

Note:

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These documents are digitized and provided on an “as is,” uncorrected basis, in order to maintain their historical integrity.

Some examples of the kinds of errors to be found in the transcripts are provided below.

Filename	PDF Version Page	Error
jmf_int_transcript_Williams_2_2_1976.pdf	20	“Parkalnd”
jmf_int_transcript_Foster_2_2_1976.pdf	2	“trememdous reseurce”
jmf_int_transcript_Neaves_1976.pdf	6	“Andreas Baselius”
jmf_int_transcript_Schermerhorn_1976.pdf	18	“Moreove”

UTHSC Interviews: Dr. Bonte on Southwestern Medical School

Faculty Research

Pencil - right margin
indicate double interval

MARKED CUT

There are several dozen areas of research that are of considerable public value (AT SWMS) but there are, several of them have been recognized with the award of international prizes and other distinctions, and that's an easy way to separate out the value placed on research by peers. And probably the most distinguished prize that has ever been won by a faculty member here is for the ~~xxx~~ work on cholera and immunity to the disease by Dick Finklestein in microbiology. Finklestein has a very outgoing personality and Finklestein has a sort of a matted beard, Finklestein looks good in film. Dr. Sprague had a slide set made recently to show the legislative budget board and Finklestein looks very, he looks like the winner of the Coke award. That's ~~xxx~~ a, I guess the major research prize in the world for research in bacteriology. And since cholera is a disease that occasionally becomes pandemic and kills as large numbers of people as any disease still prevalent in the world, this may have the largest impacts on world public health. Not far behind it though, are a few other ~~xxx~~ pieces of work, on by Roger Unger who is in the medicine department but has his laboratory at the ~~West~~ Veterans Hospital. The role of diabetes, the role of insulin in diabetes was identified in the late teens and the requirement of diabetics for insulin to survive was rapidly identified and followed by the development of naturally occurring insulins. But it was obvious from the beginning that there was some other component of the disease, people could be ~~xxx~~ given insulin and it would temporarily tide them over their bad times but the disease still ran its course. And sometimes it was even almost ~~impossible~~ impossible as in widely unstable childhood ~~diabetics~~ diabetics, even to treat it satisfactorily from one day to the next/. So it was evident that there was some other component of the disease yet to be identified. And Unger identified a second hormone called glucagon and glucagon acts in a manner to ... that supplements the action of ~~xx~~ insulin deficiency. And unless a physician can help a patient control his glucagon level, his ~~diabetes~~ diabetes is apt not to be under control. This is a major discovery. And since Unger identified the role of glucagon in diabetes others have identified a hormone, somatostatin, that is apparently made in the central nervous system which will apparently regulate glucagon levels. And this addition to knowledge may increase survival in what is one of the commonest diseases in the United States and apparently increasingly prevalent around the world. This is a contribution of such an order that I know of my own knowledge that ~~Unger~~ Unger has been nominated for the Nobel Prize. Whether he will get it or not depends on Swedish gentlemen and how they feel after lunch. But it is a discovery of the first magnitude and certainly worth ~~mention~~ mentioning in the film. Unger is a marvelous personality, he too, would ~~xxx~~ do well in a film. Unger looks like a scientist, Unger has this far away look in his eye, despite his mannerisms he likes to be world famous... he just loves it, and he is. That also goes for Dr. Goldstein.

Goldstein and Brown have identified a genetic origin of one of the types of arteriosclerotic ~~xxxxx~~ vessel disease. And arteriosclerotic vessel disease is apparently, at least in part, a product of civilization. Relatively uncivilized people tend not to suffer from it and ~~highly~~ in highly developed civilization the higher the incidence ~~xxx~~ or the prevalence of arteriosclerosis. But that isn't all there is to it. It runs in families and Goldstein and Brown have been working with a particular ~~xxx~~ kind that's related to high, untreatable cholesterol levels in the blood. And they have identified its genetic origin, they have developed brilliantly a tissue culture experimental

Dr. Bonte p2

system to work with so that they can experiment with tissue from diseased individuals in a dish and this is a happy circumstance for any investigator who finds that he can do human work on non-patient subjects. It doesn't always work but it's always worth a ~~try~~ try and for them it paid off. They're very talented young fellows and they work exceedingly hard and they have made a major ~~contribution~~ contribution to the understanding of arteriosclerosis.) omit

If you're going to add up lives saved they will occur in the order as I give them to you starting with Dr. Finklestein, Roger Unger, then Goldstein and Brown. ~~They~~ They may make contributions to the broad area of arteriosclerosis but they haven't yet. They've identified the origin of a small compartment of the disease. But nobody else had ever made that kind of inroad. As a matter of fact they've won what's described as the world's major award in chemistry, that's the Villon Prize in Germany. And they won an American Chemical Society Award for I guess enzyme ~~chem~~ chemistry and some others. And they've been nominated for a couple of others that have not been announced yet. But they've made a major contribution b showing that there is a genetic origin to a kind of arteriosclerotic disease.) include

The , another piece of research that is kind of captivating, doesn't really involve many individuals, but the contribution that has been made to the few individuals involved in it has been so dramatic that it's probably worth mention and it's a little more concrete kind of research than laboratory ~~chem~~ and bench research that these other people have done, and that's Charlie Baxter's development of the Burn Unit and a program that has propably the best results in the whole world on survival of badly burned and extensively burned individuals. And not only survival but useful survival And I would think that regardless of whoever else is featured in the film that that ought to be featured for a couple of reasons. First of all its , without showing the patients who are kind of ~~gross~~ gruesome, its' kind of easy to paint the picture of the contirbution that they've made. And it involves a surgical discipline , Creative research in surgery is much scarcer than one might think, and much of what was done in the ~~surgery~~ unit here was done by Baxter himself.

Baxter's own personality is highly suitable for this sort of thing. ~~When the~~ Subject changed to medical education;

Several things go on (clinically) and they don't start in the third year but in the second. We have an experimental program in which we hire residents to teach second year medical students how to do histories and physicals. I don't know whether this is done at any other medical school, but we've ~~been~~ been doing it here for two years and it's a brilliant success. A young guy in the ~~medical~~ medicine department suggested it and it sounded so eminently sensible ; after all, we have some 600 and something house officers, selected from among the brightest of all the medical schools in the United States, and they're veterans at taking histories and doing physical examinations and the students already are known to learn a large amount of what they learn in clinics and on wards from the house staff ~~from whom they~~ ~~work~~ ~~with~~ with whom they work most closely; why not learn the fundamentals of the patient approach from them as well. So we got up an amount of money and we hired 50 house officers to take a team of students, 4 or 5 per team , and the students and their house officers get together and they decide on a mutually convenient time couple of times during the week, and at that time they get together, could be four in the afternoon, or six in the evening, or ~~xxx~~ ~~xxxx~~ eleven in the morning, whatever works out best for ~~the~~ their house officer, and using one or more of his own patients with their consent, the house officer runs through a history and physical and then he

and you need (Ex 40)

has the students demonstrate to him. And this process goes on for almost the whole second year. By the time it's finished, the student goes to the third year far advanced beyond what he had been before when he may have ~~watched some~~ watched some faculty member run through a history and physical some two or three times. So the house staff really begin their contribution in the second year in a very significant way. And it could be highlighted in some way to point out its originality and the interaction between young people in training... it might be worth while putting in.

Subject changed to ~~enlarge~~ enlargement of classes.

The whole campus was rebuilt for the large classes. And as a matter of fact could not have been built without them. Some of the money that made the construction possible, and the renovation of Parkland, was made available because we promised to double the size of our student body. At the time, 8 or 10 years ago, it was clear that there was an impending shortage of physicians and ~~there~~ the easiest and least expensive way of producing more of them was to enlarge existing medical schools. And it was a very bright idea because it's absolutely correct. Far cheaper to expand existing schools than it is to develop new ones. And it's one of the best investments that the government made because it assured an increased output of doctors and it got a better product because it utilized existing schools and existing faculty. And it got it faster. You can produce additional physicians in four years ~~if you found a new medical school~~ If you found a new medical school it may take ~~ten~~ ten years to get your first class into the field. So the facilities that we have now are available in no small measure because we decided to produce more graduates.

The facility is designed with our curriculum in mind. And as a matter of fact it had some design features that incorporated some ideas that we wanted to try out but couldn't with our old early 20th century facility that we formerly had. The facility that the student occupies in his first two years is ~~near~~ actually his educational ~~home~~ home. With 15 other students, he shares an area in which he ~~has~~ has a desk, he had lockers for his equipment and books and some clothing, and he does his laboratory work there, he does his studying there, he has small ~~unit~~ unit classes there, and he may ~~virtually~~ virtually live there, because I've been around the campus in the middle of the night on weekends and there will be some students there in their little unit slugging away at some thing or other. So it's his foot on the ground in school and he may spend more of his life there than he does at his home. Before this they would wander around working in the library, an empty lecture room and they would have the laboratory in one subject in one spot and another in a different one. They had no place to call home around the school. This has a psychological ~~advantage~~ advantage for the students. I gather from talking to the students that there are real advantages.

?How does one design a medical curriculum?

Well obviously you start with what exists. There are certain standardized patterns that have emerged over the years that are utilized to greater or lesser extent by all medical schools, except by some ~~ex~~ avantgarde experiments, some of which are ineffectual. But by and large every medical curriculum consists of two years give or take some months, of instruction in the ~~basic medical sciences~~ and they're always ~~anatomy~~ medical basic sciences and they're always anatomy, physiology, biochemistry, and microbiology with immunology. Then there are other things that must be taught like

Class E & H Room

Design for student facilities

Curriculum

include

omit

include

It's a serious ~~business~~ business. The people who have gotten into school here are the survivors of a massive ~~competition~~ competition in which competitive people do better. And the competition is not ~~fix~~ finished when you're in medical school. There fresh competition starts for appointment to ~~lex~~ the best house staff program and you know in order to get the internship and ~~residency~~ residency you really want you have to do well in medical school. The people who are making the ~~appt~~ appointments for that program are once again picking among what they consider to be the better students. So ~~there's~~ there's still a need to perform. Indeed there is in internship and ~~reside~~ residency too. But first ~~x~~ of all it's a bright group, secondly it's a competitive group third it's a group that you can turn on by the use of skillful lecturing and you can...

(tape run out)

The lecture is still necessary, the lecture, in order to hold attention, if it concerns the presentation of scientific data, has to be illustrated. So that the nuclear points that the lecturer is trying to make can be visually demonstrated. And there are other ways of reinforcing it with self-instructional programs and so forth which are used to a ~~greater~~ greater or lesser extent by various departments. We have an excellent instructional ~~com~~ communications department here and they finally developed a ~~skwx~~ clientele, it took them a long time to sell themselves, but now they've arrived. Not only their visual aids, but the aids they can offer in developing and ~~evaluation~~ evaluating an examination. Now you would think that when a student gets to medical school he is sick of examinations and would want as few of them as possible. That's not so. It turns out that if a student does not have a certain number of examinations to use as guideposts to his progress, he becomes very apprehensive and he comes and tells you that he actually wants more examinations. So you try to find the right number so that they're not ~~excess~~ an excessive ~~number~~ burden, but that you can keep track of the student and he can keep track of himself. And since it's a necessary ~~work~~ part of the process the ~~instruct~~ instructional communications people are very helpful in helping to design the most effective and useful examinations.

Lectures already

Capitulum

*Don't let
the American
people*

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And of course they help in the instructional process by ~~helping~~ assisting the teachers to develop media that can convey points most effectively. Probably the best example of what you can do with self-instructional programs is the department of pediatrics. You're well aware that in the days when the National Board of Medical Examiners graded the national examinations in such a way that one school's students could be compared with another's, that Southwestern's ranked in the top five or six in the exam given at the end of school, something like seven years in a row, and a couple of times were first. But hidden within that performance was a staggering performance on the part of pediatrics. They were number one every year but one out of those. And that year they were ~~xxxx~~ number two and you would have thought that the wheels had fallen off. The next year they regained their no. 1 status again. But the senior faculty there attributed a lot of their success in pediatric ~~xxxx~~ education to the use of additional illustrative material over and above the lecture and conference business that every other pediatric department uses. So there is teaching virtue in those things if they are used properly and some departments around here understand how to use them better than most in the country. (A lecturer can tell how he's doing)... if he gets dumb questions it hasn't sunk in.

There's an overall committee and Dr. Wayne Streilein is the chairman. I appoint the committee, but I consult with Streilein and ask him who he wants on it. And he has people who represent ~~xxxx~~ various disciplines in each of the four years. Not all of them but some of them. And he has people who also are not going to be ~~xxxx~~ gingivists for their own particular department but will represent the educational process in general. And the committee has to be a manageable size. They ~~xxxx~~ recommend ~~xxxx~~ to the ~~xxxx~~ faculty at large what ought to be taught in the four years, and some broad outlines of how one ought to go about it. After that if a course is going to be given by a department, what's in the course is up to the department, up to a ~~xxxx~~ point. There are several forces that serve quality control purposes, the ~~xxxx~~ curriculum committee is one, the office of the dean of the appropriate school is another, there's a student affairs dean to keep an eye ~~xxxx~~ on it, I keep an eye on it and so forth. But largely the subject matter and how it's done is a function of the department. Except that we have a number of courses that are not given by department but by interdisciplinary teams. The largest one is the ~~xxxx~~ introduction to clinical medicine which is our largest course. And that's given by an interdisciplinary group of clinical and basic science ~~xxxx~~ faculty, presided over by Alan Pierce who is an internist. Pierce is designated as the course chairman ~~xxxx~~ but the curriculum committee and he himself organizes the committee ~~xxxx~~ which organizes the course. It was a member of his committee who suggested the use of house officers. ~~There~~ We have several other interdisciplinary courses, the ~~xxxx~~ introduction to clinical medicine is a long course that spans most of the second year, but we have through our curriculum committees of the past developed experimental compact courses which are given in an intensive manner in a short span of time. And they've proved to be so successful that they've survived. And they are also given by interdepartmental, interdisciplinary teams, chaired by a particular individual. The individual may change from time to time, and when he does the composition of his committee changes, maybe the content of the course changes a little bit too,. But those courses in immunology and genetics and endocrinology, and human reproduction have survived and they are therefore useful. Then we

Self-instructional program
Not ranking

Interdisciplinary courses

have developed some additional course structures outside the curriculum that will also survive. One is bioethics, another version ~~is~~ of it is being given this year. It's not a for-credit course for medical students although they attend it fairly heavily. I guess some, there may be some students in it for credit from other ~~universities~~ universities, but ~~mainly~~ mainly it's an optional course, doesn't even have the strength of an elective. It's an optional course that we knew we needed. Then there's a course that's being organized in its present form really for the first time in human ~~sexual~~ sexuality. It was organized at the ~~request~~ request of a second year student, but it will probably be more broadly ^{attended} that that. And it too is organized by an interdepartmental team of clinicians and basic scientists. There, it may well be that other disciplines of ~~this~~ this sort not effectively covered in the existing curriculum may be identified and such a market for them develop that it becomes advisable to offer at least an optional experience in them. The curriculum has decided that the amount of compulsory ~~time~~ time that the students now spend is all they've got available. And anything else that's going to be taught to them has to be at the student's option. And they're probably right. We've saturated them pretty much. But although our basic science years look different in many ways than those of other schools, we're still teaching the same core of medical basic sciences, and apparently doing it so effectively as to lead to this brilliant performance on the part of our students about to graduate. Because without a formidable knowledge of the basic sciences they could not have achieved those test scores. Our clinical

Our clinical years are, somewhat different from those of other schools, but in the main we teach, as we ~~must~~ must, the major disciplines of medicine, obstetrics, pediatrics, and surgery, and we have ~~complex~~ compulsory rotations on psychiatry and neurology which some schools have. But importantly we have elective time available to the student to take courses from, Christ, there must be 150 ~~electives~~ that are available. on the campus, off the campus, other medical ~~institutions~~ institutions, out in remote sites, preceptorships in offices, experimental rural health care delivery in our Corsciana model and so forth. With the Family Practice program in FtWorth, any ~~reasonable~~ reasonable thing. that looks like an accreditable educational experience that the elective committee will go for is in the book. There are several that swamp all the others.

Being, the offering in trauma by the surgery service, and the offering in diagnostic radiology by the radiology department. And in each of those cases there is an individual who can be identified as being responsible for the extraordinary success of the effort. Irwin Thall in the case of trauma. Jack Reynolds in the case of radiology. That finally got to the point that that elective is not referred to as diagnostic radiology, but as Jack Reynolds. Showing the degree to which he has personified that experience. There are extraordinary faculty, a small cluster of them here that stand out above the 450, year after year. Graduating class after graduating class recognize the same handful of extraordinary individuals as being great teachers. Therefore they must be. I think that no school is ~~without~~ without them but the quality of the ones that we have here I can't imagine being excelled anywhere else and I've visited many medical schools in various capacities. I've never seen anybody who were better as teachers than people like Reynolds, Bruce Pollis (?), and Don Selden and a few others who are universally recognized by our students as being absolutely outstanding.

Do you enjoy being Dean?

Sure! I wouldn't stay at it if I didn't. It's, the first requirement of the job is that you enjoy

Of course in the dept. class

Basic Science
or Clinical

Faculty

Committee

include

include

include

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is that you enjoy complex ~~negotiations~~ and the solving of difficult problems, some of which do not have ~~evident~~ solutions and some of which do not have definitive solutions even. You've got to be able to be satisfied with the best possible result, and you have to be able to identify it when it's at hand. And your job is to get the faculty what they need to work with in teaching the students. And in undertaking investigation, and these days in providing patient care in such a way as to do it at the best possible level, without allowing it to inundate the educational and research efforts. A balance has to be maintained. And if it's not maintained then the school goes off into useless directions. Some schools get needlessly involved in the provision of patient care in most inappropriate fashion and they dissipate their teaching efforts in patient care that they sometimes don't do extraordinarily well. When a school goes out into the community to provide care it has to do so under carefully considered, controllable circumstances ~~compatible~~ compatible with the educational process. Some of the biggest outreach efforts in the United States are run by our Obstetrics and Pediatrics departments, but they're run under ~~carefully~~ carefully controlled circumstances. They deliver unbelievable amounts of patient care but they do it in an environment that is ~~suboptimal~~ optimal for a certain kind of teaching. For example if you go to ~~our~~ our Junior students and you ask them, "Where do you get your best ambulatory care instruction in pediatrics?", they will tell you out at the Children and Youth Clinics. Dr. Moore has organized the thing so well and his team's function so smoothly ~~that~~ that the student gets his best concept of how to see volumes of patients for health care ~~purposes~~ purposes in that setting rather than in the comfortable environment ~~of~~ of the Freeman Clinic on the campus here. The house staff in OB-Gyn really appreciate the educational environment of their almost a dozen outreach clinics. It performs a community service, but it does so under terms still ~~fairly~~ favorable to medical education. As opposed to some feckless business of sending a student out to a country ~~practitioner's~~ practitioners office in Cisco to sit around and ~~watch~~ watch him grapple with 120 patients a day under unsuitable circumstances. There's pressure on schools to send students and faculty out into the community, to try to solve problems that are problems of society rather than problems of medical education. And in the end it destroys the educational process ~~and~~ and the school must have the strength to resist, such things, And this one does. (Family Practice) It's the biggest one in the state and ~~really~~ I really do believe it's the most successful one. We picked John Peter Smith Hospital in FtWorth to operate it, because of the tradition that JPS had had in general practice residency. Further back than anyone can really remember, they were at it in the early 30's and maybe before. But as far back as the records go they've had a general practice residency, and it was one of the best around. Since it was general practice that spawned family ~~practice~~ practice, it seemed the obvious thing to do to convert their general practice residence to the new structured family practice program, leading to ~~board~~ board certification. JPS saw an opportunity to get in on the ~~ground~~ ground floor of an exciting new field. And it's a tribute to their vision. And because we were not trying to wedge a new program in amongst the traditional specialties in a crowded hospital like Parkland and the VA the program got off to a flying start and achieved size such that it's as big as all the other ones in Texas put together. Just about.

Peter E. Bonte vs. Patient care.

Family Practice

not

include

include

include

And it has a large faculty. We ~~did~~ did not have that much ~~trouble~~ trouble getting the State to ~~ix~~ fund us in the establishment of ~~Family Practice~~ Family Practice. There's a shortage ~~of~~ of physicians of that type around the state and we've had ~~extraordinary~~ extraordinary luck in developing a budget for that program and getting cooperation from first JPS and secondly the staffs and administrations ~~of~~ of other hospitals that ~~ix~~ interested in being added to our system.

It hasn't ~~skewed~~ skewed the educational process of the students and yet we've made available to them under the banner of SWMS as good a family practice practice residency as we can put together. Yet we haven't siphoned off our faculty and students into ~~inappropriate~~ inappropriate and non-educational settings. PS is a good teaching hospital and it's rather dominated by the family practice program. ~~There are~~ Their residents greatly outnumber ~~with~~ the ~~other~~ residents. in all of the other programs at Peter Smith. The ~~Academy of~~ Academy of Family ~~Practice~~ Practice, the central structure of the discipline, believes that that is the situation that is required for a modern day family practice residency, and Peter Smith meets it ideally. We're about to try some other ~~experiments~~ experiments in urban family practice programs, that one you know ~~has~~ has a rural orientation. ~~St Pauls~~ is interested... they will go with SWMS family ~~ix~~ practice residency program of a much smaller size. Methodist is interested. ~~Wichita Falls~~ Wichita Falls is committed to developing a ~~satellite~~ ~~to the~~ ~~FTWorth~~ ~~program~~ satellite to the FtWorth program and San ~~Angeles~~ Angelo are ~~apparently~~ interested in a free-standing program under our aegis there. We've had ~~our~~ our first negotiation with them. If we develop all those other programs we will sit for a while and watch how they go before selecting other locations for expansion, but we will have four different experiments going, and we will be ~~contributing~~ contributing a large number of we hope optimally trained family practice physicians to the state.

You don't want to give people the ideas that you're telling people what to do. What they ~~must~~ must do and how to go about it. However you do have to keep an eye on they way things are going so that the programs that develop are ~~ix~~ consonate with the overall objectives of the school. When they drift away you must be there to issue a reminder in the name of the faculty.

The faculty itself on a couple of recent occasions has attempted to ~~crystallize~~ ~~some~~ crystallize some of its objectives. We've done a ~~ix~~ couple of so-called role and scope studies. One strictly for ourselves, as an institution ~~ix~~ school by school. And another for the university which I ~~think~~ think pilfered Dr. Sprague's original idea. and incorporated it as their own. But the'r study had different requirements. We carried out some of the same processes again to define objectives of the institution. Then in addition to that, ~~ix~~ people who have grown up around here and that's a ~~ix~~ large number of the senior faculty, have a feeling for the place and what it is and what it ought to be what the faculty wants it to be and in the interest of producing the best physicians how we ought to conduct our program. We've made some modifications over the years, but ~~ix~~ people have their visions of SWMS as a genuinely first rate institution, doing things in innovative original and we hope creative ways. When we deviate from that path then you ~~expect~~ expect someone to recognize this and get it back in the proper track. Unless it turns out that the new track is worth pursuing. That it is genuinely new and it is innovative and it's not wrong just because we haven't done it ~~ix~~ that way before. As for example with family ~~practice~~ ~~practice~~ ~~practice~~ ~~practice~~ practice. There are a number of older schools, have incorrectly sought to deny the existence of the new

Roll
Change

include →

of the new discipline because it fell outside the traditional patterns of education, But there is consumer pressure ~~for~~ from the public to have the output of such programs and they will become available, therefore ~~it behooves us to see that~~ those who to get into the business of seeing that those who become available ~~are~~ are the very best. that we can supply. As things change we must recognize and identify good change from bad change.

What is the research impact on the curriculum?

One of the fringe benefits of ~~being~~ being a member of a full-time faculty which strangely enough entitles you to work equally as hard as your counterpart in the community and often a lot harder, this ivory tower business ~~is~~ horse shit, we see a million ambulatory patient visits here, the faculties for Texas medical schools deliver a surprizing volume of the State's total medical care. Under circumstances... they're not as well ~~paid~~ financially compensated as their counterparts. But there are compensations, That make this ~~kind~~ kind of enviroment so attractive that many bright people adopt it and do not wish to leave it, and one of these is the freedom to do original ~~research~~ investigations, to add some new knowledge to the field, to ~~develop~~ develop some new way of identifying a disease, or treating a disease, since that's what it's all about. The investigations may be so fundamental ~~and~~ and into ~~processes~~ processes so arcane that ~~they~~ their immediate application ~~on~~ to ~~identify~~ a disease process may not be easy, but given some ~~experience~~ experience in the business, the competent investigator learns to assemble isolated facts into meaningful patterns that suddenly will fall into palce as the interpretation of a phenomenon that he can now identify and he can teach other people to identify too. That may be useful in spotting a ~~disease~~ disease or spotting a complication of a ~~sk~~ disease or contributing to a treatment. pattern. ~~is~~ one of the attractive features of being on a faculty is having the opportunity ~~of~~ to ~~do~~ this sort of thing. That is, the institution makes available a certain amount of laboratory space, and keeps it available to people who can essentially support themselves as investigators. The institution does not have money to support all the research programs that are going on. Unlike ~~many~~ many other businesses, although the investigators are employees of the institution, they are expected to go out and from a standard group of institutions in an ~~px~~ approved above-board manner, they hustle the support ~~for~~ for their research programs. They raise ~~lx~~ the money sometimes to pay part of their own salaries, but always to pay the salaries of their technicians, ~~xxxxx~~ buy their research equipment, pay their research costs in terms of materials, animals if any, tissue cultures if they use them,, and so forth. So they are expected rapidly to become self-supporting and to remain that way by a constant lifetime demonstration of skill in the business of research.

Well, where there are research programs going, knowledge is being collected on a broad scale, and funnelled into the various ~~research~~ research programs. Knowledge emanates from the programs into its immediate enviroment because, investigators for one thing, read broadly, they learn things which they communicate to the people around them, Research groups in the same enviroment will meet ~~peripherally~~ and interchange information of mutual interest; sometimes with dramatic effect. Group A may possess ~~a fact of no value to themselves~~ a fact of no value to themselves which is vital to something Group B is doing. And in an enviroment like SWMS where there are many interdisciplinary research groups which themselves overlap peripherally the exchange of such knowledge is a very potent force. Well not only does education occur for research purposes but let's see what happens when Roger Unger is lecturing to the

Audio ?
Tie in
Towson in
West Dallas

Miller
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peripherally

medical students about diabetes. He is not, as an instructor at the University of Oklahoma, telling the students about what Roger Unger did, he is Roger Unger, he knows what he's done, he has a concept of the disease that is original with him, and being an articulate man he can convey this to students. Well that's a mighty advantage. It's the first way that research gets into the educational program. Because it provides instructors with knowledge above and beyond rote knowledge of what they're talking about. Personally acquired knowledge. Either they've read it somewhere, or ~~themselves~~ they've produced it themselves in the laboratory. If you are working on a frontier it's easy to identify for the students where people have been but where they haven't gone yet, therefore somewhere in between ~~is~~ is the ~~frontier~~ frontier. And we have so many people in this institution on so many frontiers that we ~~xx~~ can damn near ink in the circle of where biomedical research knowledge is at the moment. If you wanted to know how far people have gone in cell biology Hackenbrock is a good man to have lunch with.

For the moment that's where the map ends. In a year ~~ix~~ it will be a couple of miles down the trail. A faculty that's active in research can define limits and it can also define ~~xxxx~~ reasons why things happen.

Medical education changes ~~a hell~~ a hell of a lot all of a ~~sudden~~ sudden about thirty years ago. Before then it was descriptive and empiracle. One described a disease process and anybody who had the process fit into this category and you treated him in a certain way. And superficial things were known, but the biochemical and physiological reasons why the body ~~xxxx~~ functioned as it does and ~~themind~~ mind functioned as it does, when ~~healthy~~ as opposed to when diseased, were not known. But pieces of scientific information became available, usually as isolated facts, and suddenly in the mid 40's it became to occur to educators, there's a reason why all these things happen, it is not just enough to ~~know~~ know superficial ~~manifestation~~ manifestation of the thing, one must know the things themselves. And from that ~~that~~ foundation to be able to reason further, and that ~~itself~~ itself led to the giant impetus in biomedical research. It actually antedated the support given to it by the federal agencies, you couldn't have gone where it went without that support, but when it ~~xxxx~~ became realized that in medicine and some other biomedical sciences there was a reason for everything that happened and there were sequential orderly processes that required a great deal of effort to disentangle ~~xxx~~ but they were there if you looked for them. The whole character of education changed. And now SW is a ~~paradigm~~ paradigm of that kind of education, "There's a reason for everything"., by God you hear it from somebody during your four years here. You may not remember it, but you've heard it and you may have sort a gut sense of ~~what's~~ what's going on from the most fundamental ~~levels~~ levels on up. And it makes it easier to identify real facts as you later hear them, as they may emerge at some later time. But research then contributes a flow of new knowledge into the environment sometimes the investigators own, sometimes what he has picked up in the course of developing the broad base that he needs to be an intelligent investigator. In schools where there's a relatively small component of investigators, this element ~~is~~ lacking and they're dead and they're stultified, and really not equipped to carry out modern biomedical education. This is an ~~absolute~~ absolute requirement of the environment in which such education must be conducted. That is to produce a physician of anything more than barefoot capability. And the belief that we have in it is evidenced by the fact that while other schools research funding began to go down some years ago, ours has never ceased to go up and more sharply all the time. We've experienced growth while others have remained ~~static~~ static or declined. And it's due to the development of new generations of young investigators many of whom are the products of our own laboratories here, who passed from being

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trainees in the research process to being investigators themselves, some of ~~whom~~
whom are now achieving distinction.