fermentation or swallowed atmospheric air. But there are reasons for believing that these two causes are not responsible for all cases of gas in the stomach, especially in cases of acute dilatation of the stomach and certain cases in which belching is associated with hyperacidity. In this connection it is entirely credible that gases might be secreted by the wall of the stomach. From our observations it would seem clear that gas can both be secreted and absorbed by the alimentary tract under physiologic conditions, and since pathologic processes, in general, may be regarded as merely disproportionate physiology, it is not unreasonable to suppose that under pathologic conditions the secretion of carbon dioxide into the stomach might become excessive. Granting this, why should not a clinical differentiation be made between distention due to this cause and that due to causes already recognized, and logical treatment prescribed for each. Finally, if gases may pass to the alimentary mucosa from the blood, should not alimentary respiration, as well as pulmonary respiration, be taken into account in the course of studies in which stress is laid on blood gas determinations, especially those touching such questions as shock?

An experimental study has been undertaken looking to the answer of these questions, and we studied particularly the condition known as acute dilatation of the stomach, the cardinal symptoms of which are rapid, even sudden enlargement of the stomach which becomes filled with fluid and gas, associated with vomiting and collapse, often ending in death. Most cases have occurred after surgical operation performed under chloroform anesthesia; some have followed anesthesia alone, while others have occurred in the course of pneumonia or other infectious diseases. Still others have followed injuries without anesthesia, and a very few have occurred suddenly in apparently well people. Interpreting the fluid contents as equivalent to glenial fluid and gas, an attempt has been made to produce the picture of acute dilatation in all its essentials, in animals, by methods which might be expected to cause edema of the stomach. Procedures similar to those used by Fischer on the kidney have been used. The theory which is offered for acute dilatation of the stomach is that it is an asphyxia of the stomach with the acidity which this implies, causing an edema; that the stomach contents are a mixture of exudate and gastric juice, and that the gas comes from the stomach walls.

DISCUSSION

DR. C. F. HOOVER, (Cleveland): As these gases were taken from the stomach immediately after death, in the experiments, could not the gas found be from the blood itself, or a secretory function analogous to the change in the pulmonary system?

DR. R. T. WOODYATT: The percentage of gas is so much higher than that of the blood (24 per cent.) that it would be like having water flow up hill.

DR. C. F. HOOVER: I saw a case in which the stomach was seen to dilate during a pelvic operation. I would ascribe this to muscular inactivity, an inhibition; it could not have been a passive distention. It is not an active distention from the accumulation of gas in the stomach, but rather an extreme relaxation of the stomach. I would be inclined to look on what has been described as an acute dilatation as an attending circumstance rather than the result.

The Fundamental Factors in Cardiac Conditions

DR. PAUL G. WOOLLEY, Cincinnati: To take the heart out of its vascular connection—the system to which it belongs—and treat it as an independent organ, is to take a serious liberty, and this liberty is excusable only if it is remembered always that the heart is not a separate organ but really a series of chambers that have developed by dilatation of a certain part of the vascular system. Pathologic changes in the heart are the result of processes which affect the muscles, the valves, the conduction or nervous system. Leaving out of consideration the developmental defects, the conditions of the chambers of the heart are the results of the amount of blood they must receive, this depending on the condition in the peripheral vessels and in the blood itself—caliber of the vessels, elasticity, viscosity, resistance—and on the condition

of the valve-efficiency; and on the amount of blood they contain, which latter depends on the condition of the musculature. The processes known as degeneration and inflammation occur under mechanical and chemical insults, two series of processes which, while they have much in common, are primarily entirely different, and both of which are confused with atrophy. The same looseness of terms occurs as in the case of renal diseases. It is rarely, if ever, justifiable to speak of any other than an interstitial myocarditis, which may have an acute or chronic character. Other conditions, classed now with the inflammations and involving the myocardium, should be called myocardial degeneration. A heart that has suffered considerable fibrosis because of strain is often said to be the seat of a chronic interstitial myocarditis; but it is a heart of compensatory fibrosis.

Leaving aside tumors and anomalies, there are two processes that are at the base of all cardiac lesions, inflammation and degeneration, these resulting from either mechanical or chemical causes. Either alone or in combination, inflammatory and degenerative changes are able to produce certain states of the heart as a whole which are called hypertrophy, atrophy, myocarditis, valvular stenosis, valvular insufficiency, aneurysm, rupture, etc. Extrinsic factors operating through the vagus or sympathetic nerves produce physicochemical changes in the myocardium and in the muscle cells of the bundle of His which cannot be distinguished with the eye or other optical apparatus, but which lead to various clinical effects. Only the most careful analysis of symptoms will make it possible to determine the character of what is always a vicious circle in cardiac diseases, and to interrupt this circle at the proper point.

Treatment of Hemorrhagic Conditions with Normal Human Blood Serum

DR. LOUIS A. LEVISON, Toledo: The serum treatment has been practically specific in the hands of all who have tried it. It stops hemorrhage, thus saving life in a class of patients whose mortality under all other classes of treatment reached 90 per cent. Human serum has distinct advantages over horse or other animal serums. It never causes toxic or anaphylactic symptoms in any dosage. The use of the serum is also preferable to the whole blood, which has been advocated. The blood-serum can be obtained from any healthy individual. The blood is allowed to clot and the serum is ready for use. The average dosage is 10 c.c., repeated as often as is necessary to stop the hemorrhage. Besides its value in stopping hemorrhage, the serum is a perfect food which is invaluable to undernourished children.

(To be continued)

AMERICAN ACADEMY OF MEDICINE

CONFERENCE ON CONSERVATION OF SCHOOL CHILDREN

Held at Lehigh University, South Bethlehem, Pa., April 3-4, 1912

The President, DR. ALEXANDER R. CRAIG, Chicago, in the Chair

How Far Shall the Public School System Care for the Feeble-Minded?

MR. ANDREW W. EDSON, New York City: The feeble-minded children who should be in attendance at the public schools are those who, while below par in mental acumen, are susceptible of intellectual growth. All others are institutional cases. Suitable classrooms in regular school buildings should be secured for such children. The classes should be small to permit of individual training. Specially qualified teachers should be selected. The course of study should lead to some vocation, and should include physical and manual training. The skilled teacher and the skilled physician should work side by side.

MR. J. H. VAN SICKLE, Springfield, Mass.: State supervision over feeble-minded boys should begin before the development of criminal tendencies. To prevent the marriage of feeble-minded girls and shield them from temptations is an obvious duty and one which the state can perform more effectively and at less expense than the local community. For

a number of years these boys and girls may be grouped in special classes and taught in public schools. In border-line cases several years may pass before it can be determined whether a child is feeble-minded or merely backward; hence the value of the special class in the public school. Except in the exceedingly small number of instances in which feeble-minded children have good homes, local communities cannot safely retain them beyond the age of adolescence. The public school can render its best service by teaching the feeble-minded such elements of simple industry as will render them most nearly self-supporting on entering the custodial home.

DR. E. BOSWORTH MCCREADY, Pittsburgh: The public school is not the proper place for the education of the feeble-minded child. Careful examination should be made of all children when first entering school. Those found to be feeble-minded should be excluded and segregated in institutions. Doubtful cases and children backward in their development should, after the correction of physical defects, faulty environment, etc., receive the necessary training in special classes and be under the observation of physicians especially trained in this sort of work.

DISCUSSION

DR. WILLIAM G. SCHAUFFLER, Lakewood, N. J.: While I agree as to the need of segregation of feeble-minded children, the parents have just as much right to say what shall be done with these children as has the physician or educator. The first thing to do is to find out who these children are and then do the best we can under the circumstances. The law in New Jersey requires that children three years behind the normal must be provided for in special classes not to exceed fifteen. The feeble-minded, merely backward and the physically disabled are looked after separately when found to have been more than three years in one grade.

MISS JOHNSON, New York: Until we can get proper institutions for these children we must do something for them in the schools. The social service side of the public school work is very valuable. Let us have paid social workers. The only way by which we can hope to place children where they belong is to get the parents' good-will. The social worker can do that when the teacher will fail.

DR. W. G. SCHAUFFLER, Lakewood, N. J.: I feel that we might go a step further and make it compulsory to report every case of feeble-mindedness coming under observation. Legislatures should give the right to segregate these people who are the greatest social menace of the age to-day.

Child Labor Versus the Conservation of School Children

MR. OWEN R. LOVEJOY, New York: We must take a higher ground in relation to the care and training of children. We must apply the same scrutinizing attention to this human product that manufacturers and merchants are applying to specialized methods of securing business efficiency. I venture to predict that we shall recognize that the child is so truly an asset of the state that during his entire period of minority the state will claim supervision of his care, physical training and educational opportunities. The relation of parent to child will not be less than now, but more.

TEACHING HYGIENE IN PUBLIC SCHOOLS

What Should Be Taught?

DR. SENECA EGBERT, Philadelphia: We should first have the pupils know their bodies, and to realize that no one may reasonably hope for excellence in living if the spiritual, mental or physical personality is neglected. The development suggested involves a working knowledge of human anatomy and physiology, and the need of teachers competent to give such instruction who have a real enthusiasm for the subject. Instruction of the very young may be given by the inculcation of comparatively few and simple truths and by directing them to good examples for practice and imitation. A beginning may be made with the nature studies, leading almost unconsciously to the proper appreciation of sex hygiene. Because of the large number leaving school at 14 a course in hygiene, including as many of its subdivisions as can be comprehended, should be made a part of the schedule for the

grammar school. Such a course should appeal strongly to the pupil's personal consciousness and sense of self-profit in the higher sense. For the high school I would enlarge the course until it involves an extensive scope of the general subject, and until the altruistic appreciation of it supplanted the egoistic and it was actually apprehended as being, in truth, the science of public health. A great need for the accomplishment of the work is competent teachers.

The Teacher's Point of View

DR. PERCY HUGHES, South Bethlehem: What should be taught is, in the first place, an ideal of complete living, realized as far as may be under the conditions of the school-room. During the first six years of school life hygiene should be taught as incidental to the art of doing and living efficiently, of obtaining those scholastic and social aims which a true school life makes prominent. In the seventh or eighth grade, at the dawn of adolescence, the rules of health, and some of the most evident data of physiology may be summarized, with special reference not so much to the child himself as to the social and civic life of the community into which he must now feel he is entering. There seems to be every reason why in the high school something of both physiology and hygiene should be taught; and doubtless the hygiene should rest more directly on physiology, but the considerations which vary in every school will determine how the instruction shall be given. To bring the whole school life to bear in the formation of hygienic habits and ideals of living requires a teacher of at least a good high-school training supplemented by a normal-school course in which much of the work has been brought directly to bear on just this purpose.

DISCUSSION

MR. F. D. RAUB, Allentown, Pa.: If in the schools the pupils can be imbued with the importance of maintaining a certain manner of life conducive to good health, much will be accomplished toward making the child a useful member of the community. In the primary grades some of the features introduced are care of the body, the kind of food necessary, the use of the special senses and the care of certain sense organs. In the grammar grades more of technical detail can be presented, bearing in mind always the necessity of inculcating good health habits. Instruction should be given concerning the different organs of the body, including a general knowledge of their structure and functions.

DR. M. P. E. GROSZMANN, Plainfield, N. J.: This coordination of the physical care and the training in proper hygienic habits which reflect on the mental and moral attitude is of extreme importance.

DR. HELEN C. PUTNAM, Providence, R. I.: It does no good to talk about hygiene in educational institutions under unhygienic conditions. Our public schools and colleges, and universities to some extent, are hotbeds of tuberculosis. The tuberculosis death-rate among teachers is higher than in any other profession.

DR. J. K. WEAVER, Norristown: The lack of practical knowledge on the part of teachers is a grave fault in our teaching of hygiene in schools.

Methods in Vogue

MR. W. S. STEELE, Harrisburg, Pa.: If we can bring boys and girls to see that physical exercise is necessary in order to keep their arteries from hardening, that overstraining the heart is not good physical exercise, that to eat and drink too much is simply to overwork the organs of elimination and thus bring on various ills, we are not only making them more efficient engines in the great factory of life, but we are creating an agreeable disposition and may, perhaps, prepare a better field than we realize for the dropping of spiritual seed.

Improvements Suggested

MR. LOUIS NUSBAUM, Philadelphia: The most vital factor in the teaching of hygiene is the teacher. She must, in no ordinary degree, have faith and enthusiasm in her work. So far as school life permits, she must be the exemplification of her teaching. If we will relate our teaching to the child's

daily acts so that he will breathe correctly, take proper kind and amount of exercise, sleep at reasonable hours, and in a well-ventilated room; so that his body and clothing will always be clean; if we can persuade him to be temperate and modest in all things, we shall be giving a kind of training which will result, not only in personal health and happiness, but ultimately in increased health, happiness and efficiency and an improved morality of the entire community.

How Should Hygiene Be Taught?

DR. JAMES S. GRIM, Kutztown, Pa.: The average training-teacher in this work is ready to proceed toward better things when the medical profession and superintendents of schools create a sentiment for a different type of examiner, a man who puts health first and anatomic details second. Microscopic minutiae as an end will part company with interest unless the teacher is not only unusually strong but a trained biologist as well. An examination on hygiene of a prospective teacher should in some way include the bodily habits of the applicant, the carriage, the vitality, the sanitary ideals actualized in practice. We have been spending too much time on the human mechanism and too little time on the child's environment. If children see how and where the house-fly breeds and what it does they will soon be interested in its extermination.

Teaching Hygiene for Better Parenthood

DR. THOMAS D. WOOD, New York: The teaching of hygiene can further no interest so important as that which relates to parenthood. For practical eugenics it is essential that the romantic, the affectional basis of marriage should be preserved, but the sentimental and emotional elements should be supported and guided by intelligent appreciation of all the factors necessary for parenthood which will protect the biologic values. This can be accomplished only by the development of controlling ideals which are supported by reason, intelligence, ethical impulse and religious motive. The most natural and logical teacher of sex and parenthood to the child is the parent. Class-room or group instruction with reference to direct human sex teaching in the public school cannot be given until: (a) enlightened public opinion recognizes sufficiently the necessity for such instruction, and exhibits confidence in the ability of the teachers to give the instruction needed; (b) teachers are intelligent, wise and tactful enough to give such instruction and guidance successfully. Comparatively few teachers to-day are capable of meeting the obligations involved in sex education. Such instruction should be given in universities, colleges, normal and private schools. The basis of successful sex teaching is companionship and confidence between the child and the parent. When class or group instruction is to be given to adolescents, it is important that the primary emphasis should be given to the presentation of facts and values, biologic, hygienic, sociologic, ethical and economic. More important than the knowledge of sex hygiene are the motives which will control thought and action.

DR. HELEN C. PUTNAM, Providence, R. I.: Educators are finding that well-directed correlation of human life with phenomena of growing things in school gardens and nature studies develops a wholesome mental attitude. The strategic years for making education for parenthood most effective are from 16 to 24.

Indirect Methods of Teaching Hygiene

DR. C. E. EHINGER, West Chester, Pa.: The fact that athletic success depends largely on physical fitness must be the keynote of hygienic teaching among young people, and this will be both the opportunity and the means by which the physical director shall meet the needs of his charges. I believe it is possible for the modern physical trainer to create a veritable atmosphere of health that will far exceed in value the results of the ordinary direct method of learning mere facts. All aids which make their appeal through avenues of recognized interest with a minimum of emphasis with the utilitarian aspects deserve to be developed. It should be understood that this does not contemplate the doing away with direct or formal method.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: State Society and Homeopathic Examining Boards, Dover and Wilmington, June 18-20. Secretary of Medical Council, Dr. Henry W. Briggs, Wilmington.

ILLINOIS: State Armory, Springfield, June 13-15. Sec., Dr. James A. Egan.

IOWA: Capitol Building, Des Moines, June 13-15. Sec., Dr. Gullford H. Sumner, State House, Des Moines.

KENTUCKY: The Armory, Louisville, June 3-5. Sec., Dr. J. N. McCormack, Bowling Green.

LOUISIANA: Regular, Tulane University, New Orleans, May 30 to June 1. Sec., Dr. A. B. Brown, 108 Baronne Street.

MARYLAND: Regular, 1211 Cathedral Street, Baltimore, June 18. Sec., Dr. J. McP. Scott, 129 West Washington Street, Hagerstown; Homeopathic, St. Luke's Hospital, Baltimore, June 13-14. Sec., Dr. O. N. Duvall, 1326 North Mount Street, Baltimore.

MICHIGAN: Ann Arbor, June 11-13. Sec., Dr. B. D. Harrison, 504 Washington Arcade, Detroit.

MINNESOTA: State University, Minneapolis, June 4. Sec., Dr. Thomas S. McDavitt, Lowry Building, St. Paul.

MISSOURI: Gymnasium of the St. Louis University, St. Louis, June 24-26. Sec., Dr. Frank B. Miller, State House, Jefferson City.

NEW JERSEY: State Capitol, Trenton, June 18. Sec., Dr. H. G. Norton.

NEW YORK: June 25-28. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH CAROLINA: Hendersonville, June 11. Sec., Dr. Benjamin K. Hays, Oxford.

OHIO: Columbus, June 18-21. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Philadelphia, Pittsburgh and Harrisburg, June 24-27. Secretary of Bureau of Medical Education and Licensure, Nathan C. Schaeffer, Harrisburg.

SOUTH CAROLINA: Columbia, June 11. Sec., Dr. A. Earle Boozer, 1806 Hampton Street.

TEXAS: Austin, June 27-29. Sec., Dr. J. D. Mitchell, Fort Worth.

VIRGINIA: Richmond, June 18-21. Sec., Dr. R. S. Martin, Stuart.

WISCONSIN: Milwaukee, May 28-30. Sec., Dr. J. M. Boffel, 3200 Clybourn Street.

WYOMING: State Capitol, Senate Room, Cheyenne, June 12-14. Sec., Dr. A. B. Tonkin, Riverton.

Idaho April Report

Dr. O. J. Allen, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, April 2-4, 1912. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 26 of whom 15 passed and 11 failed. The following colleges were represented:

	PASSED	Year Grad.	Per Cent.
University of Colorado.....	(1911)		78
Northwestern Univ. Medical School.....	(1910) 75, 82;	(1911)	86, 85
College of Physicians and Surgeons, Chicago.....	(1904)		80
Kansas Medical College.....	(1903)		80
Tulane University of Louisiana.....	(1895)		78
University of Michigan, Dept. of Med. and Surg.....	(1910)		84
University of Minnesota, College of Med. and Surg.....	(1893)		80
Barnes Medical College.....	(1908)		76.7
Marion Sims-Beaumont Medical College.....	(1902)		75
Kansas City Medical College.....	(1897)		76.6
University of Buffalo.....	(1897)		78
Ohio-Miami Medical College.....	(1910)		84
FAILED			
Gross Medical College.....	(1899)		68
Chicago College of Medicine and Surgery.....	(1908)		70
Northwestern University Medical School.....	(1908)		74
State University of Iowa, Coll. of Med. (1896) 70;	(1898)		68.7
University of Kansas.....	(1912)		73.9
St. Louis College of Physicians and Surgeons.....	(1903)		60.7
Barnes Medical College.....	(1904)		69
Columbia University, College of Phys. and Surg.....	(1908)		73
University of Oregon.....	(1905)		56.6
Trinity Medical College, Toronto, Ontario.....	(1903)		71

The following questions were asked:

PATHOLOGY

1. Describe the morbid anatomy of arthritis deformans. 2. Describe varieties of bacteria. 3. Describe bacterins, serums and toxins. How are vaccines and serums prepared? 4. Describe gross and microscopic findings of lupus vulgaris. 5. Describe the gross and microscopic appearance of gummata. 6. State blood-findings and describe morbid anatomy in pernicious anemia. 7. What changes take place in arteriosclerosis? 8. Define thrombosis, embolism, infarct, septicemia, pyemia, sapremia. 9. Describe gross and microscopic findings in acute yellow atrophy of the liver. 10. Describe the morbid anatomy of bronchopneumonia.

CHEMISTRY AND TOXICOLOGY

1. Give formula for: (a) mercuric chloride; (b) mercurous chloride; (c) cupric nitrate; (d) zinc sulphate; (e) boric acid. 2. Define and give examples of the terms: "normal salts," "acid salts" and "basic salts." Give the chemical composition of physiologic "normal salt"