PRACTITIONERS AS WELL AS I KNOW ANY GROUP OF MY COLLEAGUES, THEY ARE KIND, GENTLE, AND THEY DON'T LIKE TROUBLE. MALIGNANT TUMORS IN CHILDREN ARE BIG TROUBLE. NOT ONLY TROUBLE WITH THE LOSS OF A PATIENT, BUT CANCER IN CHILDHOOD HAS FAR-REACHING EFFECTS. SOCIETY DOES NOT EXPECT CHILDREN TO DIE OF A DISEASE THAT THEY ASSOCIATE WITH OLDER AGE. THEY ALSO EXPECT MORE FROM MEDICINE AND HEALTH CARE THAN WE ARE SOMETIMES ABLE TO DELIVER. THE MAGIC OF MEDICINE DOES NOT ALWAYS EXTEND TO THE CURE OF MALIGNANT TUMORS IN CHILDREN.

TWO ANECDOTES FROM THE EARLY '50S WILL SERVE TO ILLUSTRATE THE ATTITUDE OF SOCIETY AND PEDIATRICIANS TOWARD THIS DIAGNOSIS.

THE POPULARITY OF AFTERNOON SOAP OPERAS OF TODAY WAS ASSUMED IN THE ERA OF WHICH I AM SPEAKING BY AFTERNOOON RADIO TALK SHOWS. I WAS INVITED BY A POPULAR PHILADELPHIA TALK SHOW HOSTESS TO COME AND DISCUSS "THE NEW AND WONDERFUL THINGS" I WAS DOING AT CHILDREN'S HOSPITAL.

I ARRIVED AT THE STUDIO WITH THE USUAL LEAD TIME AND WE HAD A CONVERSATION SO THAT SHE COULD PREPARE HERSELF FOR THE QUESTIONS SHE WOULD ASK. WHEN I TOLD HER I WOULD BE DISCUSSING CHILDHOOD CANCER, SHE BRISTLED: "DON'T YOU DARE USE THAT HORRID WORD ON MY PROGRAM."

"WHAT WORD?" I REPLIED.

"THAT HORRIBLE WORD, CANCER."

"WHAT DO YOU WANT ME TO CALL IT?"

"CALL IT THAT DREAD DISEASE."

BY THIS TIME WE WERE READY TO GO ON THE AIR. I COVERED PROBLEMS ABOUT CONGENITAL DEFECTS AND SO ON, AND EVENTUALLY GOT OFF INTO THE FIELD OF CANCER. I DID REFER TO IT AS TUMOR, AND LATER AS MALIGNANT TUMOR, AND THEN I DID USE THE WORDS "DREAD DISEASE."

BY THIS TIME THE SECOND HAND ON THE CLOCK WAS APPROACHING THE TIME I HAD BEEN TOLD WE HAD TO QUIT, WITH ABOUT 10 SECONDS LEFT, MY PARTING SHOT WAS: "OF COURSE, THE DREAD DISEASE I'M TALKING ABOUT IS CANCER." I WAS NEVER INVITED BACK.

PERMANENTLY ATTACHED TO MY SURGICAL SERVICE AT THE CHILDREN'S HOSPITAL WAS A FINE OLD GENTLEMAN, EDWARD J. RILEY. DR. RILEY WAS AN EXCELLENT PEDIATRICIAN WHO USED MORE GOOD SENSE THAN SCIENCE, AT TIMES, BUT HIS NOSTRUMS FOR TREATING PATIENTS WERE LEGENDARY AND HIS DIAGNOSTIC ABILITY WAS PRODIGIOUS.

HE HAD NEVER TAKEN HIS BOARDS AND WAS UNORTHODOX ENOUGH NOT TO BE ACCEPTED IN THE HIGHER SCIENTIFIC ECHELONS OF THE DEPARTMENT OF PEDIATRICS AT THE UNIVERSITY OF PENNSYLVANIA, HENCE HIS ASSIGNMENT AS A SORT OF PERMANENT "CONSULTANT" TO THE SURGICAL SERVICE. HE MADE ROUNDS WITH US DAILY; WE ALL PROFITED BY HIS WISDOM. ABOUT TUMORS, HE UNDERSTOOD WILMS' TUMORS AND NEUROBLASTOMAS AND HE CERTAINLY KNEW ABOUT LEUKEMIA, BUT THAT'S WHERE IT ENDED.

ONE AFTERNOON AS I WAS LEAVING THE HOSPITAL, HE WAS COMING IN. I STOPPED HIM IN THE LOBBY, TO TELL HIM ENTHUSIASTICALLY ABOUT A PATIENT I HAD ADMITTED THAT AFTERNOON. WHEN I TOLD HIM THAT I FELT QUITE CERTAIN I HAD A 13-YEAR-OLD GIRL WITH A CANCER OF THE THYROID, HE JUST LAUGHED. THEN HE DID MORE THAN THAT. HE SLAPPED HIS THIGH, AND LAUGHED AGAIN. IT WAS OBVIOUS THAT I HAD MADE THE GREATEST DIAGNOSTIC ERROR.

I TOOK HIM TO THE WARD, INTRODUCED HIM TO THE YOUNG LADY, AND DEMONSTRATED THE FIRM NODULE IN THE THYROID. HE WAS STILL SO AMUSED THAT, ONCE AGAIN, I GAVE HIM MY LITTLE LECTURE ON "ALL LUMPS AND BUMPS IN CHILDREN ARE MALIGNANT UNTIL PROVEN OTHERWISE." I TOLD HIM THE ONLY WAY YOU COULD PROVE THIS ONE TO BE OTHERWISE WAS TO DO A BIOPSY. AND THAT'S WHAT I INTENDED TO DO THE NEXT MORNING, BY FROZEN SECTION.

IN THE OPERATING ROOM AT 8:00 A.M., POP RILEY WAS PRESENT. IT'S THE FIRST TIME I EVER HAD SEEN HIM PUT ON A SCRUB SUIT, CAP, AND MASK TO GET CLOSE TO THE OPERATING TABLE. I BIOPSIED THE MASS AND WHEN IT CAME BACK AS A FOLLICULAR CARCINOMA OF THE THYROID I PERFORMED A TOTAL THYROIDECTOMY. THE CHILD RECOVERED, GREW UP, MARRIED, AND HAD THREE CHILDREN.

THREE WEEKS AFTER THAT SURGERY, POP RILEY BROUGHT A BEAUTIFUL 4-YEAR-OLD GIRL INTO MY OFFICE. HE STOOD HER DIRECTLY IN FRONT OF ME AND SAID "WHAT DO YOU THINK OF THIS BIRD?", USING THE AFFECTIONATE TERM BY WHICH HE CALLED HIS PATIENTS.

"WHAT AM I SUPPOSED TO SEE?"

"SMILE!" HE SAID TO THE CHILD.

SHE DID, AND IT WAS OBVIOUS THAT SHE HAD TWO DIMPLES ON ONE OF THE CHEEKS AND ONLY ONE ON THE OTHER.

"PUT YOUR FINGER ON THAT UPPER DIMPLE." SAID RILEY.

I DID AND WHILE I HELD MY FINGER THERE, HE SAID TO HER:

"STOP SMILING." AND TO ME "WHAT DO YOU FEEL?"

"A TINY NODULE."

"WELL, WHAT ARE YOU GOING TO DO ABOUT IT?" THEN WITH A SMIRK ON HIS FACE HE SAID "ALL LUMPS IN CHILDREN ARE MALIGNANT UNTIL PROVEN OTHERWISE."

"I'M GOING TO ADMIT HER AND DO AN EXCISIONAL BIOPSY." RILEY WENT ALONG WITH IT BUT VERY SKEPTICALLY. HIS CONVERSION TO MY THESIS WAS COMPLETE WHEN THE DIAGNOSIS CAME BACK "RHABDOMYOSARCOMA, COMPLETELY EXCISED." COULD BE THE EARLIEST DIAGNOSIS OF A FACIAL RHABDO EVER MADE--AND BY A NON-BELIEVER--AT LEAST UP TO THEN.

THE PROTOTYPE OF CHILDHOOD CANCER WAS THE WILMS' TUMOR. REMOVING A WILMS' TUMOR CAN BE ONE OF THE MOST SATISFACTORY ACCOMPLISHMENTS IN PEDIATRIC SURGERY. ON THE OTHER HAND, IT CAN ALSO BE ONE OF THE MOST TERRIFYING.

TO ENCOUNTER A WILMS' TUMOR OF PRODIGIOUS SIZE, DISPLACING THE LIVER AND THE BOWEL, PUSHING THE VENA CAVA AND THE AORTA TO THE OTHER SIDE OF THE SPINAL COLUMN, WITH TUMOR EXTENSION EXTENDING INTO THE RENAL VEIN AND UP THE VENA CAVA AND PERHAPS INTO THE LEFT ATRIUM, CAN BE HUMBLING INDEED.

A KIND OF FOLKLORE DEVELOPED AROUND THE MANAGEMENT OF WILMS' TUMOR. WE ALL KNEW THAT THESE TUMORS WERE FRIABLE AND THAT THE CAPSULE COULD BE EASILY RUPTURED.

WE ALSO KNEW THAT A RUPTURED WILMS' TUMOR HAD A VERY POOR PROGNOSIS. WE ALSO KNEW THAT WILMS' TUMORS GREW RAPIDLY, AND WHO KNEW WHEN THE MOMENT OF METASTASIS MIGHT BE? WE ALSO KNEW THAT WHEN A LARGE ABDOMINAL TUMOR WAS ADMITTED TO THE WARDS OF A CHILDREN'S HOSPITAL, MORE PEOPLE THAN NEEDED TO BE INVOLVED FELT THEY HAD TO FEEL THE TUMOR WITHIN THE ABDOMEN.

MY RULES DEVELOPED RAPIDLY AND WERE FIRM. THE FIRST PERSON ON THE SURGICAL SERVICE THAT ENCOUNTERED THE CHILD PUT A SIGN ON THE ABDOMEN WHICH SAID "DO NOT PALPATE THIS ABDOMEN." A SIMILAR SIGN WAS PUT ON THE FOOT OF THE BED. NO ONE ELSE FELT THAT BELLY EXCEPT THE SURGEON WHO WAS GOING TO PERFORM THE OPERATION AND HIS SUPERVISOR. IF THEY WERE ONE AND THE SAME, ONLY ONE PAIR OF HANDS, OTHER THAN THOSE OF THE ORIGINAL DIAGNOSTICIAN WERE INTENDED TO FEEL THE ABDOMEN.

SECONDLY, EXCISION OF A WILMS' TUMOR WAS CONSIDERED TO BE AN EMERGENCY; NO MORE THAN ONE COMPLETE HOSPITAL DAY WAS PERMITTED TO ELAPSE BEFORE THE OPERATION WAS PERFORMED. AT THE OPERATING TABLE THE TUMOR WAS TREATED AS THOUGH IT WERE AN UNEXPLODED BOMB AND HAD TO BE DEFUSED. IT WAS HANDLED WITH UTMOST CARE AND BECAUSE MOST METASTASES WERE BLOOD BORNE, BY WAY OF THE RENAL VEIN, THE VEINS WERE LIGATED BEFORE THE ARTERY.

THESE WERE NOT FOOLISH PRECAUTIONS AND I'M SURE THEY SAVED LIVES. MANY SURGEONS ARE UNAWARE OF THE DAMAGE CAUSED BY PALPATING FINGERS ON SMALL CHILDREN. I LEARNED THIS FROM WILLIAM E. LADD, WHO TOLD ME NEVER TO OPERATE ON A PYLORIC STENOSIS IF THE PEDIATRICIANS HAD A GO AT FEELING THE "OLIVE."

HE SAID HE HAD LEARNED BY BITTER EXPERIENCE THAT SUCH TRAUMA PRODUCED SO MUCH PYLORIC EDEMA THAT NO MATTER HOW WELL THE OPERATION WAS PERFORMED, THE CHILD VOMITED FOR DAYS THEREAFTER.

I HAVE OPENED THE ABDOMENS OF CHILDREN WITH PYLORIC STENOSIS, UNAWARE OF THE FACT THAT MY RULES HAD BEEN BROKEN ABOUT PREOPERATIVE PALPATION. IN ADDITION TO THE EDEMA OF THE PYLORUS, ACTUAL HEMORRHAGES CAN BE SEEN IN THE TRANSVERSE MESOCOLON FROM WHAT I'M SURE THE PERPETRATOR WOULD HAVE CALLED "GENTLE" PALPATION.