

which he regards as due to the changes in the climatic conditions, but this is not as yet securely established. His study of the height reveals some very interesting points. It is well known that we are longer when we lie down than when we stand up, and this difference may be as much as a centimetre. So, too, after a long walk, when the weight of the body has compressed all those parts that furnish room for contraction, the height is smaller. Twenty-two boys, thirteen to sixteen years old, were measured at different times of day. During the hours of leisure, from 6 to 8 A.M., a boy lost, on the average, 4 millimetres in height; while resting on the school-bench, from 8 to 9 o'clock, he gained .3 of a millimetre; during the instruction, from 9 to 10, he loses 1 millimetre; during the recess, from 10 to 11, the loss in height was 3 millimetres for each boy; from 11 to 12 during school-hours the body expands by 2 millimetres, but in the next hour in school loses .4 of a millimetre; in the leisure time from 1 to 5 o'clock the body loses 3 millimetres. In general, from 6 A.M. to 5 P.M. there is a loss of 9 millimetres; from 5 to 9 P.M. there are variations; and from 9 P.M. to 6 A.M. there is a gain of 9 millimetres. These measurements were taken during the winter months. The daily variations in weight were also observed. From the end of the chief meal, at 2 P.M., until 9 o'clock, each boy loses .13 of a kilogram, and from 9 P.M. to 6 A.M. there was a loss of .57 of a kilogram: of this, .28 of a kilogram was due to perspiration and exhalations, and the rest to excretions. From 6 A.M. to 1 P.M. there was a gain of .11 of a kilogram, and dinner added .59 of a kilogram. It is very much to be hoped that the custom of taking a variety of this kind of measurements will become widespread, and systematic attempts be made to extend and collect such observations.

SCARLET-FEVER REPORT.¹—IV.

S. H. DURGIN, M.D., Boston, Mass., health commissioner, reports that the law of Massachusetts requires reports of scarlet-fever to be made by both the attending physician and the householder. Boards of health should verify the diagnosis, and cause strict isolation and thorough disinfection to be practised. Dr. Durgin believes that isolation can best be carried out in hospitals. Inasmuch as these measures are often successful in preventing the spread of the fever in schools and families, he thinks they would be equally efficacious in preventing its spread in a community. He thinks the use of drugs to prevent well persons from contracting the disease to be nonsense.

Mary B. Moody, M.D., New Haven, Conn., relates the following incidents, which have come under her personal observation, as showing the communicability of scarlet-fever: 1. Two children received a call from a little playmate who was affected with scarlatina. The disease was so light that it was not recognized for some days. The exposed children suffered from the anginose variety, but did not come down for six weeks. They were very ill, and attacked within a few hours of each other. 2. A young physician, male, called upon a lady directly after attending a scarlet-fever case, and without ablutions or change of clothing. She had unmistakable scarlet-fever two weeks later. Dr. Moody believes that in hyposulphite of sodium we have an agent which will protect well persons from contracting the fever when exposed. She says, "Hyposulphite of sodium in solution has appeared in two cases, at least, which came under my observation, to have sufficient protective power to enable a sister to attend the funeral of a brother dead of the disease, and to enter his two-roomed house, which was infected by it. She went against protest into what seemed certain exposure, was sixteen years of age. All the other children of the family had it, four or five of them within two months of the first case. The late Dr. Thomas F. Rochester of Buffalo related to his classes in college instances he had personally known where contagion of scarlet-fever was carried in clothing. One lady wore a wrapper to assist in caring for the daughter of a friend where she was visiting, who was ill with scarlet-fever. When her visit was ended, she put the wrapper in her trunk and went to the house of another friend, who had a daughter about the same age of the one to whom she had recently ministered. There were no cases of scarlet-fever in the vicinity, nor had there been for a long time.

She wore the wrapper soon after her arrival. In a few days the little girl sickened with scarlet-fever and died."

Fred. K. Smith, M.D., Calumet, Mich., says, "I have seen repeatedly successive cases, occurring in families at intervals of a few days or one or two weeks, where it has apparently been communicated from one to another. In one case which I observed, a young lady, having a mild attack in Michigan at a place where it was epidemic, went home to Ohio about two weeks after the beginning of the attack. Within two weeks after her return, her sister was attacked with the same disease, no other cases existing in the neighborhood at that time. The weight of evidence indicates that a scarlet-fever patient may communicate the disease to others for a period of six weeks from the beginning of the disease, and, if complete disinfection is not then accomplished, for an additional period from virus retained on the skin and clothing." Dr. Smith thinks that placards should be affixed to houses in which scarlet-fever exists, and that the occupants should not be permitted either to make or receive visits.

D. L. Phares, M.D., Agricultural and Mechanical College, Agricultural College P.O., Miss., narrates a case in which a gentleman spent about a week helping to nurse a case of scarlet-fever. When the patient died, he rode about twenty miles, taking his clothing with him, to spend some days with his sister and her children. In a few days the children took the disease, and part of them died. No other means could be discovered of taking the disease.

W. W. Daniells, Madison, Wis., reports the following case: "A lady nursed her sister's children in a house adjoining mine, and when she went home (after a thorough bath) wore no clothing that had been near the house where the sickness occurred; yet her own child, who had not been otherwise exposed, took the disease, the germs having been probably carried in the hair, which had not been cleansed."

Charles Schäffer, M.D., Philadelphia, Penn., reports the case of a young nephew of his, less than a year old, who contracted the disease in a house where a death had occurred three months before, and was supposed to have been disinfected. In another instance two children of a friend died from the disease after returning to their home several weeks after the recovery of another member of the family from the fever.

Charles N. Chapin, Providence, R.I., superintendent of health, makes the following statement as showing the practice of the health department in that city: "At present we placard houses; exclude children of household from school, Sunday school, etc.; distribute circulars of information; forbid public funerals; and fumigate with sulphur. We should, in addition, fumigate all textile fabrics, etc., with steam, and have a hospital for the treatment of those cases which cannot be isolated at home. Our rules are fairly well complied with; and it is possible, that, if they could have been strictly enforced at the beginning of this epidemic in August, it might have been stopped. But I do not feel at all sure but that the only way to prevent the spread of this disease is to remove every case to a hospital, or else put a guard around every infected house, and prevent every possible contact with the community. I shall be pleased to give you the results of our efforts later in the season, whether they are favorable or not. Thus far the cases reported per week have been as follows:—

	August.				September.				October.				
Date.....	6	13	20	27	3	10	17	24	1	8	15	22	29
Cases	0	4	4	7	9	3	8	33	49	58	56	37	34

"Reports of cases should be made by physicians, because they are cognizant of the majority of cases, and because they can recognize the disease. Physicians should be licensed by State boards of health. The physicians should be paid for this service by the local government. When a physician is not employed (and perhaps in all cases), the head of the household should be obliged to report. This is the law in this State. But it is by the rules of the board of health in this city that the reporting by physicians is made compulsory. They are not, however, paid for this service. About ninety per cent of all cases are reported by physicians. We learn of the others through the assistance of school-teachers chiefly. Probably very few cases now escape us."

¹ Continued from *Science* of Jan. 13, 1888.

John M. Scudder, M.D., Cincinnati, O., believes that scarlet-fever may be communicated by milk. He has traced one such instance, where the milkman's children had the fever, and it was communicated to customers at the isolated points. He thinks this, however, is rare. Dr. Scudder further adds, "I had one case in which the disease was communicated five months after recovery, by playing with dolls and toys which had been locked in a drawer during that time. In another case, in the family of Mr. ———, the time was eleven months. There could be no mistake in either case. In another case the circumstances pointed to a contagion fourteen months old." He thinks that boards of health should distinctly mark each house 'Scarlet-fever Within.'

A. P. Richardson, M.D., Walpole, N.H., sends the following case, which came under his observation: "A child had scarlet-fever in Keene, N.H., and late in the stage of desquamation visited a friend in Walpole, N.H., slept with a child who died of malignant scarlet-fever a few days after, being sick only a few hours." He adds, "I remember the mother of a child which had died of scarlet-fever sent some of the deceased's playthings to a child in another family, the latter being sick with the disease soon after."

W. S. Strode, M.D., Bernadotte, Ill., writes, "In March, 1884, scarlet-fever was brought to Bernadotte by a family (resident) visiting another family six miles distant, in which a small child had just taken sick, said sickness being accompanied by a red rash. A little boy four years old of the above family, after a few days, took sick, the sickness being accompanied by a rash, not very prominent, and died in twenty-four hours from the time of the first symptoms. The physician diagnosed the case as diphtheria, and a number of children were permitted to see the corpse and attend the funeral. Two or three days later, the remaining children (two younger) took sick with the same symptoms, and I was sent for, and at once proclaimed it scarlet-fever, and immediately set about to guard against its spread by having the school stopped, and all families that had been exposed isolated. There were nineteen cases that broke out with the disease, all in families that had been exposed to the first case. No more deaths, and not all the children in some of the families contracted it either, though exposed to it for days. I would say, that, at the time of the above epidemic, my family consisted of four children, aged respectively one, six, nine, and twelve years. I took ordinary precautions, after visiting the families infected, to guard against carrying to my own family or that of others, by changing my outside apparel at my office, washing, etc., and by going about in the open air for some time. My children did not become infected. Three weeks later, that is, after all the cases had recovered, it was again brought to town by a visiting family; this family unknowingly being exposed to scarlet-fever on the train, and two children breaking out with it in two or three days after they arrived. But previous to this time the lady that the mother of the children was visiting put on her shawl, and came to my house, and, without removing her shawl, took my baby in her arms and held him for some time. In four days he broke out with a typical scarlet-fever rash; and in from four to seven days from this time the three older children of my family also broke out with it. The three children of this lady also had it, making nine additional cases. All recovered. By a strict quarantine the contagion did not spread any further."

G. P. Conn, M.D., Concord, N.H., member of the State Board of Health, says, "In reply to your inquiries, allow me to say that over thirty years of dealing with scarlet-fever and kindred disorders has not convinced me that I know all about its origin or its development. On the contrary, I am constrained to add that I fear we have not solved the problem, nor are we likely to do so at present unless by accident. I have found so many instances where it could not be traced, and in other cases where one in a large family of children would have the disease while all others would escape, that I feel that my knowledge is hardly worth repeating. I do believe that there is a vast difference in the degree of cases, and that in some instances it arrives at a development where none unprotected will escape, while in other cases none will be made ill except the more susceptible. Unfortunately, the profession are not yet able to determine to which class a given case belongs, and therefore it is necessary to carefully isolate all in order to be sure."

George J. Engelmann, M.D., St. Louis, Mo., relates the following

striking cases: "Mr. H., living in Belleville, Ill., had a child sick with scarlet-fever, bade the child good-by, drove fourteen miles in an open buggy to a farm, shook hands twice with a young lady there, and took dinner with the family. He saw no more of the young lady, but was busy outside with the father during his visit. There was no scarlet-fever in the neighborhood of this farm, yet that young lady, twenty-one years old, the youngest in the house, took the scarlet-fever, infected by Mr. H. The clothing of children who died from scarlet-fever in Denver was taken to the house of Dr. R. in St. Louis, after having been put away in camphor for the winter, and gave scarlet-fever to all of Dr. R's children eight months after the decease of the children in Denver."

H. Hartshorne, M.D., Philadelphia, Penn., reports, "I know of no valid reason for believing that scarlet-fever ever arises, at the present time, except by contagion from a pre-existing case. I have no doubt whatever of the contagiousness of scarlet-fever; although, as in the case of other communicable diseases, some persons exposed may escape being affected by it. Having withdrawn from the active practice of medicine, I cannot give precise details of such cases coming under my personal observation; but they have been amply sufficient to confirm me in a strong conviction on the subject. When a person who has had scarlet-fever ceases to communicate it, must depend partly on the measures taken—by repeated bathing, change of clothing, etc., after recovery—to remove all remnants of the eruption. When such care is taken, thirty days from the beginning of the attack ought to suffice. With average care, it had better be made forty days. I have had direct information of several instances in which a house, not disinfected after scarlet-fever had been in it, gave evidence of infection remaining in it several months after the recovery of the patient so affected in it. I believe (from the above-mentioned reliable information), that, without disinfection, rooms are more liable to the retention of the contagion of scarlet-fever than persons who have had the disease. In populous cities the dissemination of scarlet-fever is apt to be so wide, and the means of communication so unavoidable, that no benefit is likely to result from requiring cases of it to be reported by physicians or others to boards of health. Boards of health, if such reports are received, should advise the sequestration of the patients as far as practicable, especially from other children, and, on their recovery, should insist on thorough disinfection. The spread of scarlet-fever could be diminished, at least, very much, by isolation of patients during the attack, disinfection of bedding, clothing, and rooms, etc., on recovery, and all measures of sanitary improvement (in cleanliness, ventilation, etc.) which lessen the prevalence and mortality of *all* contagious, infectious, and epidemic diseases. I doubt very much whether any thing can be done, by the use of remedies or otherwise, to prevent well persons from contracting scarlet-fever when they are exposed to it. It is *a priori* improbable, though not impossible. When a medical student, residing in a house in which there was scarlet-fever, I took belladonna for several days, and escaped the attack; and I have known another instance of the coincidence of the use of belladonna with escape or exposure. But the contagion of scarlet-fever is more uncertain as to individuals, than that of measles or small-pox; that is, a greater number of those exposed to it may escape it than either of them."

THE TEACHING OF DRAWING.

IN a paper on the teaching of drawing, read before the College of Preceptors by T. R. Ablett, Esq., and reported at some length in the *Educational Times*, the educational value of the subject is brought out with a strength and clearness that render the paper of more than usual interest to our educators. Mr. Ablett considered drawing simply as a means of education, and explicitly set aside any treatment of it as an accomplishment or as a training for artists. He pointed out that the mode of instruction in drawing, taken in this sense, would naturally differ from that followed when the production of artists was aimed at, and must be adapted to school-children most of whom have no special aptitude, and little time for practice. To raise drawing to its proper position, we must prove that it is one of the bases of education, and should be taught to all children, whatever their future vocation. We must also prove that it can be taught by collective methods as readily as arithmetic