

**THE GROWTH OF ANESTHESIOLOGY**  
**AS A CLINICAL DISCIPLINE BASED UPON SCIENCE -**  
**A PERSONAL ASSESSMENT**

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ROVENSTINE LECTURE ON THE 35TH ANNIVERSARY OF THE NEW YORK POST-  
GRADUATE ASSEMBLY IN ANESTHESIOLOGY - DECEMBER 15, 1981

WHEN DR. HENRIK BENDIXEN INVITED ME TO PRESENT THE 11<sup>TH</sup> ROVENSTINE LECTURE ON THIS 35TH ANNIVERSARY OF THE DISTINGUISHED POST-GRADUATE ASSEMBLY IN ANESTHESIOLOGY, I HASTENED TO ACCEPT THIS SPECIAL HONOR REALIZING THE WORK CONSEQUENCES FOR ME, AS WELL AS THE RESPONSIBILITY IMPOSED UPON ME IN THE PROCESS AND THE HAUNTING CONCERNS THAT I WAS NOT ADEQUATE FOR THIS TASK. HOWEVER, THE QUICK RESPONSE OF ACCEPTANCE WAS CONDITIONED BY MY OWN ROOTS IN MY NATIVE CITY OF NEW YORK, BY BEING INVITED BY MY MOST ABLE SUCCESSOR TO THE DISTINGUISHED COLUMBIA UNIVERSITY CHAIR IN ANESTHESIOLOGY AND BY MY LONG, CLOSE AND, TO ME, FASCINATING RELATIONSHIPS WITH THE MAN THAT YOU DESERVEDLY HONOR, INCLUDING THIS LECTURE AT THE NEW YORK POST-GRADUATE ASSEMBLY, IN ADDITION TO THE PREMIER LECTURESHIP IN ANESTHESIOLOGY IN THE UNITED STATES, GIVEN AT THE ANNUAL MEETING OF THE AMERICAN SOCIETY OF ANESTHESIOLOGISTS, ALSO NAMED IN HIS HONOR WHICH I WAS PRIVILEGED TO GIVE. HE WAS HONORED AND I AM SORRY TO SAY ALSO ATTACKED DURING HIS ACTIVE CAREER A GOOD DEAL. AFTER HIS DEATH, HAPPILY ONLY HONORS REMAIN.

THE MIDDLE-AGED AND OLDER PEOPLE IN THIS AUDIENCE - OF WHICH I NUMBER MYSELF ONE OF THE SENIORS - NEED VERY LITTLE REMINDER OF THE EXTRAORDINARY CAREER OF E. A. ROVENSTINE IN ANESTHESIOLOGY. HUMAN NATURE AND MEMORY BEING WHAT THEY ARE, IT IS DESIRABLE FOR ME TO TOUCH ON ONE OR TWO HIGHLIGHTS OF HIS CAREER FOR THE PEOPLE IN THIS GROUP WHO DID NOT KNOW HIM AND WHO OWE SO MUCH TO HIM WITHOUT REALIZING THE NATURE OF THEIR DEBT OR HOW IT HAPPENED.

I SHALL LEAVE TO OTHERS AND ON OTHER OCCASIONS A MORE COMPLETE REVIEW OF DR. ROVENSTINE'S OWN PERSONAL AND PROFESSIONAL DEVELOPMENT EXCEPT FOR A FEW KEY COMMENTS WHICH I THINK ARE APPROPRIATE ON THIS 35TH ANNIVERSARY OF THIS ASSEMBLY. ROVENSTINE WAS THE FIRST AND MOST OUTSTANDING PUPIL OF THE LATE RALPH WATERS. WHEN HE CAME TO NEW YORK UNIVERSITY AND BELLEVUE HOSPITAL FROM MADISON, WISCONSIN IN 1935 TO START THE FIRST ACADEMIC AND SCIENTIFICALLY BASED DEPARTMENT OF ANESTHESIOLOGY IN NEW YORK CITY, IT WAS A BEGINNING OF MUCH THAT WAS IMPORTANT, NOT ONLY FOR THIS GREAT CITY BUT FOR THE REST OF OUR COUNTRY AND THE ENTIRE WORLD OF ANESTHESIOLOGY.

ROVENSTINE'S CONTRIBUTIONS TO CLINICAL EXCELLENCE AND SCIENTIFIC RESEARCH AND TEACHING IN ANESTHESIOLOGY ARE MONUMENTAL ACHIEVEMENTS THAT WILL RARELY IF EVER BE EQUALLED OR SURPASSED. PART OF IT WAS THE EXTRAORDINARY GENIUS OF THE MAN AND PART OF IT WAS THE OPPORTUNITY AT HIS TIME AND IN THIS PLACE WHICH OTHERS MAY HAVE ALSO HAD BUT, WHICH HE SEIZED WITH ALACRITY, SKILL AND GREAT ZEST.

THE NEW YORK POST GRADUATE ASSEMBLY WITH ITS LONG, MAJOR CONTRIBUTION TO OUR SPECIALITY AROSE AT LEAST IN PART FROM ROVENSTINE'S OWN SENSE OF FRUSTRATION IN WORLD WAR II. HE DID ALL HE COULD TO PERSUADE

THE FEDERAL AUTHORITIES THAT HIS SERVICES WERE NEEDED IN THE ARMED FORCES AND COULD BE WELL UTILIZED IN THE SERVICE OF OUR COUNTRY, AND IN THEIR WISDOM OR PERHAPS LACK OF IT - NO ONE WILL EVER KNOW - HE WAS TOLD THAT HIS WAR JOB WAS TO INTENSIFY THE TRAINING OF ANESTHESIOLOGISTS, SO SORELY NEEDED BY THE ARMED FORCES IN A CIVILIAN ENVIRONMENT WHERE THE DISTRACTIONS OF MILITARY OPERATIONS WOULD NOT TAKE PLACE. HE ACCEPTED THIS DECISION GRUDGINGLY AND TURNED IN A BRILLIANT PERFORMANCE DURING THOSE LATE WAR YEARS. HE WAS HELPED BY OTHERS TOO NUMEROUS TO MENTION, BOTH IN AND OUT OF THE SERVICE, BUT THE STALWART SUPPORT HE RECEIVED FROM DR. S. G. HERSHEY AT BELLEVUE (ROVEY'S HOSPITAL - AS HE ALWAYS PUT IT) DURING THAT DIFFICULT PERIOD MUST BE MENTIONED WITH GREAT PRAISE AND SHOULD NOT GO UNNOTICED OR UNCREDITED ON THIS OCCASION.

THEN THE WAR ENDED AND VERY BRIGHT YOUNG MEN (NOT VERY MANY WOMEN AT THAT TIME) ELECTED AS A RESULT OF THEIR MILITARY EXPERIENCE TO HAVE FORMAL TRAINING IN ANESTHESIOLOGY. ROVENSTINE WAS AMONG THE FIRST TO WELCOME THEM INTO HIS DEPARTMENT TO PROVIDE THAT KIND OF OPPORTUNITY. AMONG HIS OWN GIFTED STUDENTS OF THAT IMMEDIATE POST-WAR PERIOD ARE, RICHARD AMENT, SAM DENSON, WHO WAS RECENTLY LOST TO US, UNFORTUNATELY AT TOO EARLY AN AGE, JIM WEST AND MARTIN HELRICH. THERE WERE, OF COURSE, MANY, MANY OTHERS A BIT LATER. ROVENSTINE VERY GENEROUSLY WELCOMED ME BACK TO HIS DEPARTMENT, AS WELL, AFTER THE WAR UNTIL I COULD DECIDE WHAT I WISHED TO DO WITH MY CAREER. WE TALKED OFTEN

ABOUT WHAT I SHOULD DO WITH MY LIFE - AND WE OFTEN DISAGREED. HE BELIEVED THAT THE LONG PERIOD OF THE CONFLAGRATION OF WORLD WAR II NEEDED A NEW KIND OF REPAIR IN TERMS OF HASTENING OF THE TRAINING OF ANESTHESIOLOGISTS AND THAT IT WAS ESSENTIAL TO UPDATE RETURNING MILITARY ANESTHESIOLOGISTS MOST OF WHOM WERE INADEQUATELY TRAINED EVEN BY THE STANDARDS OF 1946 WITH THE BEST KNOWLEDGE AVAILABLE AT THE TIME. HE CONDUCTED SPECIAL COURSES OF ALL KINDS AT BELLEVUE HOSPITAL AND ELSEWHERE IN NEW YORK CITY FOR THIS PURPOSE.

IN 1945, A SMALL MEETING IN WHICH CHARLES BURSTEIN, SOL HENSLEY, AL BETCHER AND DUNCAN ALERALLY AND A FEW OTHERS, OF WHOM I WAS PRIVILEGED TO BE ONE, PARTOOK IN THE EXCHANGES OF IDEAS FOR THIS PURPOSE. IT IS NOW RECKONED AS THE 1<sup>ST</sup> POST GRADUATE ASSEMBLY. MANY OF US INCLUDING ME WERE STILL IN UNIFORM, OF COURSE. BY 1946, THE OUTLINE OF THE POST-GRADUATE ASSEMBLY HAD CLEARLY TAKEN SHAPE IN HIS MIND AND A RELATIVELY SMALL BUT FASCINATING SCIENTIFIC MEETING TOOK PLACE IN DECEMBER OF 1947. I BELIEVE, UNLESS MY ARITHMETIC IS WRONG, AND IT CERTAINLY MAY BE, THAT MOST OF YOU ACCEPT THE DATE OF THE FIRST POST-GRADUATE ASSEMBLY IN ANESTHESIOLOGY AS HAVING TAKEN PLACE IN DECEMBER, 1945 AND I AM SURE THAT IS A REASONABLE ATTITUDE TO TAKE OR ELSE WE WOULD NOT CELEBRATE 35 YEARS TODAY. THE OTHER EARLIER AND LATER MEETINGS MUST BE VIEWED AS TRAINING AND ATTITUDINAL SPECULATION EXERCISES TO WORK OUT THE THRUST OF THE PGA PRIOR TO THE LAUNCHING OF THIS MAJOR ACTIVITY OF EDUCATION IN ANESTHESIOLOGY. IT WAS ROVENSTINE'S FIRM BELIEF AND CONTENTION THAT THE BEST OF SCIENTIFICALLY BASED INFORMATION AND CONCEPTS AVAILABLE WHICH RELATED TO ANESTHESIOLOGY WAS THE BEDROCK UPON WHICH THE BEST KIND OF EDUCATION FOR CLINICIANS IN ANESTHESIOLOGY SHOULD TAKE PLACE - A

HABIT OF THOUGHT HE LEARNED FROM WATERS AT WISCONSIN.

HE, THEREFORE, ORGANIZED THESE DECEMBER, 1945 AND 1947 MEETINGS WITH THAT PURPOSE IN MIND AND IT OCCURRED AT A TIME THAT HAPPENED TO BE VERY DIFFICULT IN HIS OWN PERSONAL AND PROFESSIONAL LIFE SO THAT THE FANTASTIC AND MARVELOUS BEGINNINGS OF THIS WHOLE CONCEPT OCCURRED IN THE FACE OF REAL DIFFICULTY FOR HIM. I SUPPOSE ONE MIGHT SPECULATE FREELY UPON THE IDEA THAT MANY VERY WORTHWHILE THINGS CAN HAPPEN WHEN A GIFTED INDIVIDUAL FINDS IMMERSION IN WORK AS THE VEHICLE FOR DEALING WITH OTHER SERIOUS PROBLEMS IN HIS OWN PROFESSIONAL AND PERSONAL LIFE. WHATEVER THAT GUESS IS WORTH, I AT LEAST, BELIEVE THAT IT HAD SOMETHING TO DO WITH IT IN HIS CASE.

THE FIRST MEETING WAS FORMED WITH THE BEST SCIENTIFIC MINDS OF THE TIME WHO CAME TO DELIVER THE INFORMATION IN BASIC SCIENCE RELATED TO ANESTHESIOLOGY, THAT I HAVE OUTLINED. I CONSIDER MYSELF ONE OF THE PRIVILEGED FEW ALONG WITH OTHERS LIKE THE LATE LEWIS WRIGHT, CHARLES BURNSTEIN, SOL HERSHEY, AL BETCHER AND OTHERS WHO HELPED ROVEY PUT TOGETHER THIS FIRST ESTABLISHED MAJOR MEETING OF MAJOR CONSEQUENCE TO THE DEVELOPMENT OF AN IMPORTANT CONCEPT IN ANESTHESIOLOGY. FROM THAT DATE ONWARD OUR SPECIALITY WAS FIRMLY COMMITTED TO THE NOTION THAT NEW KNOWLEDGE WAS EXCITING AND IMPORTANT AND THAT OUR COLLEAGUES IN THE BASIC SCIENCES AND THOSE OF OUR SPECIATY WHO ALSO DID RESEARCH HAD MUCH TO CONTRIBUTE TO OUR OWN ABILITY TO CARE FOR OUR PATIENTS IN A SUPERIOR AND PRACTICED WAY. THE NEXT STEPS FELL TO OTHERS

IN DEVELOPING THE CONCEPT OF THE MODERN NEW YORK POST-GRADUATE ASSEMBLY. ANESTHESIOLOGY HAS HAPPILY NEVER BEEN THE SAME SINCE.

I HAD THE PLEASURE OF PLANNING AND CONDUCTING A NUMBER OF THESE ASSEMBLIES IN THE EARLIEST YEARS AND I KNOW CLEARLY THAT MY WORK WITH THE ASSEMBLY CONTRIBUTED IN A MAJOR WAY TO MY OWN INTELLECTUAL GROWTH IN A MOST IMPORTANT SPECIAL KIND OF EDUCATION, TO SAY NOTHING OF THE HAPPY EXPERIENCE OF BEING INVOLVED IN THE CARRYING OUT OF ROVENSTINE'S VERY IMPORTANT CONCEPT OF THE FIRM ESTABLISHMENT OF THIS SPECIALTY ON A SOLID FOUNDATION OF SCIENCE, EDUCATION AND DEVOTION TO THE CARE OF PATIENTS.

WE ARE ALL FORTUNATE, INDEED, THAT ROVENSTINE LIVED AMONG US AND DID SO MUCH TO MAKE THE ANESTHETIC WORLD A BETTER PLACE FOR THE WORKERS IN IT AND OBVIOUSLY, FOR THE PATIENTS WHO BENEFITTED BY HIS ATTITUDES OF APPROACH TO THEIR CLINICAL CARE ADMINISTERED BY HIS PUPILS AND THEIR PUPILS IN TURN.

WE SEEM TO SPEND MUCH TIME ON SO MANY IRRELEVANT THINGS IN OUR COMPLEX OVERREGULATED SOCIETY. TODAY SHOULD BE THE TIME FOR US IN CLINICAL ANESTHETIC PRACTICE, OF WHATEVER NATURE, TO REDEDICATE OURSELVES TO THE ORIGINAL CONCEPT OF THIS ASSEMBLY; I.E., THAT SUPERIOR CLINICAL CARE OF PATIENTS IS PREDICATED UPON A FIRM FOUNDATION IN THE MANY FUNDAMENTAL SCIENCES WHICH GIVE US LIFE. COMPASSION AND CARE FOR THE SICK ARE AN OLDER HERITAGE AND MUST ALSO BE REINVIGORATED BY ALL OF US. SCIENCE AND SENSITIVITY MAKE ALL THE DIFFERENCE IN CLINICAL CARE.

BEFORE GETTING TO THE NEXT PART OF THIS LECTURE, I FEEL CONSTRAINED TO WARN YOU THAT THERE WILL BE NO SLIDES AND THE LIGHTS WILL BURN BRIGHT, IF THERE IS NO POWER FAILURE, UNTIL I FINISH TALKING.

SLIDES ARE ALWAYS SHOWN, QUITE PROPERLY, BY ACTIVE, USUALLY BUT NOT ALWAYS YOUNG AND VETERAN PEOPLE, OF DATA COLLECTION, SCIENTIFIC AND CLINICAL. THEY ARE OFTEN ALSO SHOWN, AS THOUGH IN INTELLECTUAL EMBARRASSMENT WHEN CONCEPTS OR OPINIONS ONLY ARE CONCERNED. THESE SLIDES ARE USUALLY FROM THE NEW YORKER MAGAZINE AND SIMILAR LEARNED JOURNALS AND ARE INTENDED TO BE HUMOROUS. THEN THERE ARE SEVERAL PEOPLE WHO FEEL STRONGLY THAT WE CAN TALK TOGETHER AND THINK TOGETHER WITHOUT THE DISTRACTION OF NON-RELEVANT VISUAL MATERIAL ABOUT SOME SUBJECTS. THIS LECTURE IS ONE OF THOSE NON SLIDE SHOWS.

### INTRODUCTION

- 1) THIS NEXT PART OF MY PRESENTATION WILL BE HIGHLY SELECTIVE AND A PERSONAL REFLECTION ON EVENTS OF IMPORTANCE TO THAT PART OF THE DEVELOPMENT OF ANESTHESIOLOGY WHICH TOOK PLACE LARGELY IN THE U.S.A. AND BROUGHT US TO WHERE WE ARE TODAY.
- 2) THE LACK OF MENTION IN DETAIL OF THE CRUCIAL CONTRIBUTIONS IN OTHER COUNTRIES IS DUE ONLY TO LACK OF TIME. THE MAJOR ACHIEVEMENTS IN THE U.K. AND EUROPE ARE HAPPILY AND FREELY ACKNOWLEDGED AS VITAL TO THIS OTHERWISE INDIGENOUS AMERICAN STORY AS WELL.

THERE IS NO NEED TO RECOUNT TO THIS KNOWLEDGABLE AUDIENCE ANY OF THE

DETAILS OF THE HISTORY OF ANESTHESIA. HOWEVER, IT IS OF USE TO RECITE SOME IMPORTANT FACETS IN THE DEVELOPMENT OF OUR DISCIPLINE. THE DISCOVERY OF A PRACTICAL WAY OF PRODUCING SURGICAL ANESTHESIA IS NEARLY ONE HUNDRED AND FORTY YEARS OLD AND IS THEREFORE VIEWED AS A RELATIVELY RECENT ACQUISITION TO THE SUM TOTAL OF KNOWLEDGE IN EITHER SCIENCE OR MEDICINE. IN ADDITION, THE CASTING OF THIS RELATIVELY NEW DISCOVERY INTO A DIFFERENT PERSPECTIVE IS IMPORTANT. WITH SOME EXCEPTIONS, IT WAS ALMOST ENTIRELY EMPIRICAL FOR MANY YEARS AND EQUIPMENT ORIENTED RATHER THAN A FULLY ROUNDED SPECIALTY IN THE PRACTICE OF MEDICINE WHICH DESERVED AND COULD ATTRACT EXCELLENT PHYSICIANS TO IT. IN PASSING, I CANNOT HELP BUT WONDER WHETHER OUR EMERGING HIGH TECHNOLOGY ERA IS A SOPHISTICATED VERSION OF THE OLD EQUIPMENT ERA. IT DEPENDS ON WHAT THE ANESTHESIOLOGIST DOES IN HIS USE OF THE INFORMATION GENERATED. THE FINAL ASSESSMENT OF THIS THRUST IS TOO DIFFICULT FOR ME TO JUDGE.

THE NEXT POINT TO BE MADE IS THAT MANY OTHER DISCIPLINES OF MEDICINE ATTAINED RESPECTABILITY AND ACCEPTANCE WITHOUT AN ADEQUATE SCIENTIFIC BASE LONG BEFORE ANESTHESIOLOGY BECAME A DISCIPLINE AT ALL. THIS THESIS SUGGESTS, FOR REASONS THAT MAY HAVE CULTURAL OR HABITUAL DETERMINANTS, THAT MANY FIELDS IN CLINICAL MEDICINE WITHOUT A SCIENTIFIC BASE COULD AND DID ACHIEVE RECOGNITION LONG BEFORE ANESTHESIOLOGY, DESPITE THE FACT THAT MAJOR MODERN SCIENTIFIC INFORMATION CAME ABUNDANTLY AND EQUALLY TO MOST BRANCHES OF MEDICINE OURS INCLUDED WITHIN THE SAME TIME SPAN, I.E. AFTER WORLD WAR II TO THE PRESENT.

IT WAS THIS SEEMING ANACHRONISM WHICH SUGGESTED THE POSSIBILITY TO ME THAT ATTITUDES OF PHYSICIANS, SURGEONS AND THE PUBLIC EVERYWHERE TOWARD



ANESTHESIOLOGY MAY HAVE HAD AS MUCH OR MORE TO DO WITH ITS RELATIVELY SLOW EARLY DEVELOPMENT AS ANY OTHER FACTOR. IT IS ALSO POSSIBLE THAT WE DID NOT ATTRACT OUR FAIR SHARE OF FIRST RATE PHYSICIANS AND INDIVIDUALS CAPABLE OF LEADERSHIP AT THAT TIME.

BE THAT AS IT MAY, MODERN ANESTHESIOLOGY BEGAN AS A TECHNICAL EXERCISE TO SUPPORT THE THEN GREATER EXERCISE OF SURGICAL SKILLS. THERE WERE CLEAR EVIDENCES OF THE NEED TO ACCOMPLISH MORE THAN TO ENGAGE IN EMPIRICAL ACTIVITIES IN MOST FIELDS OF CLINICAL MEDICINE BUT, ODDLY ENOUGH THIS WAS NOT THOUGHT TO BE RELEVANT BY MANY, IF THEY GAVE IT THOUGHT AT ALL, TO THE DEVELOPMENT OF ANESTHESIOLOGY.

IN THE UNITED KINGDOM, THERE WERE THOSE AS EARLY AS CLOVER AND SNOW WHO KNEW THAT ANESTHESIA DESERVED RECOGNITION BY THE MEDICAL PROFESSION AND THE PUBLIC, AND NEEDED QUANTITATIVE INFORMATION TO ACHIEVE THAT OBJECTIVE. IN THE UNITED STATES, THERE WAS LITTLE INTEREST IN THIS ASPECT OF THE DEVELOPMENT OF ANESTHESIA IN THE EARLY YEARS. RECOGNITION WAS NOT ACHIEVED UNTIL ANESTHESIOLOGY BECAME ORGANIZED AND RECOGNIZED AS A DISCIPLINE WORTHY OF ATTENTION IN A UNIVERSITY ENVIRONMENT. THIS STEP WAS THE KEY TO THE PRIMARY ATTRACTION OF MORE PHYSICIANS OF INTELLIGENCE AND IMAGINATION TO OUR SPECIALTY. THE FIRST APPRECIATION OF THIS NEED IN THE UNITED STATES WAS DEMONSTRATED BY RALPH WATERS, WHO, AS LONG AGO AS 1927, DEVELOPED AN EDUCATIONAL PLAN FOR ANESTHESIOLOGISTS AT THE UNIVERSITY OF WISCONSIN, WITH A FIRM BASE IN THE SCIENCES, ESPECIALLY OF PHYSIOLOGY AND PHARMACOLOGY. HIS WORK AND THAT OF HIS MOST NOTED DISCIPLE, E. A. ROVENSTINE, WHO WE HONOR TODAY, INDICATED CLEARLY THE FACT THAT ANESTHESIA WAS NOT A HANDMAIDEN FOR SURGERY NOR A TECHNOLOGICAL

SUPPORT EXERCISE, BUT WAS A TRUE SPECIALTY DESERVING OF THE ATTENTION OF PHYSICIANS OF MAJOR SKILLS AND THAT IT DID REQUIRE A SCIENTIFIC BASE TO ACHIEVE THAT RECOGNITION. FOR STRANGE REASONS, INCOMPREHENSIBLE TO ME EVEN NOW, THIS NECESSARY BASE IN THE UNIVERSITIES WAS POORLY UNDERSTOOD BY CLINICAL PRACTITIONERS. UNIVERSITY PEOPLE ALSO OFTEN POORLY UNDERSTOOD THE NEEDS OF THE PRACTITIONER. I THINK THIS PERIOD IS WELL BEHIND US. THE A.S.A., THE PRACTITIONER'S ASSOCIATION HOUSES SOME OF OUR BEST SCIENCE TODAY IN ITS ANNUAL MEETING. IT IS NOT UNUSUAL FOR ACADEMIC ANESTHESIOLOGISTS TO BE ELECTED TO HIGH OFFICE IN THE ASA - AND THIS HAPPY RELATIONSHIP WAS UNCOMMON IN ROVENSTINE'S DAY

IT BECAME OBVIOUS, EVEN THOUGH THE FIRST ORDER OF PERFORMANCE LAY IN THE CLINICAL CARE OF PATIENTS AND A SECOND ORDER IN THE TEACHING PROCESS, THAT NO REAL ABILITY TO ESTABLISH THIS INFANT DISCIPLINE COULD BE ACHIEVED WITHOUT A FIRM RESEARCH BASE AND RESEARCH PARTICIPATION OF ANESTHESIOLOGISTS. THERE ARE MANY FACTORS SUPPORTING THIS VIEW, BUT IT SEEMS CERTAIN TO ME TO ATTRIBUTE MUCH OF THE SUCCESS FOR ACCEPTANCE AND VISIBILITY OF ANESTHESIOLOGY TO THE MEDICAL ESTABLISHMENT OF OUR INTEREST IN THE SCIENTIFIC SUPPORT FOR CLINICAL PRACTICE. THERE WOULD HAVE BEEN NO YEARS OF ACHIEVEMENT WITHOUT THE INTELLECTUAL STRENGTH OF SCIENCE - BUT, AS WE SHALL NOTE - EVEN THAT IS NOT ENOUGH TO OVERCOME THE LINGERING ANONYMITY OF THE ANESTHESIOLOGIST TO THE PATIENT - AND THAT IS WHERE THE IMPORTANCE OF OUR CONTRIBUTIONS ULTIMATELY WILL STAND OR FALL - SINCE WE ONLY SERVE THOSE WHO NEED US.

OTHER JUDGEMENTS COULD HAVE BEEN MADE BUT SHORTLY BEFORE THE BEGINNING OF WORLD WAR II AND CERTAINLY DURING THAT WAR, IT BECAME

ABUNDANTLY APPARENT THAT THE PRACTICED USE OF PRECISE KNOWLEDGE WAS THE BEST WAY IN WHICH BETTER CARE FOR PATIENTS COULD BE PROVIDED. THIS PROCESS IS AN ETERNAL NEED - NO LESS SO TODAY THAN 40 YEARS AGO OR MORE. EDUCATION AND RESEARCH SUPPORT CLINICAL CARE.

TO THIS END, IN THE UNITED STATES, ANESTHESIOLOGISTS WITH THIS KIND OF ORIENTATION AND INTEREST LIKE ADRIANI, BEECHER, CULLEN, DRIPPS, FOLDES AND OTHERS SET ABOUT IN A DELIBERATE FASHION, AND TO SOME EXTENT IN CONCERT WITH EACH OTHER, TO ACQUIRE QUANTITATIVE DATA, AS WELL AS, TO FOSTER EDUCATION AND RESEARCH, ALONG WITH THE DEVELOPMENT OF NEW TECHNOLOGIES TO ESTABLISH THE NEXT PHASE OF ANESTHESIOLOGY. A SIMILAR ACTIVITY WAS GOING ON IN THE UNITED KINGDOM WITH SUCH DISTINGUISHED LEADERS AS MCINTOSH, MUSHIN, PASK, GRAY AND OTHERS WHO HAD SIMILAR CONVICTIONS. THERE WERE THEIR COUNTERPARTS ON THE EUROPEAN CONTINENT WHO, AT THAT TIME, WERE USUALLY SURGEONS OR PHARMACOLOGISTS, LIKE DOGLIETTI IN ITALY, NEGOVSKY IN THE SOVIET UNION, AND HUSFELDT IN DENMARK

MANY OF US, AT THAT TIME, WERE CONVINCED THAT THE DUAL PURPOSE OF THE RECOGNITION AND ESTABLISHMENT OF ANESTHESIOLOGY AS A MAJOR DISCIPLINE, COULD NOT BE ACCOMPLISHED ONLY BY THE SHEER DEMONSTRATION OF CLINICAL VIRTUOSO SKILLS OR BY PUBLIC RELATIONS WITH PATIENTS. AS WE VIEWED IT, RECOGNITION HAD TO BE BASED UPON THE DEVELOPMENT OF FUNDAMENTAL SCIENTIFIC KNOWLEDGE FOR ANESTHESIOLOGY WHICH WOULD EVENTUALLY RESULT IN BETTER CARE FOR PATIENTS. IF THE COMBINATION OF SCIENTIFIC KNOWLEDGE AND COMPASSIONATE CLINICAL CARE COULD BE ACHIEVED, ANESTHESIOLOGY HAD A MAGNIFICENT DESTINY OF SERVICE AND ACCOMPLISHMENT,

WHICH WOULD SOON HAVE A MAJOR INFLUENCE ON SURGICAL OPERATIONS, THE CARE OF CRITICALLY ILL PATIENTS, AND IN THE MANAGEMENT OF PATIENTS WITH PAINFUL STATES. ALL THESE ASPIRATIONS WERE, TO SIGNIFICANT DEGREES, ACCOMPLISHED OR - AT LEAST - THEIR SUCCESSFUL OUTCOME IS ASSURED ULTIMATELY.

SINCE THERE HAD TO BE A BEGINNING, A SMALL NUMBER OF INDIVIDUALS, ALMOST AT THE SAME TIME QUITE SPONTANEOUSLY, SOUGHT SCIENTIFIC EDUCATION AND TRAINING EITHER WITH THE KNOWLEDGE THAT IT WOULD BE A BASIS FOR USE IN ANESTHESIOLOGY OR BECAUSE THEY HAD AN INTRINSIC CURIOSITY IN A FIELD OF BIOMEDICAL SCIENCE OR ITS RELATED AREAS. BEECHER PURSUED HIS POSTSURGICAL, SCIENTIFIC EDUCATION WITH PROFESSOR KROGH IN DENMARK AND PARTLY AS A CONSEQUENCE OF THAT EXPERIENCE, WROTE THE FIRST SCIENTIFIC BOOK IN ENGLISH RELATED TO ANESTHESIOLOGY WHICH HE CALLED "THE PHYSIOLOGY OF ANESTHESIA". DRIPPS HAD A PLANNED CAREER IN PHARMACOLOGY AND WAS PURSUADED TO USE THIS KNOWLEDGE IN THE NEW FIELD OF ANESTHESIOLOGY BY HIS DISTINGUISHED MENTORS, PROFESSORS RAVDIN, SCHMIDT AND NEWTON RICHARDS AT PENNSYLVANIA.

ADRIANI SOUGHT EDUCATION WITH THE OUTSTANDING PHYSIOLOGIST, PROFESSOR HOMER SMITH IN RENAL PHYSIOLOGY AT NEW YORK UNIVERSITY. SIMILAR EXAMPLES COULD BE CITED OF OTHERS, ESPECIALLY THE WISCONSIN GROUP WHO WORKED IN THE LABORATORIES OF PROFESSORS MEEK, TATUM AND SEEVERS, AND OTHER BASIC SCIENTISTS.

IN THE EARLY YEARS AFTER WORLD WAR II, THERE WERE MANY FASCINATING SCIENTIFIC PROBLEMS WHICH DERIVED THEIR INSPIRATION FROM CLINICAL ANESTHETIC EXPERIENCE, SO MUCH SO THAT IT BECAME ALMOST AXIOMATIC THAT A BROAD BASE OF MANY SCIENCES COULD BE OF VAST USE IN DEVELOPING COMPETENT CLINICAL ANESTHESIOLOGISTS WHICH RESULTED IN MUCH BETTER CARE FOR PATIENTS.

IN THIS RESPECT, THE SCIENTIFIC DEVELOPMENT OF ANESTHESIOLOGY DIFFERED IN NO IMPORTANT WAY FROM THE DEVELOPMENT OF THE SCIENTIFIC BASE OF OTHER DISCIPLINES IN CLINICAL MEDICINE. THE OTHER FIELDS TOOK THIS KNOWLEDGE IN STRIDE. HOWEVER, IN ANESTHESIOLOGY, SCIENCE WAS FIRST VIEWED AS PERHAPS UNNECESSARY AND CERTAINLY UNUSUAL, BUT EVENTUALLY IT BECAME A HABIT OF THOUGHT THAT LENT ITSELF TO THE GOAL OBJECTIVE OF BETTER CARE FOR PATIENTS UNDERGOING SURGICAL OPERATIONS, AS WELL AS, FOR PATIENTS TO WHOM THIS BODY OF KNOWLEDGE COULD BE APPLIED IN OTHER AREAS. IN THE FIRST BLUSH OF ENTHUSIASM ABOUT THE SCIENTIFIC BASE FOR ANESTHESIOLOGY, IT APPEARED THERE WAS TRULY NO BASIC SCIENCE, NATURAL OR BIOLOGICAL, THAT COULD NOT BE USEFUL FOR THIS CLINICAL FIELD. IN FACT, IT IS STILL MY FIRM CONVICTION THAT THIS PREMISE IS VALID - WITNESS THE MANY NEW METHODS AND TECHNOLOGIES BASED IN ALL THE LIFE SCIENCES, PHYSICS, MATHEMATICS, COMPUTER SCIENCE AND OTHER DISCIPLINES. ROVENSTINE, ALMOST INTUITIVELY, ACTUALLY WAS THE FIRST TO PREDICT THE IMPORTANCE OF A HIGH DEGREE OF INTELLECTUAL STRENGTH TO BE DRAWN FROM PHYSICS AND ENGINEERING FOR ANESTHESIOLOGY - AS AN EXAMPLE OF HIS ACCURATE PROPHECY. HE NEVER SAW A COMPUTER, BUT HE IMAGINED A DEVICE DOING THESE KINDS OF FUNCTIONS. HE THEREFORE PREDICTED MUCH OF WHAT WE CALL MONITORING.

IT SOON BECAME EVIDENT THAT RESEARCH AS A FIRM FOUNDATION FOR ANESTHESIOLOGY COULD NOT BE VIEWED IN ISOLATION. IT BECAME ONE OF THREE ASPECTS OF INTERRELATED ACTIVITIES IN A PROFESSIONAL SENSE. THE DELIVERY OF ANESTHETIC CARE AND THE EDUCATION OF PROFESSIONALS IN RESEARCH WERE OBVIOUSLY INTERWOVEN IN THIS PROCESS OF RAPID DEVELOPMENT.

THE QUESTION OF WHAT ONE SHOULD STUDY AS A BASIS FOR PROGRESS IN

ANESTHESIOLOGY WAS DECIDED UPON BY THE TASTE AND INCLINATION OF THE INDIVIDUALS CONCERNED IN THE PROCESS, RATHER THAN AS IS UNFORTUNATELY PRESCRIBED AT PRESENT BY COMMITTEES OR BOARDS WITH BUREAUCRATIC GOAL AND PROGRAM OBJECTIVES. HOWEVER, EVEN THOUGH RESPIRATION, CIRCULATION, THE PHYSICS OF GASES AND VAPORS, THE PHARMACOLOGY OF DRUGS AND OTHER MATTERS BECAME THE ABSORBING INTERESTS OF MANY, THERE WERE STILL TWO CONDITIONS THAT ALL THESE ACTIVITIES HAD IN COMMON.

THE FIRST GENERAL IMPORTANT CONSIDERATION AS TO THE AREAS OF RESEARCH DEALT WITH THE PERSONAL INTERESTS OF THE SCIENTIFICALLY INCLINED ANESTHESIOLOGIST. THIS IS WHERE HE OR SHE PURSUED THE AVAILABILITY OF SCIENTIFIC OPPORTUNITIES, AND THE LIKELY IMPORTANCE OF THE VARIOUS COURSES OF ACTION IN THIS AREA, FOR THE SOLUTION OF SCIENTIFIC AND CLINICAL PROBLEMS. SECONDLY, ALL OF THESE INDIVIDUALS MUST HAVE HAD AT LEAST UNCONSCIOUSLY, AND MANY OF THEM CONSCIOUSLY, AN AWARENESS THAT THE NEEDS OF PATIENTS COULD BEST BE SERVED IF THEIR THRUSTS OF SCIENTIFIC INQUIRY WERE DIRECTED TOWARD AVENUES THAT LENT THEMSELVES EVENTUALLY TO A PRACTICAL APPLICATION OF THIS NEW KNOWLEDGE TO PATIENT CARE.

THE NEXT STEP WAS THE SEEKING OF BOTH FINANCIAL AND SOCIETAL SUPPORT FOR THE DIRECTION IN WHICH ANESTHESIOLOGY SEEMED TO BE HEADING, WHICH WAS MOST IMPORTANT NOT ONLY TO ITS DEVELOPMENT BUT TO ITS ATTRACTION OF EXCELLENT PEOPLE. COINCIDENT WITH THESE DEVELOPMENTS IN ANESTHESIOLOGY, THERE WAS A KEEN DESIRE IN THE UNITED STATES, AND ALSO IN OTHER COUNTRIES, OF OUR PEOPLE THROUGH THE CONGRESS TO ACHIEVING PROGRESS FOR THEIR HEALTH CARE WITH GOVERNMENT SUPPORT OF RESEARCH.

A SMALL GROUP OF INDIVIDUALS IN THE UNITED STATES WITH THE GUIDANCE

OF THE THEN DIRECTOR OF THE NATIONAL INSTITUTES OF HEALTH, DR. JAMES A. SHANNON, AND WITH THE VALUABLE AND ABLE ASSISTANCE OF THE THEN DIRECTOR OF THE NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES, DR. FREDERICK L. STONE, BEGAN TO HELP US SEEK FINANCIAL SUPPORT FROM THE U.S. GOVERNMENT FOR RESEARCH IN ANESTHESIOLOGY. FORTUNATELY, THERE WERE MANY PROFESSIONAL PEOPLE WHO RECOGNIZED AND SUPPORTED THE NEED FOR THE DEVELOPMENT OF THIS SPECIALTY SINCE IT STOOD ATHWART THE PROGRESS OF SURGERY, MEDICINE AND SOME OF THE BASIC SCIENCES. AMONG THEM WAS MRS. ALBERT D. LASKER, A DISTINGUISHED AMERICAN OF WIDE VISION, WHOSE PERSONAL CONTRIBUTIONS, INFLUENCE AND ADVICE WITH RESPECT TO FEDERAL FUNDING FOR RESEARCH IN THE PUBLIC AND THE PRIVATE SECTORS IN THE UNITED STATES, MADE POSSIBLE A MAJOR TURNING POINT IN THE ADVANCEMENT OF OUR DISCIPLINE IN THE UNITED STATES. THIS FINANCIAL SUPPORT OF RESEARCH MADE POSSIBLE ALSO, THE SCIENTIFIC EDUCATION NOT ONLY OF OUR LEADING AMERICANS TODAY BUT OF MANY OF OUR COLLEAGUES NOW IN EUROPE, LATIN AMERICAN AND THE ORIENT, WHO ARE TODAY'S LEADERS IN ANESTHESIOLOGY IN OUR COUNTRY AND ABROAD.

SUBSTANTIAL FINANCIAL SUPPORT FOR RESEARCH, AND THE DEVELOPMENT OF RESEARCH LABORATORIES IN ANESTHESIOLOGY, SUCCEEDED ALMOST BEYOND BELIEF IN THE UNITED STATES WITH THE SUPPORT OF THE NATIONAL INSTITUTES OF HEALTH.

IN ADDITION TO RESEARCH DEVELOPMENT IN ANESTHESIOLOGY, THE MAJOR CONTRIBUTIONS OF THE SCANDINAVIAN, BRITISH AND OTHER EUROPEAN COUNTRIES TO THE PRESENCE OF THE ANESTHESIOLOGIST AS A DOCTOR WHO HAS MUCH TO OFFER IN THE INTENSIVE CARE OF CRITICALLY ILL PATIENTS, WAS A GREAT CONTRIBUTION TO THE ACCEPTANCE OF OUR SPECIALTY EVERYWHERE. THE SAME COULD BE SAID OF STUDIES OF PAIN EVERYWHERE. RESEARCH AND BETTER PATIENT CARE IN THE

OPERATING THEATER AND IN OTHER PARTS OF OUR HEALTH CARE PHYSICAL FACILITIES, ARE NOW THE KEYS TO OUR PRESENT STATUS AND FUTURE GROWTH.

IN CONCLUSION, IT IS FAIR TO ACKNOWLEDGE TO YOU THAT YOU HAVE LISTENED TO A PERSONAL ASSESSMENT OF A GREAT AND POWERFUL MOVEMENT - AND IT IS CERTAINLY SUBJECT TO INACCURACIES AND OMISSIONS - ALL ERRORS ARE MINE FOR WHICH I HOPE I MAY BE FORGIVEN.

HOWEVER, THE CENTRAL THESIS IS VALID BUT THERE IS STILL MUCH TO BE DONE. ANESTHESIOLOGY IS IN MANY WAYS A "SILENT" DISCIPLINE TO PATIENTS IN THE PRACTICE OF MEDICINE. IT HAS BECOME FIRMLY ESTABLISHED AS A CLINICAL AND SCIENTIFIC DISCIPLINE RECOGNIZED EVERYWHERE FOR ITS WORTH AND ITS CHALLENGE, DESPITE ITS PROBLEMS. WHEN GOOD PHYSICIANS SUBJECTED THEMSELVES TO THE DISCIPLINES OF MANY OF THE SCIENCES AND APPLIED THIS KNOWLEDGE TO CLINICAL CARE, ANESTHESIOLOGY BECAME FIRMLY ESTABLISHED. IT HAS MANY PROBLEMS AHEAD, BUT THEY SHOULD BE VIEWED AS OPPORTUNITIES TO RENDER RATIONAL CARE IN A DIGNIFIED WAY TO THOSE WHO NEED OUR HELP.

I BELIEVE THE BEST IS YET TO COME - AND OUR PRESENT KNOWLEDGE IS TRIVIAL WHEN COMPARED TO WHAT WILL BE DISCOVERED AND ACHIEVED IN THE FUTURE. IT IS THIS FAITH IN YOURSELVES THAT I RESPECTFULLY URGE UPON YOU. HOW MARVELOUS IT IS TO BE ABLE TO DO SO MUCH FOR SICK PEOPLE - AND HOW MUCH MORE MOVING IT IS TO REALIZE HOW VAST OUR COLLECTIVE IGNORANCE WHICH GIVES US THE OPPORTUNITY TO LEARN AND DO MORE - AND E. A. ROVENSTINE BEGAN IT ALL HERE IN NEW YORK FOR ALL OF US.