defining "rural" according to the United States census as those communities having less than 10,000 inhabitants. The basis of my figures is the directory (1914) of the American Medical Association. The results of the study are enumerated in the appended tables. I have arranged in Table 1 the number of physicians practicing in each county in Maryland (the four cities of Baltimore, Frederick, Cumberland and Hagerstown omitted), and have subdivided them according to whether they graduated from the Hopkins or from one of the other three Class A schools, the University of Maryland School of Medicine, the College of Physicians and Surgeons, and the Baltimore Medical College. It will be noted that in spite of the fact that the Johns Hopkins Medical School is situated in Maryland, there are only four of its graduates practicing in rural Maryland, while there are 350 graduates of the University of Maryland School of Medicine, eighty-eight graduates of the College of Physicians and Surgeons and fifty-nine graduates of the Bal-

TABLE 2.—PHYSICIANS IN RURAL MARYLAND (1914)
Graduated since 1896

Counties of Maryland	Graduates of				
	University of Maryland School of Medicine	College of Physicians and Surgeons	Baltimore Medical College	Johns Hopkins Medical School	All Other Medical Colleges in United States
Allegany.....	3	0	0	0	4
Anne Arundel.....	12	2	1	1	6
Baltimore.....	23	4	7	0	11
Calvert.....	2	1	1	0	1
Caroline.....	7	1	0	0	1
Cecil.....	7	1	1	0	3
Carroll.....	11	0	1	1	5
Charles.....	4	0	1	0	1
Dorchester.....	8	2	1	0	4
Frederick.....	13	0	5	0	5
Garrett.....	5	0	0	0	5
Harford.....	9	1	0	0	4
Howard.....	4	2	1	0	0
Kent.....	0	2	2	0	3
Montgomery.....	4	1	0	0	8
Prince Georges.....	5	1	0	0	9
Queen Annes.....	4	1	2	0	0
St. Marys.....	1	0	1	0	3
Somerset.....	5	0	1	1	4
Talbot.....	5	1	1	1	2
Washington.....	0	1	3	0	4
Wicomico.....	4	0	2	0	8
Worcester.....	4	3	0	0	6
Total.....	140	24	31	4	97

Hopkins graduates (1897-1913).....	965; in rural Maryland.....	4
U. of M. graduates (1897-1913).....	1,225; in rural Maryland.....	140
P. & S. graduates (1897-1913).....	1,029; in rural Maryland.....	24
B. M. C. graduates (1897-1913).....	1,330; in rural Maryland.....	31

Graduates: U. of M., P. & S., B. M. C. (combined).....	1905	1915
Freshmen: U. of M., P. & S., B. M. C. (combined).....	249	128
	263	44

timore Medical College who are practicing medicine in the Maryland counties.

Table 2 is perhaps more illuminating, as it shows those graduating from these four schools since 1897, the year in which the Johns Hopkins graduated its first class. As will be noted, in the sixteen years from 1897 to 1913, inclusive, the Johns Hopkins Medical School graduated 965 men, of whom only four are practicing medicine in rural Maryland. During exactly the same period the University of Maryland School of Medicine graduated 1,225, 140 of whom are practicing medicine in Maryland outside of the cities.

I believe that these figures justify my belief that the graduates of a school like the Johns Hopkins will only exceptionally settle in the country, and that if we want physicians who will practice in the country, we must make the premedical requirements less exacting in time, although perhaps they may be raised somewhat

along certain lines above today's standard, and any increases in the requirements must be made slowly and gradually and only after most careful study of all possible consequences.

It may be noted that in the Carnegie report, in 1909 there were seven medical schools in Baltimore, one Class A plus school, the Johns Hopkins Medical School; three Class A schools, the University of Maryland School of Medicine, the College of Physicians and Surgeons and the Baltimore Medical College. The other three schools were not in Class A, and ceased to exist some years ago. Today there are only two medical schools in Baltimore, the Johns Hopkins Medical School, and the other three Class A schools merged into one under the name of the "University of Maryland School of Medicine and College of Physicians and Surgeons." The decrease in medical graduates in this state is well shown by the fact that the merged schools mentioned above graduated 249 in 1905, while in 1915 they graduated 128. A more accurate prophecy can be made by comparing the freshmen classes of these combined schools, there having been 263 freshmen in 1905 and only forty-four in 1915.

A growing country cannot be supplied by a diminishing output of medical practitioners. We are facing a real and dangerous shortage. This will become manifest when the present small classes are graduated, and the need will be emphasized by the large number of physicians required for an enlarged army and navy, and the putting into force of the whole-time county health officer advocated today by many authorities on public health.

I do not present this paper as an argument for lowering standards, but simply as a study of local conditions, with the hope that progress in regulating medical training will be done thoughtfully. As President Pritchett of the Carnegie Foundation says, "Furthermore, let us not forget in our zeal for research that the principal function of the medical school is the training of medical practitioners."

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SOME FURTHER DEVELOPMENTS IN A PEDIATRIC DEPARTMENT OF A UNIVERSITY MEDICAL SCHOOL *

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The history of the growth of pediatrics in this country is an interesting one, starting as the subject did as a subdivision in medicine, and developing gradually until in many medical centers it is now accredited as a separate department, and offers in many schools positions for full time teachers of pediatrics parallel with positions in medicine and surgery. Its growth from a purely academic standpoint is of considerable interest and importance. At first the field of pediatrics was limited mainly to that of infant feeding, and growth along this line has probably been greater and more efficient than in any of the other subjects in pediatrics. In almost every university medical school the subject of infant feeding has been developed

* Revision of papers read before the Section on Preventive Medicine and Public Health, at the Seventh Pan-American Medical Congress, June 19, 1915, and before the American School Hygiene Association, June 25, 1915, San Francisco.

soundly and broadly, not only in the laboratory, in the hospital and the outpatient department, but also in connection with milk stations and follow-up work. This growth has been rapid and gratifying to all those who have had an opportunity to follow the development in its entirety, and such a growth should set the standard for the development of the other legitimate fields in pediatrics, for it is only by the unification of laboratory, hospital and social factors that any of the problems of child welfare can be worked out satisfactorily. The medical schools, even in this field, have differed in the emphasis put on these three lines of development. In some schools the purely teaching phase has predominated, while others have dwelt largely on research work in infant metabolism, and again, the social work has lagged far behind. But from the field of pediatrics as a whole, certain high standards have emerged along all lines, and not the least of these is the child welfare social work as it is being carried on by the New York Milk Committee and by the pediatric departments of Harvard and Western Reserve universities.

The emphasis on infant feeding and the splendid development of the early problems of nutrition have led, at length, to a study of the periods of early and late childhood, and to the importance of dietetics in the prevention and treatment of disease during those periods of child life. It is just here that the pediatric department needs a close relation with the department of nutrition and dietetics in the university. It is a difficult matter in a large clinic to work out individual dietaries for patients, but with the assistance of trained dietitians and graduate students in dietetics, it is possible in a hospital outpatient department to obtain more rapid and satisfactory results. The pediatric department, on the other hand, offers to the department of nutrition a practical laboratory, so to speak, filled with concrete problems, and thereby lends an immediate focus to the class-room work in dietetics, and adds a field for practical experience.

The familiarity with development and growth and the studies in these subjects are constantly opening newer and wider fields for investigation and teaching. The realization of the relation of internal gland secretion to physical and mental development indicates that great progress in this field is to be expected. Recent studies in this field indicate many lines for research work which must be the ground work for future conclusions, and which necessarily carry a purely medical department into fields better developed at present in academic departments. The importance of an early recognition of mental defectiveness or the early origin of mental disturbances arising during the period of adolescence demand a broader and more comprehensive handling of the subject than most medical schools are today prepared to give, owing to the fact that few medical men have had a sufficiently wide training in psychology. The academic department of psychology is prepared to give most valuable assistance to the subject of pediatrics. The abnormal psychology of the child and its physical manifestations and retardations are a part of the pediatric field which needs the affiliation with the field of psychology. The outpatient department is constantly offering material for such united study.

The mentally defective child or the mentally retarded child is the reason, furthermore, for a certain line of development in medical social service which has spread

rapidly throughout the country. The juvenile delinquent has brought into existence the juvenile court, and the juvenile court recognized almost immediately that any service it might render the child must be based on the medical and psychologic study of the case; and the psychologic study does not end with the mental grading of the child. To stop there forces the court to act on incomplete data. The psychologist must study the possibilities and potentialities of the child, and be able as far as it is possible to interpret futurities in mental processes.

The further development of medical social work points very clearly to a close relation between the medical field and the academic department of social economics. The whole modern trend of medicine is toward a vital part in social and economic fields, and the progress of medicine in those fields calls for a sound basis of development; this means that the workers going into this field must be thoroughly trained from the medical standpoint as well as that of social economics. Unless such work is standardized and put on a higher plane, the splendid field of medical social service may be delayed and limited in its development. To avoid this the direction of the medical social service department might come directly under the supervision and guidance of the head of the department of social economics in the university, and this contact would bring before the heads of such departments the larger opportunities at their disposal for the training of their students. Such a plan is in operation now with the department of social economics in the University of California, and the director of social service in the pediatric department of the medical school is not only a graduate in medicine but is also connected with the department of social economics, thus uniting the two departments and offering to the advanced students in the academic as well as the medical department an opportunity to do field work as part of their social economic training. This scheme of interrelationship ought eventually to produce workers with a good foundation not only from a medical standpoint but also from that of academic social economics.

The department of education is another natural point of contact with the pediatric department, as a large field of educational problems depends on the mental potentialities of fairly large groups of children now attending public schools, and the modern field of education has widened to include all children, normal and abnormal, and a hospital school for defectives would offer invaluable practice work for the department of education. The special pediatric clinic for speech defects among children offers still further opportunities for teachers in training in the department of education.

The department of physical culture, occupying so large a place in all university life, would gain much in wider opportunities for the student by an interrelationship with the pediatric department, and would give much to the development of that department's physical corrective field.

Thus far the pediatric department of the University of California Medical School has established a close relationship with three academic departments of the university; a trained psychologist is a member of the pediatric staff and at the same time holds a position in the department of psychology, the department of social economics, already referred to, and the department of nutrition and dietetics. The usefulness of

these departments has been mutually broadened, and the work of educating the necessary workers for these fields has been put on a stronger basis.

The development of pediatrics has brought other more obvious relationships with the large community problems. Work in the contagious diseases and many of the infections, which are more often encountered in infancy and childhood than in later years, is receiving attention from the teaching standpoint as well as from that of research, which is necessary for healthy growth in any line. This growth is not nearly so advanced as it is along the lines of infant nutrition and development. However, with such work as the Rockefeller Institute and Hospital have contributed to these subjects in the control of meningitis and the study of infantile paralysis and pneumonia, as well as the brilliant results obtained by the use of antitoxin and vaccination, growth along these lines has taken on a much broader aspect. To study these types of infectious diseases connection can be made between pediatric departments and local and state boards of health which are in constant touch with the larger community problems. It is only by a close cooperation of hospital and laboratory with medical school inspection and boards of health, both local and state, that these larger questions of control of infection are going to be satisfactorily solved. It is, therefore, fitting that a state institution should interest itself in these larger problems relating to child welfare, a responsibility and duty which is inadequately met at present. The need for and advantage of cooperation between pediatric departments and all public and quasipublic institutions dealing with the problems of infancy and childhood has already been demonstrated in many centers. There is hardly a large or well organized department of pediatrics which is not sought after for advice by children's institutions either for regular medical supervision or at least in times of sickness.

The advantage of such relations with a department of pediatrics, rather than with individual physicians, stands out clearly to all who deal with either side of this question. It gives the institution seeking aid uniform medical supervision and the advantages of laboratory and hospital equipment, which from individual physicians can be obtained only in an often unsatisfactory way or to a limited extent. Such institutions as infant shelters or homes for orphans or destitute children and children's charitable associations, by having a definite connection with a pediatric department, not only have the advantage of the usual medical inspection, but should also have the advantages of all the other lines of activity controlled by the department, such as social service, investigation of children before admission to the institution, continuous medical supervision and psychologic examinations.

A point of contact which very few pediatric departments have made, and one which is of importance, especially in a state university, is with the juvenile court, state reformatories for juvenile offenders and state homes for feeble-minded children. This side of pediatric studies has been so far neglected by most American pediatricians. As for the teaching of borderline psychopathic conditions and mental defectiveness, very few of even our first class medical schools today offer any satisfactory course in these subjects, and as a result there are few investigators along this or any of these allied subjects.

The intimate connection between the problems of the defective child, the home and the school, as well as the problems of delinquency and economic efficiency, all combine to make a most attractive and important field for investigation. To carry on such work satisfactorily, a pediatric department should have a definite connection with institutions, city and state, which handle defective and delinquent children, such as the city schools for backward children, the state homes for the feeble-minded and the juvenile court. The pediatric department of the University of California Medical School has established a close affiliation with the juvenile court, where all cases of dependency and delinquency receive not only a physical examination but also a mental examination on the basis of which a court report and recommendations are made. Only by such close connections can these problems be worked out satisfactorily both for the individual and for the state.

An even wider application of this work can be carried out by connection with our school boards, making composite studies of various schools where the problem of the backward child or of children who present various educational problems arise. Such a problem as that of children coming from the immigrant class is especially important not only from a psychologic standpoint but also in the working out of a better school curriculum on a broader psychologic and educational basis. Such studies are at the present time being carried on through a cooperative scheme between the board of education, the department of medical school inspection and the pediatric department of the University of California Medical School. A report of some of these studies will be made later, but their importance will be evident to any one who has a realization of this field of child welfare work.

Further points of contact between a pediatric department and the larger problems of childhood would be a more intimate connection with the recreational and vocational problems which are now being studied in all progressive communities. Unless the medical educational centers take an interest and cooperate in such fields of progressive endeavor, our development will necessarily be more or less one sided. Of course in a pediatric department, teaching students the development as well as the diseases of infancy and childhood is first and most fundamental; but no pediatric department should feel satisfied to stop in its growth by simply developing its teaching and research work. The larger community problems should be taken up as one part of our complete growth.

Therefore, it is incumbent on medical schools to offer just as wide and practical a field to their students as possible, and for the future physician, the broader the contact with concrete problems during his period of training, the sooner will he be able to make his own definite contribution to medical life as he in turn meets it in the home, school, hospital and community. For the physician today who goes out of our medical schools without realizing some of the broader applications and fields of usefulness now open to medicine is not only incompletely informed as to the modern trend of medicine, but is also handicapping the advance of medicine as one of the great educational and social factors in the development and betterment of our race and humanity.

Proof of Talent.—It is a great proof of talents to be able to recall the mind from the senses, and to separate thought from habit.—Cicero.