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Panel Discussion  

THE ACADEMY LOOKS AT PEDIATRIC EDUCATION  

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Chairman Hill: In 1944, the Academy inaugurated a Study of medical services available to the children of America. Included in the Study was a detailed survey of the Pediatric Departments of the 70 medical schools in the U.S. Out of this Study, requiring some 4 years and costing over a million dollars, a vast amount of important information was assembled. As might be expected, the Study clearly showed the enormous advantages possessed by the majority of American children in quantity and quality of medical care, but it also revealed gaps and deficiencies not only in medical care in the field but in the teaching of pediatrics in the medical schools.

In undertaking its Study the Academy assumed a position of leadership among organizations interested in the health and welfare of children. This phase of the Academy's work is now in progress, and while not as spectacular as the Study, it nevertheless is proceeding along a number of fronts on a sound basis. In 1950 and 1951, day-long conferences were held in 9 areas in the U.S. in which pediatric educators, state and regional chairman participated. This year for the first time in history, the heads of pediatric departments of the Canadian medical schools met under the sponsorship of the Academy's Committee on Medical Education for a 2 day conference.

It seems fitting, therefore, that a place should be made on the program of the Academy's national meeting for consideration by the entire membership of some of the more pressing problems which come under the heading of pediatrics education used in a broad sense. The Academy has the unique distinction among pediatric organizations of being able to offer a forum where practicing physicians, teachers and researchists can come together to express their views about common problems in which all have a vital interest. Certainly each group has much to contribute. No discussion of this type has ever before been tried out on an Academy program. Whether it succeeds or fails will depend to a large extent upon the interest shown by the Academy membership.

It was with these thoughts in mind that the panel discussion on pediatric education was arranged. On a Panel is a practicing pediatrician, a professor of pediatrics, a dean of a medical school, a recent medical school graduate, the President of the American Board of Pediatrics, a pediatric surgeon, and a psychiatrist with psychiatric training. In addition to the members of the Panel, it is hoped that there will be a lively participation by members on the floor.

Recognizing that pediatric practice has undergone a definite change in recent years, the main thesis of the panel discussion is as follows: Is pediatric education properly designed to meet the needs of the general practitioner, the pediatrician, or other specialists, public health and the community; at the level of (1) the undergraduate medical school, (2) the internship and residency, (3) the graduate school and (4) postgraduate training?

Dr. Gerald Cline, a successful practicing pediatrician of many years' experience, will open the discussion by giving his views on some of the deficiencies in present-day training for private practice. Dr. Ashley Weech, Professor and Head of the Department of Pediatrics, at the University of Cincinnati Medical School, will discuss the problems faced by the medical schools in their attempt to give all medical students a basic training in practice. Dr. John McK. Mitchell, Dean of the University of Pennsylvania Medical School, who personally made the Academy's survey of the Pediatric Departments of 70 medical schools, will discuss the problem from the angle of the medical school, the internship and the pediatric residency. Dr. S. Ramcharan, a graduate of the University of Toronto Medical School in 1951, will relate to the membership her impression of her undergraduate training in pediatrics as compared to her training in other major departments. Many of us may be in for a bit of a surprise when we think of the training we had compared with that now being given in a top medical school.

One of the important changes in pediatric practice is the increasing responsibility that the pediatrician is expected to assume in parental guidance in emotional growth and development of children. How much of a psychiatrist must the pediatrician become to fulfill this role adequately and how can such psychiatric training be best provided? This question will be handled by Dr. Milton Senn, Professor and Head of the Department of Pediatrics at Yale University Medical School. Similarly, Dr. Herbert Coe, Pediatric Surgeon at the University of Washington Medical School, will point out the great advances which have been made in pediatric surgery and the importance of the pediatrician's being thoroughly familiar with the problems involved.

Finally, the status of the American Board of Pediatrics in the field of pediatric education will be explained by Dr. Charles McKhann, President of the Board.

Dr. Cline: It is an honor to speak as a practicing pediatrician on this panel with so many distinguished teachers and educators of the United States and Canada. Obviously, I cannot speak for the practicing pediatricians as a group, since the practice of medicine is, of necessity, an adaptation of the individual skills and art to a specific situation. Therefore, my comments and ideas on "The Academy Looks at Pediatric Education" are based upon and limited by my own personal experience in a specialty of which I am very proud; and everything I say must be evaluated against my particular background. If I should be wrong in any of my views, I ask your indulgence on the basis of my sincerity and consecration to service in the practice of medicine.

I cannot speak for the Academy nor was I asked to. My assignment is to be the lead-off speaker in this panel discussion, which I was asked to start as a practicing pediatrician who feels that today's formal training does not prepare the young men for some of the particular problems in which I am interested and which have confronted me in my practice.

Thirty years ago today I opened my office in Bloomington, Ill., which was then a city of 25,000 people, for the practice of medicine limited to "Infant Feeding and Diseases of Children." At that time I was an oddity in medicine for there were only 2 other men in Illinois outside of Chicago who limited their work to pediatrics; and in Chicago there were just a few physicians and educators who limited their practice. Needless to say, and with due respect to my teachers, I was wholly unprepared in comparison to the trained board-eligible young men of today. With this brief sketch of my 30 years in pediatric practice, I would like to have you consider certain ideas which I hope may have some merit in planning for sound pediatric education.

Basically, I have 3 major proposals for consideration in planning pediatric education. First, the method of selecting medical students should be changed in an attempt to provide at least a partial solution for the problem of distributing adequate medical care to the entire population. Second, the pediatric educational program should enlist the aid of the part-time practitioner. Third, a preceptorship program should be a part of the training for the future pediatrician.

If we are to provide adequate medical care in all geographic areas, then the choice of medical students is an important problem. The medical institutions that are specifically charged with providing adequate medical service at a state level are the State Medical Schools. Unfortunately, however, these institutions are not inclined to appraise the qualifications of the entering medical student from the standpoint of the distribution of medical care outside of their own states. But
since these State Medical Schools usually must follow a fixed policy, no charge of political interference or discrimination can be leveled against them. Thus we find the private medical schools placed in the anomalous position of having to assume the responsibility for a better geographic distribution of medical care. Perhaps the members of the panel will discuss this point.

I realize that attempts to remedy this situation have been made in some states. Generally speaking, these have been exploratory in nature and have not provided any practical solution to the problem. I have been told that one State Medical Society, which set up a fund to pay for educating worthy students who would practice in rural communities for 5 years after graduation, converted its plan into a straight loan fund since 4 of the first 5 students changed their minds and are repaying their loans out of salaried jobs. So the selection of students on the basis of their professed desires which, of course, may change, may not be the answer. Instead, the answer may lie in the strengthening of the educational opportunities of medical students so that their professional growth may continue when they leave the teaching centers.

As concerns the educational program, it seems to me that the young men who are entering our profession are not being adequately prepared for what I see in the practice of medicine today. They are poorly oriented as concerns the social and economic aspects of a medical practice and some of the arts of medicine that deal with translating scientific information into sound pediatric care. In my opinion, these practical problems should be anticipated both at the undergraduate and postgraduate levels.

Let me also call your attention to the marked changes in the type of cases confronting the practicing pediatrician of today which, to my mind, must be anticipated in the educational program of the pediatrician. Years ago I was mainly concerned with infant feeding, communicable diseases, pneumonias and kidney diseases. Today, however, a recent analysis shows that my practice involves in addition to the above: (1) psychologic and psychiatric problems of the child and the home; (2) allergy with its related diseases; (3) severe electrolyte and water balance disturbances which complicate many acute and subacute conditions; and (4) new bacteriologic problems of the old, ever-present acute and chronic infections.

The growth of psychiatry is a necessary product of the times; and it seems to me that psychiatry could be a great help to the student by his observations, which are experienced in the home, the office and the hospital, thus providing a better understanding of the total family relationships.

Although allergy is still in its infancy, particularly in pediatric medicine, it is very important, as an appraisal of your daily ledger should show. Where should this subject be listed in pediatric education? Again, the man in the field is greatly needed for at least a part of this teaching which has failed to relate the specific allergy problem to the total health of the child.

At what level in pediatric training the subjects of water balance and bacteriology should be stressed is a problem which can best be solved by pediatric educators, for it can be pointed out that these men of today are much better qualified in basic and scientific medicine, which have been so responsible for the most rapid strides in the history of medical science. Certainly we should all appreciate their magnificent contributions. These are the people we must continue to want for our teachers of tomorrow.

In a general pediatric practice a physician cannot afford the luxury of being an expert on emotional problems, allergy, water balance and bacteriology as individual specialists. Instead, he must be well-informed on the practical implications of all the problems of children. Furthermore, I realize that everything a physician needs cannot be taught in his training period, but I do believe that the motivation for the subjects I have discussed should be provided early and should be perpetuated during the training period, not by lip service but by practical exposure to the situations which the physician will ultimately have to deal with when he goes into practice.

The science of medicine and the practice of medicine must go hand in hand with each other, and to accomplish this I recommend that 3 steps be taken. First, I suggest that the entrance examining board of every medical school should have at least one member who is a part-time practitioner. I believe such a man would make a significant contribution to the evaluation of aptitude testing, grades, background history of the applicant and perhaps the geographic distribution of the future doctors who may be pediatricians. Second, I suggest that there be a sufficient number of part-time pediatric practitioners on the rosters of our medical school faculties. In connection with this, I suggest that even greater emphasis must be placed upon having a teaching staff (part-time or full-time) that is interested in the broad aspects of the sick and the well child and will teach this information meaningfully to the students. The selection of teachers is of equal or even greater im-
portance than the selection of students. Third, I strongly advocate a preceptorship program which is so individualized that it will be adaptable to the variations of the locality and the community in which the pediatrician will serve.

Medicine is, in part, being socialized by the profession itself because graduates are finishing their internships and residencies with too much concern for finding salaried jobs, which require only a 5 day week and an 8 hour day. Often this same group (both men and women) were the early candidates who, with high scholastic grades and ratings, were given a preference for entrance into medical school over the hard-working young man, ready to devote his life to serving the public and his profession. Undoubtedly many such men and women of this type are being eliminated from the study of medicine by the increasing cost of a medical education.

Where is the young pediatrician to learn and how does he learn the art of practice? Does the young doctor himself know the methods of satisfying the parents, grandparents and referring doctors? Where does he learn office technic? Is he impressed with his civic responsibilities? By consecrating himself to service for his community as a whole, he will attain a degree of pride which pays largely in dividends of self esteem.

What about the business side of a practice? Undoubtedly the signs of the times with inflation make it impossible for the young man of today to know the value of a practice. There are far too many looking for what they can get and thinking but little about what they owe and can give to their patients and to the professional ideals of the past. This is not unique to medicine; it seems to permeate all of our culture today. No doubt we men in the field can take some of the blame for this by our example of standards of living and practice. How can we, however, prove to them that we did not live by the same standard in the beginning; that by consecration to service, investing in our own business, leadership in our communities, even with lesser professional competency in those days, we have attained our status of today? This takes time. To have become good pediatricians we have had to let the practice of medicine be our yesterday, our today and our tomorrow.

Up to this point I have not discussed preceptorship which, in my opinion, actually carries the major answer we have today for these various problems of educating the future practicing pediatrician. It is as old in many ways as medicine itself, yet apparently very new in pediatric education. As you know, it is also a much debated subject among educators and has not been accepted generally as part of the course of postgraduate education in pediatrics.

For almost 15 years I have had a residency program under the guidance of our State University whereby the postgraduate student spends 6 months of his 2 year program in Bloomington away from the parent-teaching institution in Chicago.

During this time I have had quite a number of young men and women with me who have had various personal ideas, criticisms and commendations for this type of postgraduate education. Primarily, the Art of the Practice and the business side of medicine have been the main objectives.

The daily tasks of my residents are numerous and complicated. Institutional care of a state school for children with a population of 325, hospital rounds on an active private pediatric service, journal clubs, local staff and county medical society meetings, and the teaching of pediatrics to student nurses are part of their duties and training. The important part of the entire program, however, is the time spent in my office with private patients when they learn and see what type of cases an active practice is composed of. Here they learn the art of handling the child and how to satisfy the parents, the grandparents, and the referring doctors; plus the business side of medicine, including the technic of keeping records, making charges, bookkeeping and insurance. At the Illinois Soldiers' and Sailors' Children's School, where they work and live, they are fortunate to have the consultation staff of the Institute for Juvenile Research in Chicago spend 2 days a month at the X school, where their exposure to psychiatric problems is extremely large and valuable.

They travel with me on house calls and out-of-town consultations. They are given a course, so to speak, in budgeting time and money in an office and home, where they are shown actual social and economic problems as they exist in their natural setting. They not only go along to PTA meetings but are used as guest speakers for such organizations. They assist in our polio center of active cases and also the monthly clinics for crippled children. They are also responsible for the medical service in the McLean county summer camps for crippled children.

The entire preceptorship picture, to my mind, is of great importance in this 2 year residency program. It is debatable whether this 6 months period should come early in the 2 year residency program. Personally, as I see it now after having had at least 12 or 15 students go through this
service, I feel that the last 6 months of this 2 year training should be devoted to the preceptorship period. In other words, at this particular time they have seen it all and are now older, more stable and ready to see and comprehend what lies before them as they enter private practice. Also, the student who is interested in teaching will benefit by having had this exposure and experience in private practice.

My personal experience leads me to believe that the preceptorship program is something the young men need and appreciate now perhaps as much as any part of their residency; and in the years to come they will realize more than ever the truth of this statement. However, it will take them several years to acquire a full appreciation of the value of the preceptorship program.

In conclusion I want to re-emphasize these points: 1. There should be a more discriminating selection of medical students. 2. The pediatric educational program should enlist the aid of the part-time practitioner. 3. The preceptorship program should be an important part of the training of the future pediatrician.

In preparing this paper I realized that the subject matter and my approach to it would be open to criticism in many of its phases. However, if I have presented material which will lead to constructive discussion, I feel that the underlying objective has been accomplished.

Dr. Senn: Pediatricians and general practitioners caring for children must have:

1. Knowledge of the processes of personality growth and development with understanding of the factors which determine behavior.
2. Knowledge of the dynamic qualities in parent-child relations and of their role in molding the personality and character of each human being.
3. Knowledge of the role of the physician and the persons associated with him (hospital personnel, etc.) in influencing behavior of children and in modifying attitudes of parents.
4. Understanding of the more effective use of interviewing (history taking) and of the physical examination in helping people psychologically.
5. Greater awareness of the community resources (child guidance clinics, schools, recreation, etc.) and their values when included in comprehensive pediatric planning for a child whether he be well or sick.

Pediatricians in training should have opportunities for observing, listening to, and talking with children of all ages, well and sick, in different settings (well baby clinics, nursery schools, elementary schools, hospitals) where the same children may be observed over a period of time (the longer the better), instead of cross sectionally, where the trainee is provided with a teacher who, by experience and knowledge, can help the student to observe, record, contemplate and understand what is noted. Provision should be made for pediatricians in training to have contact with teachers of different disciplines, both within and outside of medicine, who can translate and apply knowledge about growth and development within the framework of pediatric care so that the trainee becomes aware of his opportunities as well as his limitations in dealing with the psychologic aspects of child care, and being always alert to the emotional implications of everything a physician says and does. Teaching of medical psychology must not be isolated from teaching the child in all other respects.

Dr. McKhann: There are other purposes of pediatric education than preparing the student to pass Board examinations. Specialty boards have been the subject of controversy not because of the action of the Board, but because of uses that have been made on Board certification.

The American Board of Pediatrics is composed of 9 members, 3 representing the American Academy of Pediatrics, 3 the Pediatric section of the American Medical Association, and 3 the American Pediatric Society. The function of the American Board of Pediatrics is to establish standards of proficiency for the practice of this specialty, to determine the training and experience required of each candidate, and to examine and certify candidates who meet the standards of education, training and experience, and who pass the examination. The American Board of Pediatrics has representatives on the Advisory Board of Medical Specialties, which meets periodically to discuss the problems common to all the Specialty Boards. It is the privilege of the American Board of Pediatrics to establish Sub-Specialty Boards as it so desires. For example, there is now a Sub-Specialty Board of Allergy under the Board of Pediatrics. It is possible that in the future other Sub-Specialty Boards may be set up.

The American Board of Pediatrics actually has no other function. However, because it sets the standards which must be met by persons seeking certification as specialists in pediatrics, it becomes
interested in the education and training of the candidate, both undergraduate and graduate. The American Board of Pediatrics exercises no jurisdiction in any way over undergraduate pediatric training, but does have a considerable influence in postgraduate training in that it advises the Council on Medical Education and Hospitals of the American Medical Association regarding approval of residencies. It is to be noted that the American Board of Pediatrics does not approve or disapprove residencies, but does give its best judgment to the AMA Council on Medical Education and Hospitals as to those residencies that should be approved. While this is an ancillary function of the Board, it is deemed an important one in order to protect the resident in training from inferior types of training which he might unwittingly take and which would ill prepare him for the examination. Hence, it would seem that, while the American Board of Pediatrics has no direct influence on medical education, it does in actuality have a very considerable influence. For this reason the constitution of the Board becomes important.

The majority of the men on the Board are in practice, the minority are professors. Each section of the country is represented. In addition to the members of the Board, the Board as a group selects from various parts of the country men to assist and aid in the examinations. They are designated official examiners. It is not intended that the examinations of the Board should set standards attainable only by full time instructional staffs in medical schools, but should set standards for the man in practice or who intends to be in practice, and standards of a minimum rather than of a maximum height.

**Dr. Ramcharan:** I have been given the great privilege of speaking on behalf of all medical students before this distinguished gathering. My discussion concerns undergraduate pediatric training, and my comments are based in part on opinions of students in the United States and Canada.

In general I found the study of children in their normal and abnormal states a fascinating one. Learning how to get along with your little patients, how to interpret their every cry, how to induce them to cooperate on a physical examination, for example, how to persuade them to put out their tongue when they state a blank “no” to your request to do so, all this, I say, can be a very interesting experience.

I have been asked whether I felt my undergraduate training left me feeling adequate to undertake the care of children as a hospital intern or in general practice. To this question I would answer no. This is so because I did not receive adequate training in clinical problems. This is especially true of the common diseases of children and communicable diseases, all of which are of particular interest to the general practitioner. In addition some clinicians tend to show rare cases and diseases rather than ordinary illnesses. This lack can be made up for by starting clinics in pediatric medicine during the third medical year and spending more time in the outpatient department, for it is only by experience with clinical problems that the theoretic knowledge acquired from lectures can be given practical application. We should also be given more cases to work up on our own. Especially did I feel the lack of clinical experience in the communicable diseases. For the diagnosis and handling of these form a common practical problem in general practice. Another way in which clinical experience could be achieved is by a period of living-in in hospital as an undergraduate. We appreciate the difficulties involved in such an arrangement but it is something that we can look forward to. Of course it must be understood that facilities differ in the various schools and what is true of some is not true of others.

I also feel the need for practical knowledge of the normal and abnormal growth and development of children. Lectures may be valuable and can be made as practical as possible by the liberal use of slide demonstrations. However, after a time it becomes difficult to absorb what is largely theoretic knowledge. I think that more time spent at well baby clinics would help to solve this problem. There we should be given the responsibility for the treatment of children, advice to mothers regarding changing of diets and other such problems. In this way we should become familiar with the normal child and the variations from the normal. The difficulties inherent in such a program are only too obvious. Busy practitioners who run the clinics can ill afford to give the time required by inexperienced students.

I feel inadequate to meet the problems in adjustment that arise in child development. We received well organized lectures with descriptions of the possible abnormal forms of neurologic and mental development in children, but did not acquire a proper perspective of the field nor did we have the opportunity to observe the method of handling common behaviour problems.

As far as lectures are concerned the usual criticism may be made that too much time is spent...
copying out notes at lectures, which time could be more profitably spent for practical demonstrations. We are not unmindful of the value of lectures but feel that more use could be made of mimeographed lecture notes thus saving time for discussion. Secondly, we often observe that a clinical teacher is unprepared when he appears before a class. Thirdly, instructors sometimes fail to appear for a scheduled class without notifying the students. However, the reverse is also true, and I have known of instances where the students have called off classes and have not notified their own clinician. Lastly, since clinicians in large hospitals are specialists we thought that it would prevent an undue stress on one aspect of children's diseases if clinicians rotated among the groups of students receiving instruction.

Some students mentioned that they would appreciate hearing some of the common ordinary business of starting practice and looking after pediatric patients.

Comparing our training in pediatrics with that obtained in medicine and surgery, the chief difference is that we had no opportunity for undertaking the responsibility for the care of children such as we had in the outpatient department in our course in medicine, or in the clinics or emergency department in our course in surgery. Of course, we understand that this opportunity depends on the facilities available. However, it becomes a serious drawback for one considering general practice, especially when there is no opportunity for experience as a junior intern on a pediatric service.

As far as comparison with obstetrics is concerned the opportunity for living-in hospital is a definite advantage on the side of obstetrics. Also it may look well on paper to have a combined obstetrics and pediatric term. In practice we found that this did not allow for intensive study of either subject. Because of this I think that one half of the term should be allotted to obstetrics and half to pediatrics.

On the whole we enjoyed pediatrics and I think that we had an excellent course. Our teachers were always patient and helpful and I think it would interest them to know that students appreciate it when an instructor criticizes statements made by them or methods of examination and treatment so that they know definitely they are right or wrong. I hope these comments will go some way in helping to further understanding between teachers and students so that teachers will be able to derive pleasure from their work of helping us to acquire an understanding of what at first are to us strange wriggling creatures in other people's arms.

Dr. Weeb: Since the primary purpose of our Panel is to bring out into the open existing inadequacies in pediatric education and since this purpose will best be served by discussion and challenge from the floor, my prepared remarks must be brief and, if possible, provocative of discussion. I shall make no attempt to cover all controversial issues concerning adequate undergraduate teaching—issues discussed in more or less detail in the 1949 Report of the American Academy of Pediatrics on Child Health Services and Pediatric Education. The exigencies of brevity demand confining myself to selected issues which to me seem important. Perhaps the very act of omitting many other items will provide the stimulus for free discussion.

I shall begin by daring to ask whether we who are doing the teaching are indeed qualified for the job. The trend of organization in departments of pediatrics is in the direction of the full time system. The professor and as many of his associates as the budget will allow have abandoned the type of medical life which most of the students will follow. Often they have been attracted to the academic atmosphere by the opportunity to engage in research rather than by a compelling desire to teach. In stating this fact there is no wish to deny the conviction that a qualified investigator trained to question established beliefs will in the long run be a better teacher than he who, however eloquent, merely reiterates the dogmas of his time. There is also no desire to oppose the assertion that time to devote to teaching and time to prepare for teaching coupled with years of practice in the act of teaching will in the long run produce a better teacher than when the job must be done on a hurried part time basis. Nevertheless it is relevant to point out that the full time teacher and investigator has rarely received instruction in what may be termed "the art of teaching." This circumstance is an item deserving serious thought.

The full time teacher must also guard against another inherent weakness. Most of his students will become practitioners encountering petty and minor problems from which he himself is protected. It is hard to teach effectively what is not a part of experience. In most divisions of pediatrics the full time teacher is flanked and helped by a group of medical practitioners. Beset with the cares of private practice they rarely have time to construct an integrated curriculum. Their aid in the over-all
program is nevertheless indispensable. I salute them for what they have done, for invariably the contribution is voluntary and without compensation. But, likewise, it is true that they too have rarely received training in the art of imparting knowledge.

What then is the goal of teaching? There are 2 essential ingredients, facts and the use of facts. Factual knowledge is gained in many different ways. Books, journals, pictures, didactic classes, conversation with teachers and talk with other students, all have a part to play. The student must also learn to grasp facts from observation. Herein lies a primary reason for teaching at the bedside with small groups of students who are learning by experience how to see, how to hear, how to feel the normal and departures from it. Cultivation of curiosity gives incentive to the art of observing. Well do I remember a fourth-year bedside class with Dr. Edwards A. Park. "Look," said Dr. Park, "the baby's gums are white. Why," and he looked at me, "are the gums white?" I confess I had not noticed that the toothless gums of infancy are often pale in contrast with surrounding mucous membranes. I hazarded a guess that perhaps teeth preparing to erupt had obstructed the circulation. This concept was discussed at length and discarded as being inadequate to explain the distribution of the pallor. My curiosity was climbing. Then, Dr. Park confessed he did not know himself what made the gums white but that someone ought to find out and let the group of us know. One of our greatest teachers had driven home a point. Be constantly curious about the things you see! No detail is too small to merit questioning observation! In this way only will eyes, ears and fingers continue to add facts to your storehouse of knowledge.

The importance of factual knowledge can scarcely be overstressed. No amount of reason can reach a sound conclusion when factual knowledge fails. I remember vividly the plight of a greatly perplexed intern at Monday morning rounds after he had admitted and studied over the weekend a boy with Friedreich's ataxia without making a diagnosis. At the rounds the nature of the illness was recognized at once by a number of his teachers. On the way to lunch after the rounds were over the intern vocalized his perplexity. "What do you do," he said, "when you have taken the most careful history you know how to take; what do you do when your physical examination has been as detailed as you know how to make it; what do you do when neither history nor examination give any clue toward making a diagnosis? I know I should go to the library but how does one proceed to look the subject up when he does not have the foggiest notion of what subject to look up?" A sympathetic feeling bit me to the core. Indeed, does the doctor exist who had not experienced this intern's plight? With measured words I answered, "Some fact from the anamnesis, some fact from observing the patient, must tinkle a bell in the cortex of experience. Pitch and position of the bell are relatively unimportant. The essential thing is that some bell tinkles. And, the more bells that ring, the more clues for library research."

The conclusion is clear. In teaching medical students facts must be imparted. The greater the number of facts, the better prepared is the student for the problems of future practice. So clear is the conclusion that another danger emerges. The teacher in his enthusiasm to present the latest knowledge, in his meticulous care to cover each minute detail, may find that time is short, and invariably he talks too much. "Spoon feeding," the students call it and the better students know that the method is not good. Facts are to the physician what tools are to the craftsman. They are essential but serve their purpose only when the student learns to use them in sound habits of drawing conclusions. Better fewer facts and more practice in the use of facts! How to mold the minds of men is a challenge to better teaching. After nearly 30 years of pedagogic contact with students in 4 medical schools, I still feel inadequate to meet this challenge as some day it should be met.

When we teach system in taking histories and doing physical examinations we are moving in the right direction. "System," Osler wrote, "is the harness without which only the horses of genius may travel." Yet we do not bring enough system into guiding processes of thought as the student weighs the facts at hand and gropes toward a diagnosis. As one of the oral examiners of the American Board of Pediatrics, I have been distressed over a number of years at the relatively small number of candidates who seem able to systematize their discussion of problems in a way that makes it impossible to forget for the moment significant aspects of the topic. I feel certain that teachers can be taught to encourage orderly habits of thought.

I have experimented with another technic of avoiding "spoon feeding." Perhaps some of you may wish to try it. The situation deals with case presentations before small groups of students where the traditional technic is to have one student, assigned to the case, present the history, physical findings, results of laboratory procedures, etc., and finally his diagnostic impressions. In the experimental tech-
The traditional approach is abandoned completely. The student familiar with the details of the case acts the role of the patient's mother. His classmates pliy him with questions until a history has been extracted. Then, the student changes his role and acts the part of the patient's family physician who is familiar with the findings on physical examination and in the laboratory and who consults the class for help in making a diagnosis. All the essential information is brought out by active questioning from the class. The teacher merely attempts to guide the direction of questioning when it tends to run off on a tangent.

There is not time this morning to go into more detail. The technic is offered as one which makes it possible to guide the paths of thought of perhaps a dozen students in the class. I may add I am often amazed at the power of collective thinking in bringing to light aspects of a problem which no one student could have coped with alone.

There is still another method of training the mind to use facts soundly. It is a method most often employed at staff ward rounds where interns and residents are the students but it can with profit be extended to undergraduate teaching. I refer to the presence at case class presentations of more than one teacher each of whom has specialized knowledge in a field pertinent to evaluation of the over-all problem of the patient. One teacher, of course, must be master of ceremonies. The student presents the case and so occupies a pivotal point. He must be kept at the pivot by constant reference to him for the facts of the patient's problem. But, the emerging discussion sheds on the issues the light of specialized knowledge. Not only are facts imparted but the facts come out in a situation charged with the need to reason. Error of reasoning meets the challenge of greater acquaintance with fact. This is an atmosphere to incite the mind to grow.

In conclusion, I wish to state again awareness of having touched only the fringes of the problems of undergraduate pediatric education. Some of what I have said is pertinent to teaching in all the professions. Much of it is applicable to the other clinical specialties. Specific items pertaining only to pediatrics have perforce been omitted. I have chosen to discuss the teaching of "facts and the use of facts" both because of basic importance and also because by concerted effort improvement can be wrought.

Dr. Mitchell: I have been presented with a few questions to which I am going to try to give you some very simple answers. Time does not permit me to defend my answers.

The question has been raised as to whether pediatrics is assigned a sufficient number of hours in the curriculum to handle the subject properly.

There is no question but that prior to 1946 a large percentage of people who were concerned with the decision as to how many hours should be devoted to various departments looked upon pediatrics as a specialty that was concerned purely with infant feeding, diarrhea and the infectious diseases of childhood. At that time a large number of pediatric departments in the various medical schools were not assigned a sufficient number of hours to teach the subject satisfactorily. During the intervening period there has been an increasing realization on the part of deans and curriculum committees of the true role of pediatrics, and the situation has changed materially for the better.

I hope that the Academy study was of value in this particular regard, and I think it was, because it pointed out clearly that many pediatric departments must have a greater number of hours if they were to fulfill their function properly. Today I feel no concern about whether pediatric departments in general are allotted a sufficient number of hours to carry out their teaching program. Hours are apt to be assigned where they can be best handled. A department of pediatrics is not strong because it has a large number of hours allotted to it; rather, a strong department will have ample hours assigned.

Question: Do pediatric departments have adequate budgets?

Any of you who are really familiar with medical school financing will understand the complications of this problem. A budget committee is not given a certain sum of money and then told that it may distribute this money as it considers best. Instead in a large proportion of schools there are departments that have been existing for many years on a set budget, often derived from endowed funds which must be used for a specified purpose. These departments have a staff of professors, many of them with tenure; you cannot suddenly change this picture. Some pediatric departments have adequate budgets, others are woefully inadequate. It is a complicated and difficult problem which cannot be answered in a single statement or solved by a single decision. Only by making available a considerable sum of money which can be used wherever needed for operating expenses can a start on the solution be made.

Question: How can training at the undergraduate and graduate level be improved, particularly
in view of the finding of the Academy study that 75% of all child care is done by general practitioners?

A figure that has not been used as much as the above but which is actually of greater significance is that between 30 and 35% of the general practitioner's time is spent with children. It seems to me that this points to a matter of great importance, namely, that it is not the duty of pediatric departments to try to make pediatricians of students at the undergraduate, or of house staff at the rotating intern level. Rather it is their duty to train students and interns in such a manner that they will become physicians who understand the problems and the care of children; that they may be in a better position to undertake that care no matter what their type of practice may be. The tendency to train students during undergraduate and intern years as if they were entering that specific specialty is a fault to which all departments are prone.

Another error which has frequently crept into pediatric teaching, at least so I am told by a considerable number of students with whom I have discussed this problem in various schools, is that of teaching on rare cases only. I realize fully the reasoning which lies behind this method of teaching. Its proponents hold that they are not attempting to have the students learn about this particular disease, it is rather a procedure to teach students how to approach the study of a case, a method which will hold for all cases. You cannot always depend on student criticism, yet I agree that is a legitimate criticism if it is applied in the broad sense. One student expressed this well when he said, "If I were on the western plains and saw a large four legged animal at a great distance and some one asked me what that animal was, I could make a pretty good guess, because I have been raised on the western plains and know that the chances are all in favor of its being a cow. But," the student continued, "I am just now going into practice and if you placed me in a similar situation in medicine and asked that question I wouldn't have any idea of the answer." Thus, a "common complaint" among students is lack of familiarity with "common complaints."

Another field in which students find themselves at a loss is in that of growth and development and in the behavior problems of children.

Question: How can internship training be improved?

No one will deny for a moment that the internship should be an educational experience and not a service for the hospital. The chief difficulty with our internships—I am speaking now of rotating internships—is that the amount of time allotted to pediatrics on the rotating internships is far less than it should be. As an illustration, one state board allocated 2 weeks to pediatrics and 8 weeks to laboratory service. Anyone who practices today knows that this is a totally disproportionate allotment of time, in terms of the relative importance of these 2 experiences to the practitioner. I am happy to say that in this particular instance the ruling has now been changed, although they are still assigned equal periods of time.

Well baby care is a field in which many rotating interns receive no training. Further, in view of the shift in the type of pediatric practice which has been taking place in recent years, namely, the great increase in ambulant care, our rotating interns do not get enough experience in the outpatient department.

The question has been raised as to whether 2 years of residency training is sufficient to properly prepare pediatricians.

The answer, it seems to me, lies almost entirely in what you are trying to accomplish. If pediatrics is to be a highly specialized subject, if pediatricians are to be, in the main, consultants, as has been largely true in Great Britain in the past, then I would say the answer is "No, two years is not enough." If however, you look on pediatrics as more or less general practice applied to an age group, then it is my opinion, that 2 years is sufficient. Please understand, I do not mean that this amount of training is sufficient for the man who plans to teach, or for the man who hopes to become primarily a consultant, or for the man who is going in some specialized field or into research. The 2 years of residency required by the Board of Pediatrics is regarded as the minimum necessary for the practice of satisfactory pediatrics; others can take more time and a large proportion of them do take more than 2 years of residency training.

Question: What is the role of the graduate school in pediatric training?

Personally I do not feel that the graduate school should be looked upon as a substitute for residency training. It should rather be considered as a supplement to residency training, because by the nature of the system under which graduate education is set up in most graduate schools of medicine, it is not possible to give the students responsibility for the care of patients. If they do
not have this responsibility, then the whole experience is totally different and should not be used to supplant residency training. The graduate school undoubtedly has a real place; it is especially useful for those who have had poor basic training. For a large percentage of foreign students whose basic training has either been different from ours or not as good as ours, the graduate school offers a method that is probably superior to an equal period of time spent in residency training.

Question: Has the plan of rotating residents from teaching services and pediatric centers to outlying hospitals been successful?

Dr. Cline has touched on this problem and his experience is undoubtedly wider than mine. I can say from what little experience we have had with it ourselves, that it is an effective method of widening the experience of the resident, particularly when the rotation is from a highly organized teaching center to the small rural hospital with a good staff. I personally would be inclined to think that the amount of time which Dr. Cline feels should be included in the rotation is too long. If speaking in terms of 2 years of residency training, 6 months seems to me to be much too long to spend on the affiliated service. Our own residents feel that 2 months is ample.

Dr. Coe: One of the main objectives of our Academy is better care for children. Today we are concerned particularly with the place of education in that better care, and it is my assignment to direct our attention to the surgical aspects of that education. Children's surgery has progressed markedly and become increasingly complex from the not too distant past when it was often thought to be concerned mainly with circumcisions and the removal of tonsils and adenoids, to the present time with our intricate procedures which are saving many children who were formerly doomed. We may well ask whether education has kept pace with that progress.

Should better surgical care for children be developed in relation to pediatrics or to surgery? In which department in medical schools should it be developed? What about those practitioners who have passed beyond their undergraduate days? Should the subject be called "surgical pediatrics" or "pediatric surgery"? Would it not be better to correlate it with the child as a whole and speak of the "surgery of an evolutionary period"? Is there any real necessity or demand for improvement in this aspect of better care for children? Such questions are being asked with increasing frequency.

Let us consider the last question. There is very little demand from surgeons, from surgical departments of medical schools, or from surgical organizations, for the development of the subspecialty of children's surgery or for surgical training directed particularly at the requirements of this age period. There is, by contrast, a constantly mounting demand for such training from the practicing pediatrician who is in daily contact with the average children's surgery throughout the country. The demand comes also from the professional and nursing staffs of hospitals and from internes and residents. Internes and residents too frequently have seriously inadequate knowledge of surgical conditions in infants and children, neonatal emergencies, time of election for surgery, preoperative and postoperative care and medication, possibilities and prognosis of surgical treatment, technical problems, the gentle pediatric approach to the patient, the highly important tactful and sympathetic handling of parents. I believe we can say that there is a definite necessity and demand for better education.

Where the subject is placed in the curriculum and what it is called is largely an academic question to be determined locally. There will be found, however, a rather definite resistance on the part of many surgeons to the development of more surgical specialties, the "splitting off of more segments from general surgery," but such narrow personal prejudice should not be permitted to interfere with the development of better surgical care for children.

What about the general surgeon and the general practitioner?

The Academy study of child care indicated that at least 75% of children are cared for by the general practitioner and I believe it is a conservative estimate that 80% of the surgery on infants and children is done by the general surgeon and the general practitioner. What is their training? Largely experience—an excellent school in many respects but a costly one. They are often unfamiliar with the advances of technics which are so rapidly developing; their honest opinions are most diverse; and they are usually even more eager for information and education than are the internes and residents.

With these problems of education in mind, what constructive suggestions can be made?

In my opinion our Academy with its diverse membership including educators, practicing pediatricians, surgeons, and employes of governmental agencies, is in a unique position to initiate
and correlate activities for improving the care of children by improving education. To obtain the best and most immediate results this should be carried on simultaneously at the undergraduate, intern-resident, and postgraduate levels. I realize that for many reasons this will be extremely difficult but the following suggestions are presented for your serious consideration:

At the undergraduate level it is suggested that as a minimum there be specific instruction by qualified persons on (1) the basic principles of the surgery of infancy and childhood, stressing the characteristics of this period, (2) the technical variations from the patterns of adult surgery and (3) the surgery of the congenital defects.

At the intern-resident level the instruction should be not simply in the operating rooms but in all departments of the hospital—clinical laboratory, bedside teaching, outpatient department, etc., and should be directed by those individuals best qualified for that assignment. Such training should be carried on in any hospital approved for intern training but should be required in those approved for surgical residencies.

At the postgraduate level every effort should be made to reach the practicing portion of the profession. Formal postgraduate courses should always include some subject relating to the surgery of infancy and childhood just as definitely and routinely as those relating to the malignancies of the older age groups. Teams should be organized to present the current and newer concepts of children's surgery before county societies reaching those practitioners who are unable to travel to centers of education for refresher courses. As individuals we should publish appropriate articles in the medical literature, and address smaller groups, such as hospital staff meetings and special societies as often as possible.

By way of a summary, may I suggest a definite coordinated course of action which the Academy can perhaps sponsor and which might be called a "seven point program."

1. Through our Committee on Medical Education we should request appropriate training at the undergraduate level.
2. Through our Committee on Medical Education we should develop departments or subdivisions of children's surgery in medical schools. (I am happy to say that in several medical schools this is now being done.)
3. As individual members make it our responsibility to request the development of departments of children's surgery in the larger hospitals in which we work.
4. Suggest and recommend rotating general internships through children's hospitals whenever they are available. I know that internships are crowded, but wherever a children's hospital is available it will be a valuable addition to a general internship.
5. Request the American Board of Surgery to include questions on children's surgery and to notify candidates that such questions may be included. This can be done through our Section on Surgery, as one of our members is on the American Board.
6. Urge the American Board of Surgery to include in its eligibility requirements a period in a children's hospital when such a hospital is available.
7. Request the Joint Commission on Accreditation of Hospitals to note facilities for the surgical care of infants and children.

**DISCUSSION**

**Dr. Edward S. O'Keefe, Lynn, Mass.:** I have noted an error in the title of this morning's panel discussion. Instead of the "Academy Looks at Pediatric Education" that title should read "Pediatric Education Looks at the Academy."

Before I go any further I would like to say that I have no prejudice against teachers. My father was a teacher, my brother and one of my sons are teachers; I, too, have been a teacher.

Now what are the functions of a teacher? Obviously 2 of the most important are research and teaching the students.

How well qualified are the present day teachers to perform these functions? We can dismiss the first category with a word "They are well qualified." Let us consider the second category—in the medical field, teaching the students means teaching them to practice medicine. To practice medicine where? In the hospital and/or in private practice? The answer is, they practice in both places. Since the majority of students will ultimately enter private practice this last category is the more important.
Are our present teachers well qualified to teach the students how to conduct their work outside the hospital? Since the majority of full time teachers of today do not and, moreover, have never practiced medicine outside of a hospital I believe the answer is no.

What is the remedy? It seems to me that an important qualification for teaching is at least 3 years' experience in private practice in the specialty in which the man expects to teach. A good way to attain this important goal would be to require such an experience in private practice as one of the qualifications for certification in any of the specialties or in general practice. A man can't very well teach students how to do something which he himself has never done.

The man in private practice must be reinstated in the teaching programme of our schools and teaching hospitals.
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