

EDUCATION

THE MEDICAL STUDENT

POST-GRADUATE ASSEMBLY MEETING

NEW YORK STATE SOCIETY OF ANESTHESIOLOGISTS

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BEFORE WORLD WAR II, THE EDUCATION OF MEDICAL STUDENTS IN ANESTHESIOLOGY WAS OFTEN TOTALLY IGNORED OR OCCASIONALLY PLACED IN A CURRICULUM THAT WAS CAPRICIOUS, A PART OF THE SURGICAL CLERKSHIP OR ON A VOLUNTEER BASIS.

AS A STUDENT IN A SCHOOL OF MEDICINE THAT HAD ONE OF THE PREMIER DEPARTMENTS OF ANESTHESIOLOGY IN THE COUNTRY AT THAT TIME, I MUST TELL YOU THAT IF MY EXPERIENCES ARE REPRESENTATIVE, NOT ONLY DO I HAVE NO MEMORY OF BEING EXPOSED TO ANESTHESIOLOGY AS A MEDICAL STUDENT, BUT NO AWARENESS OF THE IMPORTANCE OF THAT DEPARTMENT IN THAT SCHOOL. AT THE POST-GRADUATE ASSEMBLY, IT IS PERHAPS FITTING THAT NAMES BE USED, AND I OF COURSE, REFER TO OUR DISTINGUISHED FOUNDER AND MY BELOVED CHIEF OF THIS ASSEMBLY DR. E. A. ROVENSTINE, AND THE SCHOOL OF MEDICINE, AT THE NEW YORK UNIVERSITY SCHOOL OF MEDICINE. ONE MIGHT ASSUME THAT IF THIS WAS CHARACTERISTIC OF ANESTHESIA EDUCATION, THAT VERY LITTLE THOUGHT WAS GIVEN TO SEEING TO IT THAT MEDICAL STUDENTS HAD AN AWARENESS OF THIS FIELD AND CERTAINLY NO CONTENT WAS PROVIDED. PERHAPS WISCONSIN WAS A NOTABLE EXCEPTION.

AFTER WORLD WAR II, THERE WAS A CONSIDERABLE CHANGE IN THE ATTITUDE OF THOSE PEOPLE IN ACADEMIC ANESTHESIOLOGY TOWARD

THE EDUCATION OF THE MEDICAL STUDENTS. IT WAS COMMONLY, FELT THAT THERE WAS GREAT JUSTIFICATION FOR OPTIMISM IN THAT OUR FIELD WAS A NEW, VIBRANT, AND IMPORTANT EXPERIENCE WHICH WOULD NATURALLY APPEAL TO YOUNG PEOPLE WHO WERE STUDENTS OF MEDICINE. THERE WAS CLEAR DISAPPOINTMENT AMONG MANY OF THE THEN FEW ACADEMIC ANESTHESIOLOGISTS THAT EDUCATION IN ANESTHESIOLOGY WOULD LOOK SO OBVIOUS AND LOGICAL TO THEM, DID IN FACT, NOT OCCUR WITH ANY BETTER PLAN THAN IN EARLIER YEARS. AS A MATTER OF FACT, THE REVOLUTION IN THE THOUGHT THAT ATTRACTIVENESS TO MEDICAL STUDENTS WAS OBVIOUS, WAS TO BE DELAYED APPROXIMATELY 30 OR MORE YEARS INTO THE FUTURE.

IT SEEMED APPARENT IN THOSE EARLIER YEARS THAT AN EXPOSURE TO ANESTHESIOLOGY FOR MEDICAL STUDENTS WAS NECESSARY IF ONE COULD HOPE TO RECRUIT MEDICAL STUDENTS, EVEN OF REASONABLE TALENT, INTO A FIELD THAT LOOKED SO PROMISING TO THE THEN FAIRLY YOUNG AND OPTIMISTIC ACADEMIC ANESTHESIOLOGISTS. MANY OF US IN FACT, WERE QUITE AWARE OF WHAT I HAVE SINCE TERMED THE FINIAN'S RAINBOW PRINCIPLE, i.e., YOU MIGHT REMEMBER IN THE MUSICAL PLAY, HE WAS IN LOVE WITH THE ONE THAT HE WAS NEXT TO! OBVIOUSLY, A VARIANT ON THIS THEME WAS THAT IF YOU DID NOT KNOW ANYTHING ABOUT A FIELD, OR FOR THAT MATTER A PERSON, THERE WAS NO WAY IN WHICH YOU COULD BE ATTRACTED TO IT OR IN LOVE WITH IT. SO IT GOES - AND MANY MARRIAGES, REAL AND SYMBOLIC, DO NOT TAKE PLACE BECAUSE OF THE PROXIMITY PRINCIPLE.

HENCE, BEGAN THE BATTLE FOR TIME IN THE CURRICULUM FOR ANESTHESIOLOGY WHICH WAS TO MEET WITH VARYING DEGREES OF SUCCESS. AMONG THE IMPORTANT PROGRAMS DEVELOPED AS A

MOTIVATION FOR IMPROVING EDUCATION IN ANESTHESIOLOGY FOR MEDICAL STUDENTS, MANY WERE BASED ON THE POTENTIAL ROLE AS A RECRUITING DEVICE TO PERSUADE THEM TO ENTER THE SPECIALTY. THE ASA PRECEPTORSHIP PROGRAM, DEVELOPED UNDER THE ASA PRESIDENCY OF OUR OWN CHERISHED PROMINENT ALBERT BETCHER, AND IMPLEMENTED UNDER THE CHAIRMANSHIP OF THE LATE AND DISTINGUISHED ROBERT D. DRIPPS, WAS AN EXAMPLE OF ORGANIZED ANESTHESIOLOGY'S HELP IN RECRUITMENT VIA THE EDUCATION OF STUDENTS.

RETROSPECTIVE REFLECTION SUGGESTS TO ME THAT EDUCATION FOR RECRUITMENT WAS ALMOST SURELY DOOMED TO FAIL OR MORE PROBABLY BE INADEQUATE. EDUCATION FOR LEARNING HAD TO BE THE ONLY SUBSTANTIVE JUSTIFICATION FOR ITS ESTABLISHMENT IN THE DEVELOPMENT OF STUDENTS INTO PHYSICIANS.

THE FACT WAS THAT ENTRANCE INTO OUR SPECIALTY FROM THE EARLY POST-WAR YEARS UNTIL APPROXIMATELY THE LATE 70'S OR 1980 REMAINED AT A FLAT APPROXIMATE 3% OF AMERICAN GRADUATES. THE MESSAGE WAS CLEAR. ONE SHOULD LOOK TO THE MERITS OF THE TOTAL EDUCATION OF A MEDICAL STUDENT IN THE LIGHT OF WHAT ANESTHESIOLOGY COULD CONTRIBUTE TO THAT BROAD AND OVERALL EDUCATION IF IT WAS TO BECOME VISIBLE AND NOT AS A RECRUITING DEVICE.

NOW THAT RECRUITMENT IS NO LONGER AN IMPORTANT REASON, WE HAVE THE HAPPY OPPORTUNITY TO HELP EDUCATE STUDENTS SOLELY AS PART OF THEIR FUNDAMENTAL EXPERIENCE OF LEARNING TO LEARN FOR THE REST OF THEIR LIVES.

THE VAST INFLUX OF TALENTED YOUNG PEOPLE INTO OUR FIELD IN THE LAST FOUR OR FIVE YEARS FOR REASONS THAT ARE NOT AT ALL

RELEVANT TO THE QUESTION WE ARE EXAMINING THIS MORNING, IS A HEALTHY BYPRODUCT IN THAT IT COMPELLED OR SHOULD HAVE COMPELLED EDUCATORS IN ANESTHESIOLOGY TO THINK OF THE EDUCATION OF THE FUTURE PHYSICIAN AS AN ENTIRE AND WHOLE PERSON, AND TO DETERMINE WHERE POSSIBLE, WHAT OUR PARTICULAR FIELD COULD CONTRIBUTE TO THAT DEVELOPMENT.

IT BECAME NECESSARY TO UNDERSTAND IN OUR OWN MINDS WHAT THE GOALS SHOULD BE FOR THE EDUCATION OF MEDICAL STUDENTS. THEY MUST BE TAKEN INTO CONTEXT WITH THE TOTAL EXPERIENCE OF STUDENTS IN THE SCHOOLS OF MEDICINE.

IN THIS RESPECT, I WANT TO PAY PARTICULAR TRIBUTE TO MY GOOD FRIEND, DR. LUDWIG W. EICHNA, WHO HAD THE COURAGE AND PERHAPS THE RASHNESS TO BECOME A MEDICAL STUDENT AFTER HIS RETIREMENT FROM A LONG AND PRODUCTIVE CAREER IN ACADEMIC INTERNAL MEDICINE. HE OBSERVED, IN HIS OWN EXPERIENCE, THAT THERE ARE A GROUP OF PRINCIPLES THAT ARE IMPORTANT FOR THE EDUCATION OF MEDICAL STUDENTS, AND THEREFORE, SHOULD HAVE AN IMPORTANT ROLE IN THE DESIGN OF CURRICULA. HE MADE MANY POINTS, SOME OF WHICH SURELY ARE OBVIOUS TO THE THOUGHTFUL PERSON, AND OTHERS SEEMED TO BE OBVIOUS ONLY IN THEIR BEING IGNORED BY MEDICAL EDUCATORS. HE POINTED OUT THAT PATIENT CARE IS THE FIRST PURPOSE OF MEDICAL SCHOOL EDUCATION. STUDENTS COME SECOND NOT FIRST. FACULTY ORIENTED CURRICULA RESULT IN BIASED REDISTRIBUTED PRACTICES OF MEDICINE. HIS NEXT POINT WAS THAT CURRICULA ARE FOR STUDENTS, NOT FOR THE FACULTY. THE VAST EXPLOSION OF KNOWLEDGE MADE IT UNREASONABLE AND UNFAIR FOR FACULTIES TO DEVISE CURRICULA SUITED TO THEIR KNOWLEDGE, EXPERIENCE, AND INTERESTS MORE THAN TO THOSE OF THE

NEEDS OF THE STUDENTS AND THEIR FUTURE PATIENTS. DR. EICHNA MADE THE STRONG AND OBVIOUS POINT THAT MEDICAL EDUCATION IS NOT A FOUR-YEAR STINT: THAT STUFFING A CURRICULUM WITH EVERY SPECIAL INTEREST DEFEATS LEARNING, AND AN OVER ABUNDANCE OF FACTS OVERWHELM STUDENTS. MEDICAL SCHOOLS DO NOT PRODUCE DOCTORS, THEY ONLY MAKE IT POSSIBLE FOR FUTURE PHYSICIANS TO DEVELOP SELF-EDUCATION SKILLS. HE POINTED OUT THAT PATIENTS, SOCIETY, AND THE FUTURE PRACTICE OF MEDICINE ARE BEST SERVED BY A BROAD EDUCATION IN BIOLOGICAL SCIENCE, CLINICAL DISCIPLINES, AND SKILLS, AND THE SOCIAL AND ECONOMIC ASPECTS OF MEDICINE. THESE BASES ARE NECESSARY IF PHYSICIANS ARE NOT TO BE NARROWLY FOCUSED, AND THAT SPECIALIZATION COMES NOT IN THE SCHOOL OF MEDICINE, BUT IN THE HOSPITAL RESIDENCY AND FELLOWSHIP. IN MANY WAYS, HE EMPHASIZED THE NOTION THAT THE PRESENT TEACHING OF MEDICAL STUDENTS ABSOLUTELY OVERWHELMS THEM AND INUNDATES THEM WITH MEMORIZATION AND THE INEVITABLE SEQUENCE OF FORGETTING WHICH REPLACES LEARNING. HE WAS FIRMLY CONVINCED THAT THINKING, PROBLEM-SOLVING, QUESTIONING, HEALTHY DOUBTING, SELF-INSTRUCTION, AND A SENSE OF RESPONSIBILITY FOR LEARNING THROUGH PERSONAL PARTICIPATION IS FUNDAMENTAL TO THE LEARNING PROCESS. BIOLOGICAL SCIENCE AND CLINICAL MEDICINE, HE STATED, ARE CLEARLY BOTH PARTS OF MEDICAL EDUCATION AND OF MEDICINE, AND PERSONAL VALUES FOR STUDENTS ARE NOT AUTOMATICALLY PRESENT AND THEY NEED TO BE DEVELOPED, AND THIS INCLUDES A SENSE OF ETHICS.

IF ONE TAKES THESE THOUGHTS SERIOUSLY, AND I DO, ONE HAS TO ASK WHAT ROLE THE ANESTHESIOLOGIST CAN SERVE IN THE SCHOOL OF MEDICINE IN THE EDUCATION OF THE MEDICAL STUDENT. IT IS

CLEAR THAT MOST OF THE EDUCATION FOR OUR SPECIALTY WILL OCCUR AFTER GRADUATION LIKE IT DOES FOR SURGERY, INTERNAL MEDICINE, PEDIATRICS, AND MANY OTHER FIELDS.

I WOULD LIKE THEREFORE TO MAKE SOME SUGGESTIONS IN THE LIGHT OF THESE PRINCIPLES. IT IS NECESSARY TO ESTABLISH GOALS IN THE LIGHT OF THESE PRINCIPLES FOR THE ROLE OF THE ANESTHESIOLOGIST AS AN EDUCATOR OF THE MEDICAL STUDENT. WE MIGHT DIFFER AS TO SPECIFIC GOALS, BUT LET ME AT LEAST SUGGEST SOME OF MINE:

- 1) ALL STUDENTS SHOULD BE COMPETENT TO ESTABLISH AND MAINTAIN A FUNCTIONAL AIRWAY.
- 2) ALL STUDENTS SHOULD KNOW HOW TO PROVIDE ADEQUATE VENTILATION AND TO UNDERSTAND WHAT THAT MEANS.
- 3) ALL STUDENTS SHOULD BE VERSED IN THE FUNDAMENTALS OF BIOLOGICAL SCIENCE THAT RELATE TO SUCH THINGS AS THE STATE OF CONSCIOUSNESS, THE EFFECT OF FOREIGN SUBSTANCES, I.E., DRUGS UPON THE BODY, AND THE BODY'S EFFECT UPON THESE DRUGS.
- 4) ALL STUDENTS SHOULD BE EDUCATED TO REMEMBER THAT THE PRESENT KNOWLEDGE IS CERTAIN TO BECOME EITHER OBSOLETE, OR PRIMITIVE IN THE LIGHT OF FUTURE KNOWLEDGE, INCLUDING ALL OF THESE PRINCIPLES THAT WE HAVE DISCUSSED.

THEREFORE SPECIFICALLY, IT SEEMS TO ME THAT EDUCATION OF THE MEDICAL STUDENT, IF ONE ACCEPTS THESE OR SIMILAR GOALS, SHOULD INCLUDE A PERIOD IN THE CLINICAL YEARS, USUALLY THE THIRD YEAR IN WHICH A DEFINED TIME PERIOD IS ALLOCATED TO THEM IN SMALL GROUPS SO THAT THEY MAY BE EXPOSED TO THE

WAYS OF ATTAINING THE GOALS THAT HAVE BEEN MENTIONED. AN ANESTHESIA CLERKSHIP OF MODEST DURATION (TWO TO FOUR WEEKS), WOULD ACCOMPLISH SOME OF THESE FUNCTIONS.

THE ANESTHESIOLOGIST SHOULD ALSO BE WELL ENOUGH RESPECTED AND REGARDED SO THAT HIS KNOWLEDGE OF OTHER AREAS WILL PLACE HIM IN COURSES OF OTHER DEPARTMENTS THAT ARE DESIGNED TO THE FUNDAMENTAL OBJECTIVES OF MEDICAL EDUCATION. SOME EXAMPLES OF THESE ARE A ROLE IN BIOCHEMISTRY AND GENETICS, IN WHICH THE MECHANISMS OF THE PRODUCTION OF UNCONSCIOUSNESS, AND THEREFORE, THE DISTURBANCE OF CONSCIOUSNESS CAN BE EXPLORED. IN SOME ENVIORNMENTS, THIS WOULD INCLUDE PARTICIPATION IN NEUROPHYSIOLOGY, CARDIOVASCULAR PHYSIOLOGY, PULMONARY PHYSIOLOGY, AND IN THE APPROPRIATE REFLECTIVE PARTNERS OF THE PHARMACOLOGICAL SCIENCES AND MOLECULAR BIOLOGY.

THE KNOWLEDGE OF ACUTE DISTURBANCES IN FUNCTION DUE TO DISEASE OR INJURY, SHOULD PLACE THE ANESTHESIOLOGIST IN A ROLE AS A COLLEAGUE EDUCATOR IN THE CLINICAL FIELDS OF INTERNAL MEDICINE, PEDIATRICS, OBSTETRICS, AND THE VARIOUS SURGICAL DISCIPLINES INCLUDING CRITICAL CARE.

I HAVE DELIBERATELY TRIED NOT TO BE SPECIFIC ABOUT WHO DOES WHAT IN WHAT CONTEXT, BECAUSE THIS WILL CERTAINLY VARY FROM INSTITUTION TO INSTITUTION. HOWEVER, THE IMPORTANT POINT IS THAT THE OVERALL EDUCATION OF THE STUDENT DESIGNED TO IMPROVE PATIENT CARE NEEDS A CONTRIBUTION FROM THE APPROPRIATELY SKILLED EDUCATOR-ANESTHESIOLOGIST IN THAT CONTEXT.

IF THESE PRINCIPLES ARE TO SOME REASONABLE DEGREE FOLLOWED, THERE WILL BE A LIGHTENING RATHER THAN A LOADING OF

THE CURRICULUM TO FOCUS THE ATTENTION OF THE STUDENTS ON PROBLEM-SOLVING, THE DEVELOPMENT OF SELF-LEARNING SKILLS, AND PERSONAL STRENGTHENING OF THE INTELLECTUAL, AND SOCIAL ASPECTS OF THE FUTURE PHYSICIAN.

PERHAPS THE ATTRACTIVENESS OF ANESTHESIOLOGY TO MEDICAL STUDENTS WILL AID IN SEEING TO IT THAT THESE FUNCTIONS ARE ACCOMPLISHED. PERHAPS THAT WILL NOT BE THE CASE. IN ANY EVENT, IT SEEMS TO ME THAT THE GOALS NOW CAN BE MUCH CLEARER, MORE RATIONAL, AND PERHAPS NOT NECESSARILY EASIER TO ACCOMPLISH.

UNSOLVED PROBLEMS REMAIN IN AN ENVIRONMENT THAT ESSENTIALLY SAYS THAT ACADEMIC PHYSICIANS MUST INCREASINGLY RELY UPON THEIR OWN EFFORTS, E.G., INCOME FROM PATIENT CARE, AND SIMILAR ACTIVITIES TO SUPPORT THEMSELVES. THIS ECONOMIC FORCE UNQUESTIONABLY HAS A NEGATIVE IMPACT UPON PROVIDING TIME FOR ANESTHESIOLOGISTS TO WORK WITH MEDICAL STUDENTS, ESPECIALLY IN SMALL GROUPS. IT IS ALSO ESSENTIALLY AN UNREWARDED ACTIVITY IN THE NORMAL BUREAUCRACIES OF SCHOOLS OF MEDICINE, AND IN THE ENHANCEMENT OF PROFESSIONAL RECOGNITION AND DEVELOPMENT OF ANY FACULTY MEMBER. THIS KIND OF TEACHING, CRUCIAL THOUGH IT IS IN OUR SOCIETY, IS AMONG THE LEAST RECOGNIZED ATTRIBUTES FOR PROMOTION AND INCREASES IN INCOME FOR ACADEMIC SCIENTISTS AND PHYSICIANS. I DO NOT HAVE ANY PROPOSALS FOR THE SOLUTION OF THESE PROBLEMS, BUT SOLUTIONS ARE POSSIBLE ONLY WHEN THE PROBLEMS ARE RECOGNIZED. FINALLY, THERE ARE SOME PROBLEMS THAT HAVE NO SOLUTIONS AND WE MUST LEARN TO BEAR WITH THEM.

OPPORTUNITY EXISTS. BUT THERE IS NO GUARANTEE OF

SUCCESS. I KNOW THAT WITHOUT EFFORT WE CANNOT DO BETTER FOR OUR STUDENTS - AND THEREFORE A SERIOUS EFFORT TO HELP EDUCATE BROADLY IS REQUIRED FOR LIFE LONG LEARNING.

IN THIS DISCUSSION, UNFORTUNATELY TOO LITTLE HAS BEEN SAID ABOUT LEARNING. REGARDLESS OF THE ACTIVITIES OF THE ANESTHESIOLOGICAL EDUCATOR - REGARDLESS OF THE CONTENT OF THE CURRICULUM - REGARDLESS OF THE SYSTEMS OF EXAMINATION AND EVALUATION, THERE MUST BE A SERIOUS AND PERHAPS INTENSE CONCERN WITH LEARNING ON THE PART OF THE LEARNER. THE OUTSTANDING LEARNER MUST HAVE ENOUGH SELF-CONFIDENCE, IMMUNITY TO PEER PRESSURE, AND GENTLEMANLY AGGRESSIVENESS TO EXCEL.

IN TALKING ABOUT GENIUSES, DR. MARVIN MINSKY MAKES THE POINT IN A SPECULATIVE WAY THAT OUTSTANDINGLY SKILLFUL PEOPLE MAY HAVE TWO KINDS OF DIFFERENCE IN DEGREE FROM ORDINARY MINDS. ONE IS A WAY THAT PEOPLE LEARN SO MANY MORE AND DEEPER SKILLS, AND THE OTHER IS THAT THEY LEARN HOW TO MANAGE USING WHAT THEY LEARN. MOST OF US TEND TO THINK OF LEARNING AS SOMETHING THAT HAPPENS TO US, LIKE A SPONGE GETTING SOAKED WITH THE RIGHT MATERIAL AT THE HANDS OF THE RIGHT TEACHER. LEARNING REALLY IS A GROWING MASS OF SKILLS. UNFORTUNATELY, MANY PEOPLE NEVER GET DEEPLY CONCERNED WITH ACQUIRING INCREASINGLY MORE ADVANCED LEARNING SKILLS - PROBABLY BECAUSE THEY HAVE A SLOW PAYOFF. IF LEARNING COULD BE VIEWED AS A MASSIVE CREATIVE JOY, IT WOULD TAKE PONDEROUS CURRICULA EVEN MORE SO THAN AT PRESENT IN SCHOOLS OF MEDICINE, AND WORSE TEACHERS THAN WE NOW POSSESS TO IMPEAD THE PROGRESS OF THE GIFTED STUDENT.