BAKER (H.B)

REPORT OF ATTENDANCE,

ABSTRACTS, AND REVIEW OF PROCEEDINGS

OF THE HEALTH DEPARTMENT OF THE AMERICAN SOCIAL SCIENCE ASSOCIATION, AT ITS ANNUAL MEETING AT SARATOGA, N. Y., SEPTEMBER 8, 1876,

RELATING MAINLY TO

SANITARY IMPROVEMENT IN SCHOOLS.

By HENRY B. BAKER, Lansing,

MEMBER OF THE MICHIGAN

STATE BOARD OF HEALTH,

MEMBER OF THE AM. SOCIAL SCIENCE ASSOCIATION, ETC.

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OF THE

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OF THE

AMERICAN SOCIAL SCIENCE ASSOCIATION,

At its Annual Meeting at Saratoga, N. Y., September 8, 1876.

By HENRY B. BAKER,

MEMBER OF THE

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Member of the American Social Science Association, etc.

[Reprinted from the Fourth Annual Report of the Michigan State Board of Health, for the year 1876.]

REPORT OF PROCEEDINGS*

OF THE DEPARTMENT OF HEALTH OF THE AMERICAN SOCIAL SCIENCE ASSOCIATION AT ITS LATE ANNUAL MEETING.

To the President and Members of the State Board of Health:

GENTLEMEN:—The Annual Meeting of the American Social Science Association was held at Saratoga, Sept. 8, 1876. Herewith I respectfully report such items bearing upon the subject of public health, as through my attendance at the meetings of the public health section of the Association, I have been able to gather and write out, and also a few other items and thoughts of my own which occur to me in connection therewith.

Of the nine papers and topics presented and discussed, all but one were on subjects connected with the improvement of the sanitary condition of schools, and of the physical and mental condition of school children. Taking up the subjects in the order presented, there was first, a report upon the "Health of Schools," by D. F. Lincoln, M. D., of Boston, Mass. This included a history of some of the work lately done in this country for sanitary progress in schools, referring more particularly to the labors of those connected with the American Social Science Association. Among the papers mentioned were the following: "Drainage and Privies for Schools," by Frederic Winsor, M. D.; "Contagious Diseases among School Children," by Arthur H. Nichols, M. D., of Boston; "Measurement of the Height and Weight of 25,000 School Children in Boston," by Prof. H. P. Bowditch; "School Architecture," by Dr. D. F. Lincoln; and the "Method by which teachers should ascertain Defects of Hearing in Pupils," by C. J. Blake, M. D., of Boston. The report also stated that the investigations by Dr. Agnew, of New York, and of others, as to the condition of the eyes of scholars, have been continued. Dr. Lincoln's report made favorable mention of the results of sixteen years trial of gymnastic instruction at Amherst College, and stated that the general health of the students has been greatly improved. The mortality had fallen from nine per cent. in the 14 years previous to 1861, to less than five per cent. in the succeeding years. Before attributing all this to instruction and practice in gymnastics alone, I think it should be prominently kept in mind that the lessened mortality has occurred while the students have been under the careful supervision of a medical man. How much is due to gymnastics, and how much to the better care of the health, under the direction of a skillful physician, may be difficult

*The thanks of the reporter are due to Dr. Lincoln, of Boston, for proof slips, etc., and to Dr. Newell, of Providence, for a copy of the Providence "Daily Journal," for Sept. 11, which have facilitated the preparation of this report.—H. B. B.

to learn; but the reduction of the death-rate to about one-half what it was before, is a very important result that should attract attention to the methods employed.

The report mentions the work of members of the Rhode Island Medical Society on school hygiene, particularly the proper age at which children should begin to attend school, and the hours of study. The Hon. William Wood, President of the Board of Education of New York City, has recommended that the minimum age be six years. The New York Medico-Legal Society recommended eight years, and would make three hours the maximum daily attendance for primary pupils.

Dr. J. A. Spalding of Portland, Me., was the author of a paper read giving the result of the examination of the sight of 2,372 primary and grammar school children in that city with reference to the amount of short-sight. In the primary schools the percentage of short-sight was found to be 3½, while in the grammar schools it was increased to 11. Dr. Spalding thinks that in combating the increase of short-sight we should first consider the lighting of the schools, that the building should be placed north and south and have windows on one side only. In teaching music, etc., from printed charts, either the charts should be printed in type large enough to be read across the largest room, or they should be hung about the room so that all the scholars can see without difficulty. Scholars that are short-sighted should be so placed in the room as to have a good light from the side, and, except they wear glasses, should not be forced to draw simply because drawing is taught, or otherwise treated in a way to increase the defect of sight already present.

Dr. Spalding thinks it advisable that short-sighted children should use glasses at an early age, but that such glasses should be carefully chosen by competent persons; that they will then prevent a rapid increase of short-sight, and rest the eye from too much exercise of its muscles of accommodation, but that a strong glass has a tendency to weaken the accommodative power of the eye and to increase the short-sight. Short-sight being often hereditary, parents who have such defect should be particularly careful that their children be taught how to use their eyes so as not to increase but to improve their power of vision. He placed considerable stress upon the teaching of this to children at home, but it seems to me that there is more hope of accomplishing this through the schools than at home, for this knowledge has to be gained before it can be taught to the children, and the prospect of its being gained by the teachers is much better than that it shall be gained by the parents throughout the country. But the teachers are necessarily dependent upon the medical profession for such knowledge as this, and a Medical Inspector and Advisor of Schools is an officer that should now appear and do much toward decreasing numerous ills of life that might be avoided, and very much toward increasing the health and happiness of mankind, by beginning to teach proper modes of life at the very beginning of school life, and continuing to guide the physical training throughout its entire course. Something like this seems to me to be the most natural method of preventing the great army of sickly students—girls and boys—and the deaths of these soon after graduation,—conditions and circumstances now frequently observed.

A paper by Dr. Loring, of New York, was read. Dr. Loring thinks that all children's eyes should be examined when they begin their course, and the method suggested by Dr. Spalding of using type No. 20 at the distance of twenty feet, a good one. During the last year Dr. Loring, assisted by Dr. Derby, has exam-

ined the eyes of about 1,133 scholars of various ages in New York. Each eye was examined separately, first with the test types and then with the ophthalmoscope. Among the primary scholars the proportion of near-sighted eyes was 6.8 per cent; in the intermediate ages it was 11.67 per cent; in the normal scholars it was 26.67 per cent. The proportion of near-sight increases with the age. Far-sight, or hyperopia, begins with 8.3 per cent; in the intermediate age it rises to 20.53 per cent; and at the more advanced ages sinks again to 11.04 per cent. The proportion was greatest among the Germans, 23.23 per cent; next the Americans, 19.35 per cent; French, Spanish and others, few in number, 15.41 per cent; and the Irish 14.22 per cent. Comparing these statistics with those collected in Germany and in Russia, it is found that the proportion of abnormal refraction is much less among the children examined in this country.

A paper by C. J. Blake, M. D., of Boston, Mass., called attention to the importance of recognizing a class of school children for whom special provision in the way of education should be made, and pointed out the method by which defects of hearing should be ascertained. Among children in public schools, out of 8,715 cases of ear disease in which there was impairment of hearing, 25 per cent. were children under 14 years of age. In about 12 per cent. the disease was amenable to treatment. In order that proper allowance be made for defective hearing, it was desirable that children in schools be examined and placed according to degree of disability. Each child should be carefully examined to determine the degree of deafness, tested by the distance at which the voice of the teacher can be distinctly heard in ordinary conversation tone, and again by the pronunciation of consonant tones. In testing different scholars, the teacher or person testing should always occupy the same position, preferably the rostrum or seat usually occupied in school hours, and he should speak in the tone of voice used in the school-room exercises. The child to be tested should be placed in front of the teacher, and at the farthest line of seats, and gradually advanced toward the teacher, the tests being repeated until a place is reached at which the child can hear distinctly, the child being required to repeat distinctly the test words or tones employed. The child should not occupy a place in the school-room more distant from the teacher than the one thus found. The paper strongly recommended the establishment of a medical supervision of schools, the officer to devote his whole time to the duties of the position, and to be a competent physician who had thoroughly studied school hygiene.

The next paper was by Dr. J. M. Gregory, President of the Illinois Industrial School, formerly State Superintendent of Public Instruction in Michigan. The paper was an interesting general discussion of the subject of "Half-time schools," and contained valuable suggestions and testimony of teachers on the advantages of short time schools.

T. Newell, M. D. of Providence, Rhode Island, then read an excellent paper on the same subject, dealing with it in a definite and pointed manner, and from a physiological standpoint. Starting out with the idea of learning the length of time that children of different ages are able to fix their attention, he availed himself of the results of the labors of Edwin Chadwick of England, and of others, who have found that the capacity of the mind for attention grows with the body, and is increased by cultivation; that very young children can receive lessons of one or two minutes length, that with increasing growth and cultivation the capacity for attention is increased to five minutes, then to ten, then to fifteen minutes, at the age of ten years to about twenty minutes, at twelve

years to twenty-five, and so on. It has been found that for children aged ten or twelve years, the capacity for bright and voluntary attention is exhausted by four varied lessons, requiring mental effort of half an hour each with intervals of relief, in the forenoon. In the afternoon this capacity is reduced one-half. These are statements of averages; a skillful teacher, good ventilation, proper lighting and warming of the room, more than ordinary stamina of children, etc., may increase, while opposite conditions will reduce the length of time that the attention will be profitably fixed on lessons. The general statement is that two hours in the forenoon and one in the afternoon is as long a time as children can be profitably employed in school.

At first thought, it might seem that keeping children at school for a longer time than that during which their attention could be held would only result in simply a waste of the extra time, and that not very valuable; but Dr. Newell points out the fact that its results are much more serious; that the long application is mentally injurious, produces weariness and disgust of subjects taught, tends to form dilatory, diffused and slow habits of thought, and is productive of indecorum and truancy. His belief is that children will not simply learn as much in the three hours as they will in the six usually forced upon them, but that they will actually learn more, because of the greater aptitude for prompt, vigorous and sustained industry. He claims that the "half-time" system, as it is called, will tend in many ways toward improving the health of children, and of teachers, that now suffers from the unnaturally prolonged restraint of body and mind in rooms that become foul with the accumulated emanations from overcrowded inmates. By this change the air of the school rooms would be much more pure, and this, in connection with the improved condition of the scholars, would tend to lessen the spread of contagious and infectious diseases so frequently due to aggregation of scholars in close ill-ventilated rooms. The extra time can be profitably and healthfully utilized for physical training or industrial employment.

He thinks there is unquestionable testimony that a child will learn more in the "half-time" in connection with physical or industrial training, than under the usual present method. Children relish physical exercise after attention to studies, and study with more spirit, energy and success after such exercise. He thought the subject of even greater importance to the welfare of the girls than of the boys at school.

Dr. Newell's paper was listened to attentively, and was followed by enthusiastic remarks by Mr. J. M. Barnard of Boston, and others. In the course of his remarks Mr. Barnard said he did not see how the health of children in schools, or their physical education and training, could receive proper attention in schools until those who control them secure the aid of the medical profession, or of skillful sanitarians, and bring to bear upon these questions the special knowledge which that profession has and can accumulate.

Dr. Richard J. O'Sullivan, of New York City, and formerly a Medical Inspector of Schools, then read a paper on "The Prevention of Contagious Diseases among School Children." This paper also favored the short-time system, on the ground that such diseases are less likely to be spread by the short than by the longer use of rooms where, as is usually found in school rooms, the air space is not great. The other parts of the paper were interesting, but somewhat difficult to do justice to in an abstract.

D. F. Lincoln, M. D., of Boston, Secretary of the Public Health Section of the American Social Science Association, read a paper on, and exhibited plans

illustrating, the subject of "Sanitary Requirements in School Architecture." The plan exhibited was of a grammar school for about 550 pupils. He thinks that, as a general rule, it is not best to plan for more than 600 in one building; that a large building is not easily kept in good sanitary condition; that placing four stories, one above another, almost always insures poor ventilation. At least as much ground as the building covers should be reserved for a play-ground, and be so disposed as to give free space on all sides. The land must be well drained,—if not naturally so,—it should be underdrained to the depth of the cellar. The school should not be near ponds or stagnant water; nor foundries, railway stations, or other noisy establishments; nor shambles or other offensive places. No room for regular study should be placed in a story of which any portion is under ground. The first floor used for such room is to be at least four feet above the street grade. The story under this may contain play-rooms and gymnasium, provided these face the sun, and the slope of the land leaves the wall entirely above ground on their side of the house. Good drainage, and an uncontaminated water-supply should be carefully secured. Walls are to be wainscoted to the height of 2½ feet in rooms, and 4½ in entries. They should be made as impervious as possible so as not to absorb exhalations of lungs and skin of the scholars. The doors must open outwards and be from 8 to 12 feet wide. One must be near, and, if possible, opposite the foot of each staircase. A school for 600 should have two stairways, each isolated, if possible, by solid brick walls. Balusters are then superfluous, the hand-rail should be about four feet above the riser. One or two landings are desirable to break each flight. Wedge-shaped steps and spiral stairs are not admissable. The stair-cases must be from six to eight feet wide, and well lighted. Entries and corridors should be spacious, particularly at the foot of stairs; they should be warmed, and should be lighted directly from out of doors.

For convenience of visitors the master's parlor should be not above one flight from the street. Other needed rooms are a great hall, and this may sometimes be used in recess-time, and rooms for library, cabinet, and instruments. Each school-room should have a clothes closet having one door into the entry, and if convenient, another into the school-room. The teacher should have a private closet. Two stories of school rooms are all that can usually be permitted; a third story, or portion or a story, may contain the great hall; but no class of girls, at all events, ought to have to climb two flights from the street.

It is hard to comply with the sanitary requirements if more than about forty pupils are allowed to each teacher. The room should be oblong in the proportion of about four to five. The voice is best heard in such a room, the teacher sitting near one end.

The room should never be lighted from in front of the scholars, but always from their left hand. The windows should open directly from the outer air and move easily in the frames. Window-sills should be at least four feet above the floor, because light entering at the level of the eyes only dazzles, and is useless for illuminating the tops of desks. The tops of windows should come within eight inches of the ceiling, which can be effected by the use of iron beams. This illuminates the ceiling, an important source of light. The ceiling should always be white; walls may be tinted, but no wall-paper should be allowed. The blackboard should never be on the same side as the windows. The door should open directly into the entry, and had better be near the teacher's desk. The room should not be less than 12½ feet, nor more than 14 feet, in height. Each pupil should be allowed at least 250 cubic feet of air space.

Prof. Kedzie says 300 cubic feet. A system of foul air flues, two for each room, and provided with powerful suction from a centrally heated shaft, is the only satisfactory way of getting rid of the foul air in cold weather.* Fresh air should be introduced not much above the temperature of the rooms. Dr. Lincoln thinks the proper temperature of the room is probably 65° F. It seems to me important that the level for which the temperature is stated be mentioned, or that an equable temperature be required. In rooms where only mental labor is to be performed in a sitting posture, it seems to me that the temperature at the floor level should not be below 65° F., nor should the temperature at the level of the head exceed 70° F. In a room where all the scholars stand, or have other muscular exercise, the temperature may be less.

Dr. Lincoln's very valuable paper contained much of interest that can hardly be conveyed in a brief abstract like this.

The last paper was by Prof. Robert T. Edes, M. D., of the Harvard Medical School, Boston, Mass., and was on "Alcohol as an article of Diet." Perhaps it might as well have been entitled, "Alcohol as an article of Medicine," for the writer did not seem to recommend it as an article of diet for persons in health. A considerable part of the paper related to the experiments of Anstie and others going to show the fate of alcohol in the living body, that it was mainly decomposed. The experiments cited went to show that when moderate doses are given, only about two per cent. of the alcohol leaves the body as alcohol. When extremely large doses are given, leading to profound intoxication, only about twenty-five per cent. can be detected as alcohol; the remainder undergoes change within the body. One effect of the ingestion of alcohol is to lower the temperature of the body, and this may be taken advantage of by the skillful physician in certain cases of disease.

If I may add my own opinion, it is that the public health will gain largely if the people can be brought to consider alcohol as a powerful agent for evil, under its ordinary unskillful use, and that its use, even as a medicine, should not be undertaken except by the prescription of a skillful physician.

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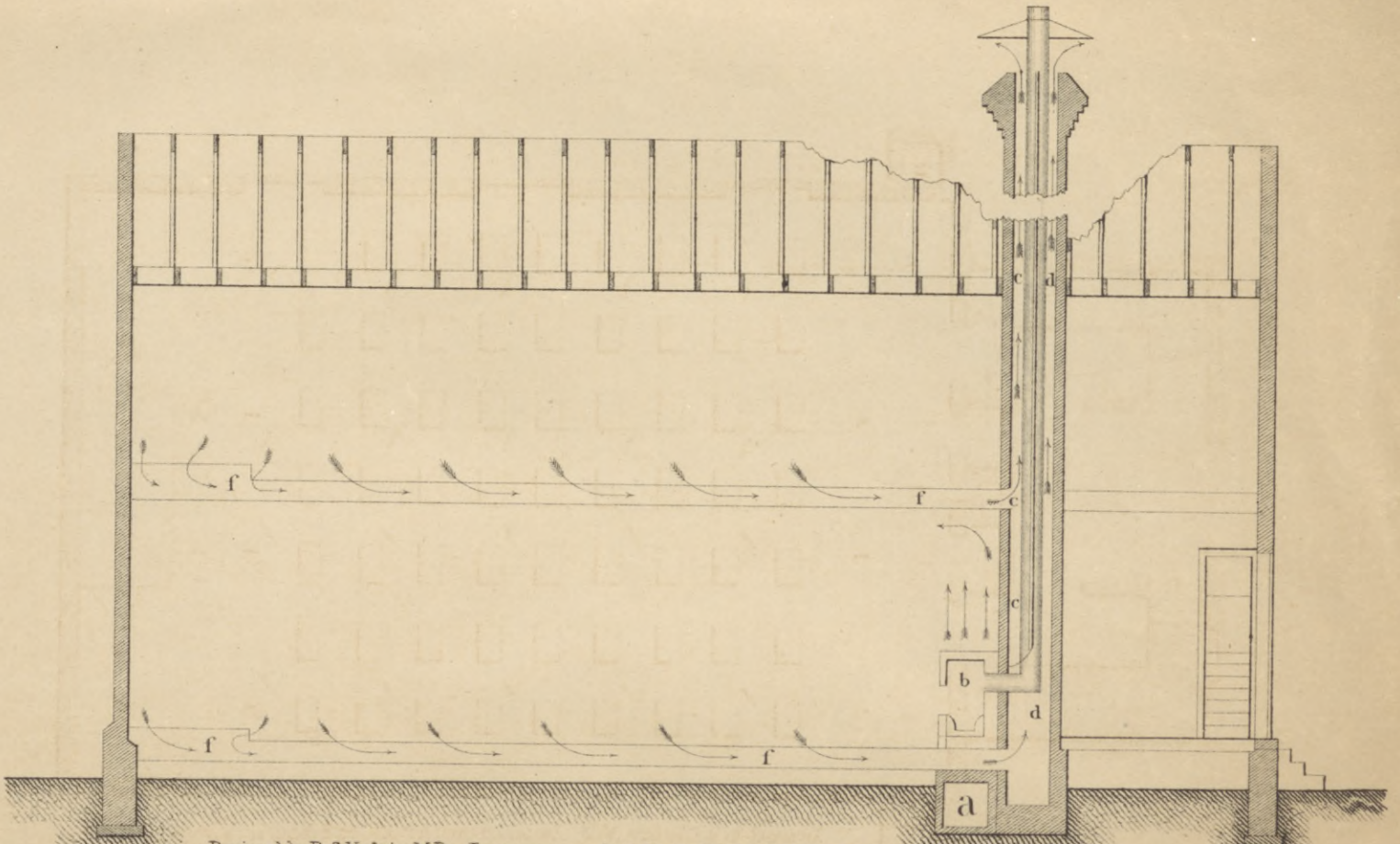
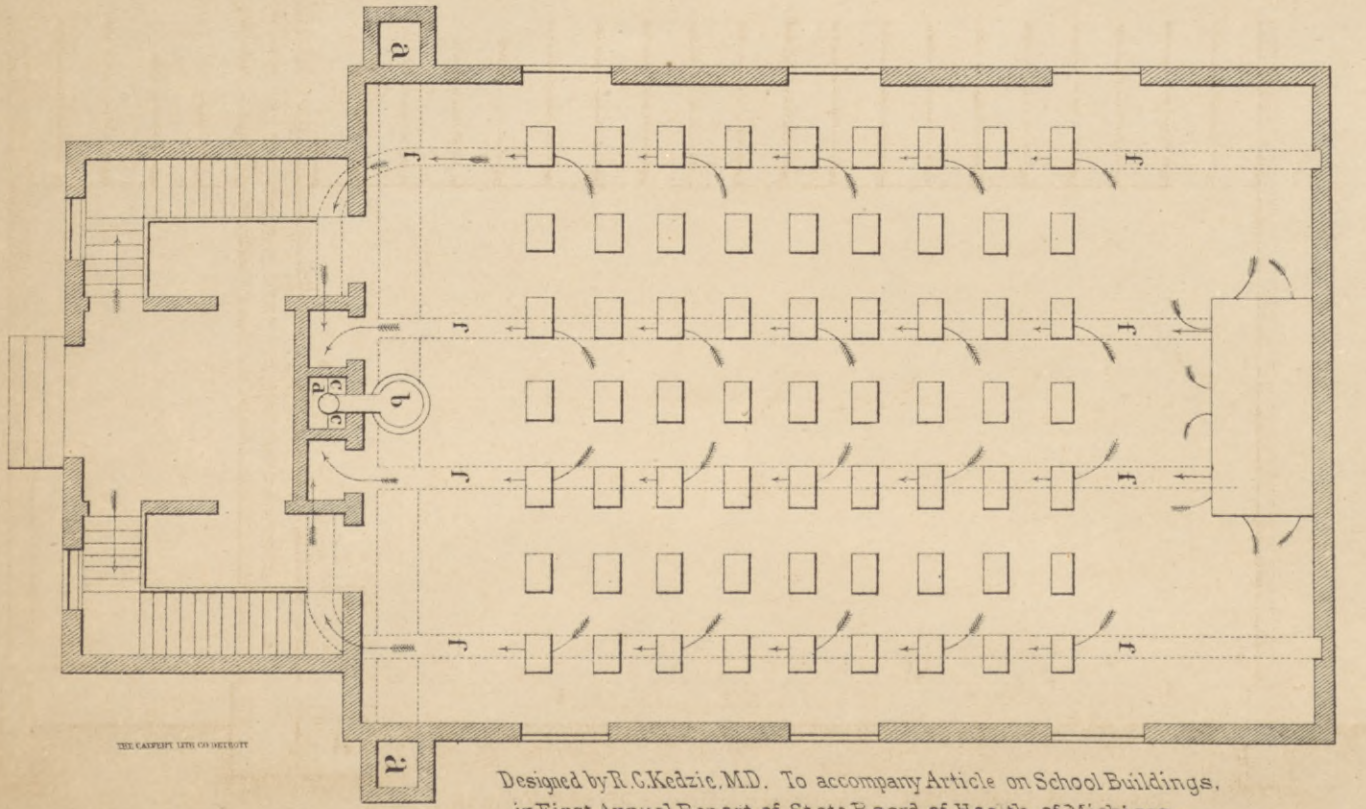
* It will be seen that this is substantially the plan recommended by Prof. Kedzie, of this Board; but Prof. Kedzie recommends withdrawing the foul air from more than two openings in the floor of the room, thus avoiding draughts near foul-air outlets. See Annual Report State Board of Health, Michigan, 1873, p. 95.—H. B. B.



Designed by R. C. Kedzie, M.D. To accompany Article on School Buildings, in First Annual Report of State Board of Health of Michigan.



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