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Report on an Experiment Designed to Remove Some of the Defects in Our Present System of Periodical Class Examination by Placing a Premium on Effort rather than on Natural Endowment.

by C. S. Simpson.

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SECTION 1.

I N T R O D U C T I O N.

Purpose of the Thesis.

The following thesis is an account of, and an evaluation of, an experiment designed to test the effect of the employment of a system of handicaps, according to the ascertained scholastic attainment of the pupils. By the employment of this system it was hoped that a premium would be placed upon effort rather than on natural endowment.

Here in New Zealand, a very undesirable system of frequent examinations is employed throughout the school, largely for the purpose of stimulating the children to effort. It is impossible to deny that this is a very undesirable system; however, not only does it exist, but it is officially imposed by the central education authority upon the schools. Though these frequent examinations - at least three each year are prescribed by regulation - are offically imposed for the purpose of testing attainment and determining annual promotion, yet, with the concurrence and often active encouragement of the Department's inspectors, they become, in the main, spurs to activity. Teachers, in their zeal, often supplement these three prescribed examinations by monthly and in some cases fortnightly and even weekly examinations. Such zeal meets with official approval and is reflected in the improved grading and consequent promotion of the teacher.

These examin tions bulk so largely in our education system that, to the majority of parents, they have become the hall-mark of progress. This attitude is abetted by the schools which issue on

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official/

official forms supplied by the Department regular reports of the results of these examinations. (See Appendix.)

The existence of these examinations and the prestige they carry is a hard fact which no teacher in the service can evade. The writer of this paper is employed as an assistant master in a large city school and he is compelled, much against his wish, to conform to the system or resign from the service. In this dilemma he has sought a compromise by endeavouring to remove from the system some of its more obvious defects.

The writer does not desire to be understood as being uncompromisingly opposed to the employment of examinations for stimulating effort, though he would much prefer not to do so, and to rely on the intrinsic interest in the subject matter and the activities which he fosters. His greatest objection, however, is to the Gargantuan proportions which the system has assumed. Moreover, the children as they come to him are products of the system. For several years they have had the idea ingrained in them that the chief purpose of school effort is success in these examinations. He must perforce accept them as they are and endeavour as far as possible to remove their worst features. If these examinations are to be used by him as a spur to effort, (and he cannot see how he can contract himself out of the situation) it is surely advisable that they be made effective in achieving that purpose.

CONDITIONS WHICH THE EXPERIMENT ENDEAVOURS TO REMOVE:

As the result of several years of experience of this system, the writer has been impressed by the fact that it has little effect in stimulating the efforts of the brighter and more able pupils.

Indeed/

Indeed, it appears to him that its effect is positively harmful. Because of their better native endowment, these children find themselves able to maintain their position in the class with but the slightest effort, and, as the system the writer is compelled to adhere to relies almost wholly on extrinsic motivation, they find no motive to effort. The consequence is they lapse into habits of shillyshallying and procrastination. Who is prepared to say what is the effect of eight or ten years of such behaviour?

In addition to the ineffectiveness of the present system as a stimulus to the more clever pupils, it appears to the writer that the failure of the system as a source of encouragement to those pupils whose native ability is either below average or apparently below average, is even more evident. The effect on these duller pupils is positively disastrous. Having consistently occupied the lower ranks in the class during the five or six years of their school life they have become thoroughly accustomed to the idea of failure. They accept the situation as inevitable and adjust their activities accordingly. The result is that these pupils become idle, slothful, careless and lackadaisical. They have no spur to effort, to concentration, to perseverance. They lose their courage and their self-respect. A system which develops such traits as these stands condemned. Inculcation of effort, courage, perseverance and confidence should surely be a function of the school. Adler ("The Education of Children") recognises the importance of this phase of school life when he writes, "But if we could increase their courage, such children would be capable of accomplishing much more."(1) And again, in contrast with ambition he writes,

(1) Adler, "The Education of Children" Page 48.

"It is much more important to train him to be courageous, persevering and self-confident." (1).

Furthermore, even more undesirable qualities of character manifest themselves. With such children effort to attract attention becomes directed into paths of undesirable behaviour and much of the dislocation to the tranquility of the class-room is a direct consequence. This failure is recognised by Morton, ("Childhood's Fears"), who writes, "When the child feels that he can never attain to what is expected of him, there develops in him a strong sense of inferiority and a compensation through sensation-creating expedients." (2). Adler also recognises this and writes, "It is easier to distinguish one's self and to give one's self the feeling of a conqueror by throwing off social and moral responsibilities and breaking the law than by following the established social paths." (3).

Thus then, the present system, through the absence of encouragement of stimulation to effort is to a substantial degree directly responsible for a great part of the behaviour problems both within and probably without the school.

The question now arises as to whether a system so inherently bad can be amended so as to rid it of at least some of its defects. Until those who control our education system suffer a change of mind and heart we teachers are compelled to employ the system. It was with this in mind that the writer sought relief and decided to experiment.

(1). Adler, "The Education of Children", Page 49.
(2). Morton, "Childhood's Fears, Page 197.
(3). Adler, "The Education of Children", Page 13.

A chance remark led to the idea of employing a system of handicaps in such a manner that differences in native ability would be eliminated and success would be entirely a result of effort. Thus the principle employed in the athletic field would be transferred to the classroom.

BENEFITS EXPECTED:

The benefits that were expected to accrue from this handicapping were as follow :-

(1) The pupils with the better natural endowment would not now, because of innate ability, and as a matter of course, fill the top places. To remain in those enviable positions, it would be necessary to put forward a good deal of effort. If they continued their previously casual attitude towards their school work, they would find themselves no longer top or near the top, but in all probability occupying a position well down in the class order. They would find that only intense and persistent effort would enable them to retain their former position.

(2) Similarly, a change in the class order of the weaker pupils could be expected, for it would now be possible for them to occupy places towards the middle or even near the top of the list. This result would follow the more surely as these children became more fully aware of the implications of the new system. The demoralization of defeat would give way to an attitude of confidence born of success and the development of habits of steady work would be facilitated. Furthermore, problems of class-room discipline, it was hoped, would be largely eliminated.

SECTION 2.

CONDITIONS AND METHOD OF EXPERIMENT.

The class on which the writer carried out this experiment consisted of just over fifty pupils. However, only fifty pupils were present during all the examinations and the results from those fifty alone are considered.

The class was made up of both boys and girls, there being 22 boys and 28 girls. The pupils were, in all cases, classified as Standard 5. At the conclusion of the experiment, the average age of the class was 13 years 1 month, individual ages ranging from 11 years to 15 years 3 months. These pupils were not in any way specially selected for this experiment.

The complete experiment lasted over a period of almost six months. During the time, there were given four complete examinations in which all class subjects were examined each time, under the strictest examination conditions. The first examination was the usual second term examination prescribed by the regulations. This, in accordance with the usual practice, was set and marked by the Headmaster, except in the case of such subjects as arithmetic, geography and history, where the marking was purely mechanical. These were marked by the experimenter, and, since they did not call for the exercise of judgment, it is not possible that the desire for the success of the experiment could in any way have influenced the results.

It should be noted, moreover, that the Headmaster was entirely ignorant of the existence of the experiment.

The second and third examinations were extra examinations,

set and marked entirely by the experimenter, while the fourth examination was the regulation examination by the Headmaster for promotion purposes.

SYSTEM OF HANDICAPPING.

The following table shows the result of the first examination. The order is alphabetical, the girls preceding the boys.

TABLE 1.

MARKS AND RANK OF PUPILS OF THE EXPERIMENT CLASS IN THE FIRST EXAMINATION.

NAME.	MARKS.	RANK.	
T.B.	460	2	
S.B.	333	26	
B.B.	317	34	
M.B.	386	9	
J.C.	351	16	=
C.C.1.	290	39	
M.C.	463	1	
D.C.	329	28	
C.C.2.	319	32	
R.D.	345	22	
J.F.1.	356	13	
H.F.	347	20	
P.F.	296	38	
J.F.2.	348	19	
A.F.	224	48	
J.G.	366	12	
J.H.	351	16	=
E.L.1.	339	24	=
W.L.	299	36	
E.McM.	325	29	=
J.M.	342	23	
P.M.	321	31	
E.P.1.	266	45	=
P.P.	318	33	
J.S.1.	353	15	
J.S.2.	285	41	
M.S.	266	45	=
N.T.	391	8	
A.C.	351	16	=
H.C.	321	27	
S.J.	371	11	
J.J.	268	44	
K.J.	433	4	
E.L.2.	339	24	=
V.McR.	286	40	
D.M.	354	14	
W.M.	278	42	
W.P.	297	37	
E.P.2.	208	49	
G.P.	346	21	
R.P.	394	7	
A.R.	304	35	
J.S.3.	373	10	
K.S.	455	3	
J.S.4.	402	6	
R.S.	325	29	=
R.T.	191	50	
L.T.	273	43	
H.W.	251	47	
M.Y.	413	5	

From Table 1 it will be seen that the highest aggregate score was 463. In setting the handicap it was at first decided to make each handicap such that by adding it to the score in the first examination the total in each case would amount to 500. But here a number of factors entered. Some of the children, owing to various reasons, such, for example, as absence for a time through sickness, obvious accident in the examination, did not score as well as, or even scored better than, in the writer's judgment, they should have done. Consequently, he decided not to adhere rigidly to a mechanical handicapping. He allowed himself a maximum range of 30 marks for differing from the strict total of 500, and within this limit exercised his judgment based on an intimate knowledge of each pupil.

The following table gives the handicaps decided upon. The table is again arranged in alphabetical order.

TABLE 2.

THE HANDICAPS ALLOTTED.

Name.	Total Marks First Exam.	Handicap.	Grand Total.
T.B.	460	40	500
S.B.	333	150	483
B.B.	317	160	477
M.B.	386	110	496
J.C.	351	150	501
C.C.1.	290	200	490
M.C.	463	40	503
D.C.	329	170	499
C.C.2.	319	180	499
R.D.	345	150	495
J.F.1.	356	140	496
N.F.	347	150	497
P.F.	296	200	496
J.F.2.	348	150	498
A.F.	224	250	474
J.G.	366	130	496
J.H.	351	150	501
E.L.1.	339	160	499
W.L.	299	180	479
E.McM.	325	170	495
J.M.	342	150	492
P.M.	321	170	491
E.P.1.	266	230	496
P.P.	318	180	498
J.S.1.	353	140	493
J.S.2.	285	210	495
M.S.	266	240	506
N.T.	391	110	501
A.C.	351	150	501
H.C.	331	160	491
S.J.	371	130	501
J.J.	268	220	488
K.J.	433	70	503
E.L.2.	339	150	489
W.McR.	286	210	496
D.M.	354	140	494
V.M.	278	220	498
W.P.	297	190	487
E.P.2.	208	290	498
G.P.	346	150	496
R.P.	394	110	504
A.R.	304	200	504
J.S.3.	373	130	503
K.S.	453	50	503
J.S.4.	402	100	502
R.S.	325	170	495
R.T.	191	300	491
L.T.	273	220	493
H.W.	251	250	501
M.Y.	413	90	503

The experimentor now explained the experiment to the class. He drew their attention to the reasons for handicapping in athletic races and drew a parallel between such races and the examination race. By illustrative cases on the blackboard, he endeavoured to show them that each of them had an equal chance of being top of the class, no matter what his present position in the class examination was, and that his rank in the subsequent examinations would be determined by the zeal and energy he displayed.

As it is the general practice in the school not to prescribe definite homework, the experimenter drew attention to the profitable use they could make of their spare time. He explained that he would be very pleased to look over and correct any work done at home and during spare moments at school. He also suggested that they might enlist the aid of parents and others to explain difficulties that they might encounter.

CONTROL GROUP.

For purposes of control another Standard 5 Class was taken in the same school. This class was very similar in most respects except that the numbers were smaller (28 instead of 50), that the pupils in it were generally somewhat brighter, and that the class teacher was more experienced and officially graded as much superior to the experimenter.

This class was submitted to the same initial and final examinations as was the experiment class, the questions, methods of marking and other conditions being identical. This class, of course, did not undergo the second and third examinations in

the experiment. These two examinations were given by the experimenter to his own class only.

The following table shows the scores of both the experiment class and the control class in the initial examination. The scores are set out in order from the highest to the lowest. These scores which are written in black ink are those of the experiment class while those written in red ink belong to the control class.

TAB LE 3.

THE SCORES OF THE EXPERIMENTAL CLASS AND THE CONTROL CLASS IN THE FIRST EXAMINATION COMPARED.

Name.	Total Marks.
D.C.	471
M.C.	463
T.B.	460
K.S.	453
K.J.	444
K.J.	435
R.S.	428
J.B.	419
M.Y.	413
C.P.	411
L.B.	407
N.P.	403
J.S.4.	402
M.B.	401
H.S.	396
J.H.	396
R.P.	394
N.T.	391
M.D.	386
H.L.	378
J.S.3.	375
F.U.	373
M.P.	372
S.J.	371
J.G.	366
E.P.1.	365
G.E.	361
D.T.	356
J.F.1.	356
D.M.	354
J.S.1.	353
E.B.	352
J.C.	351
J.H.	351
A.C.	351
J.F.2.	348
H.F.	347
G.P.	346
R.D.	345
M.R.	343

(Contd.)

Name.	Total Marks.
J.M.	342
M.E.	340
E.L.1.	339
E.L.2.	339
S.B.	335
H.C.	331
D.C.	329
N.C.	328
R.N.	327
E.P.2.	326
E.McM.	325
R.S.	325
P.M.	321
C.C.2.	319
J.R.	319
P.P.	318
B.D.	317
L.H.	313
A.R.	304
A.E.	303
W.B.	299
W.L.	299
W.M.	298
W.P.	297
P.F.	296
C.C.1.	290
W.McR.	286
J.S.2.	285
W.M.	278
L.T.	273
J.J.	268
D.M.	267
E.P.1.	266
M.S.	266
H.W.	251
A.F.	224
E.P.2.	208
R.T.	191

The medians of the total marks in the two classes were as follow :-

Experiment Class: 336
Control Class: 363

The medians of the various subjects expressed in percentages for the two classes were as follow :-

Subject:	Experimental Class:	Control Class:
Reading:	59	58
Spelling:	84	88
Writing:	56	74
Essay Writing:	55	60
Grammar:	54	66
Arithmetic:	41.5	47.5
Drawing:	60	63
Geography:	50	57
History:	48	64
Science:	60	70

Table 3 shows the relative scholastic attainment of the two classes at the beginning of the experiment. From this table, and the figures above, it will be noted that the control group tends to be a brighter and more capable class than the experiment class.

SECTION 3.

THE RESULTS.

Each Pupil Individually.

The following table shows the results in the second, third and final examinations of the experiment class. For purposes of comparison the results of the initial examination are also shown, but the marks and ranking in this take no account of handicap. The names are arranged in order of merit according to the first examination.

TABLE 4.

THE MARKS AND RANKS OF THE EXPERIMENT CLASS IN THE EXAMINATIONS UNDER HANDICAP CONDITIONS.

Name.	Hand-icap.	1st Exam.		2nd Exam.		3rd Exam.		4th Exam.	
		Marks.	Rank.	Marks.	Rank.	Marks.	Rank.	Marks.	Rank.
M.C.	40	463	1	495	29=	502	33=	499	44
T.B.	40	460	2	514	12	525	20=	486	46=
K.S.	50	453	3	521	8=	502	33=	497	45
K.J.	70	433	4	492	32	488	40	503	41
M.Y.	90	413	5	522	7	546	8	540	11
J.S.4.	100	402	6	500	23=	545	9=	544	7
R.P.	110	394	7	471	42=	465	48	519	27=
N.T.	110	391	8	488	33	514	28=	518	29
M.B.	110	386	9	496	27=	536	14=	522	25
J.S.3.	130	373	10	538	3	521	25=	531	16=
S.J.	130	371	11	443	49	495	37	542	8=
J.G.	130	366	12	544	2	558	2=	541	10
J.F.1.	140	356	13	496	27=	522	24	528	21
D.M.	140	354	14	499	25	525	20=	508	39
J.S.1.	140	353	15	482	35	499	36	514	33
J.C.	150	351	16=	435	50	451	50	465	50
J.H.	150	351	16=	471	42	484	43	509	37
A.C.	150	351	16=	511	14	558	2=	531	16=
J.F.2.	150	348	19	509	17	526	19	531	16=
N.F.	150	347	20	476	38=	493	39	518	29=
G.P.	150	346	21	474	40	545	9=	524	23=
R.B.	150	345	22	498	26	559	1	519	27=
J.M.	150	342	23	528	4	536	14=	521	26
E.L.1.	150	339	24=	506	19	486	41	510	34=
E.L.2.	150	339	24=	510	15=	521	25=	510	34=
S.B.	150	333	26	462	46=	524	22=	480	49
H.C.	160	331	27	463	45	464	49	486	46=
D.C.	170	329	28	508	18	508	32	529	20
E.McM.	170	325	29=	480	37	476	44	486	46=
R.S.	170	325	29=	556	1	549	7	546	5=
P.M.	170	321	31	502	21	485	42	509	37=
C.C.2.	180	319	32	521	8=	535	16	516	32
P.P.	180	318	33	515	11	514	28=	517	31
B.B.	160	317	34	466	44	494	38	536	14
A.R.	200	304	35	485	34	555	5	546	5=
W.L.	180	299	36	516	10	527	17=	531	16=
W.P.	190	297	37	495	29=	537	12=	538	12=
P.F.	200	296	38	523	6	512	30	510	34=
C.C.1.	200	290	39	500	23=	524	22=	562	2
W.McR.	210	286	40	510	15=	542	11	542	8=
J.S.2.	210	285	41	495	29=	518	27	503	41=
W.M.	220	278	42	476	38=	502	33=	524	23=
L.T.	220	273	43	505	20	527	17=	533	15
J.J.	220	268	44	526	5	558	2=	570	1
E.P.1.	230	266	45=	482	35=	537	12=	547	4
M.S.	240	266	45=	501	26	511	31	527	22
H.W.	250	251	47	462	46=	472	46=	538	12=
A.F.	250	224	48	473	41	472	46=	500	43
E.P.2.	290	208	49	511	13	553	6	549	3
R.T.	300	191	50	461	48	475	45	504	48

Table 4 is an exceedingly interesting table as the positional change of each pupil through the series of examinations under handicap conditions reflects more or less clearly the effect of this system on each child individually.

The top four pupils in the initial examination, M.C., T.B., K.S. and K.J., have, as the experiment progressed, continued to drop further and further down in the rank till, at the conclusion of the experiment, they occupied places within the last ten. Up till the last examination they have apparently failed to realise that much more effort is required to maintain their former positions. It would be interesting to discover whether, if this system were in vogue for a longer period, they would regain their original positions by making the required effort.

The 5th pupil, M.Y., has evidently realised immediately the significance of the handicap and has succeeded in maintaining approximately the same rank throughout. The 6th, J.S.A., is illuminating. The sudden drop in the second examination to 23rd. seems to have spurred him greatly so that he has succeeded in regaining and subsequently retaining his original ranking. The 7th and 8th, R.P. and N.T., have both as yet been unable to meet the altered conditions and, while their scores have increased slightly, they have relatively lost rank to those who have apparently worked harder.

The 11th, S.J., dropped to 49th in the second examination. The experimenter remembers clearly this pupil's extreme surprise at this. It appears to have stimulated him greatly because in the two succeeding examinations he increased his marks 52 and then

a further 47, while he rose correspondingly in rank to 37th and lastly 8th, a higher position than he originally filled.

The 12th, J.C., improved in rank and the 13th, J.F.1, maintained approximately the same position. The 14th and 15th, D.M. and J.S.1., gained more marks but not sufficient to hold their ranks. They have both continued to drop. J.C., 16th = dropped immediately to 50th and remained in that position throughout the experiment. Perhaps he may have previously been working at full capacity and so have been unable to compete successfully with the extra effort put forward by the others. However, it appeared to the experimenter that his attitude was casual. J.M., also 16th =, also apparently failed to realise the significance of the handicap and continued to drop. A.C., 16th=, and J.F.2, 19th, maintained their positions approximately. The 20th, M.F., although gaining in marks, did not make sufficient effort to continue his position.

The 21st, 22nd and 23rd, G.P., R.D. and J.M., seem to have greatly increased their efforts for one of the examinations, but subsequently only maintained their original positions. E.L.1 and E.L.2, both 24th =, and S.B., M.C. and E.McM., 26th, 27th and 29th =, respectively, must have failed to grasp what the handicap meant to their fellow-pupils and, as a result, dropped substantially in rank. R.S., 29th =, on the other hand, appears to have seized the opportunity presented by the handicap immediately as he jumped to the top place and, continuing those efforts, remained near that position.

The 32nd and 33rd, C.C.2 and P.P., seem to have been content

with their first success and thereafter have dropped in the succeeding examinations to their initial ranking. A drop of ten places in the second examination appears to have caused the 34th, B.B., to greatly increase effort so that the final rank was 14th. The 35th, 36th and 37th, A.R., W.L. and W.P., all have improved their ranking greatly. P.E., 38th, after a spasmodic effort for the second examination, has not continued to maintain that effort and consequently gradually dropped again. The 39th, C.C.1., has apparently worked harder and harder as success has attended the effort. The increase has been both steady and substantial.

After some increased effort for the second examination the 41st, J.S.2., failed to sustain that effort and lapsed to his original ranking. W.McR., W.M. and L.T., respectively 40th, 42nd and 43rd, and E.P.1 and M.S., both 45th =, appear to have worked more and more industriously as their efforts have been more and more successful in each succeeding examination. J.J., 44th, in particular seems to have responded tremendously to the handicap idea, his gains both in marks and ranks being moct noteworthy. The 47th, H.W., appears to have realised slowly the possibilities and has gradually improved his ranking, while with A.F. and R.T., 48th and 50th, the improvement has been still more slow. One wonders if a continuation of this handicap system would stimulate them to greater efforts. The 49th, E.P.2., has also apparently been greatly assisted by the handicap and has achieved a great deal more than he probably would have achieved without the aid of the handicap. This bears

out the aphorism quoted by Adler, ("The Education of Children"),

"Nothing succeeds like success".(1)

From the foregoing it appears that many of the brighter pupils failed to realise the significance of the handicap and, while they increased their efforts somewhat under the more even competition as is shown subsequently by their marks, it was not a sufficient increase to compete successfully with the very much increased efforts of many of the duller pupils who responded tremendously under the encouragement of the handicap.

CLASS-WORK AS A WHOLE:

The following table, Table 5, will make a comparison between the actual marks, i.e. without handicap, obtained by each pupil in the first and the last examinations of the experiment class, and shows the gain or loss in marks made by each pupil. In addition, it includes the rankings in the two examinations and shows also the gain or loss in rank for each pupil at the conclusion of the experiment. The order of pupils is that of the first examination.

Following Table 5 is another table which contains the marks obtained by each pupil of the control class in the first and the last examinations and also the resulting gain or loss.

1. Adler, "Education of Children", Page 185.

TABLE 5.

THE MARKS AND RANKS IN THE FIRST AND LAST EXAMINATIONS OF THE EXPERIMENT CLASS, AND THE GAIN OR LOSS IN MARKS AND RANK.

Name.	CLASS MARKS. First Exam.	Last Exam.	Gain in Marks.	Loss in Marks.	ORDER IN CLASS. First Exam.	Last Exam.	Gain in Rank.	Loss in Rank.
M.C.	463	459	-	4	1	1	-	-
T.B.	460	446	-	14	2	4	-	2
K.S.	453	447	-	6	3	3	-	-
K.J.	433	433	-	-	4	6	-	2
M.Y.	413	450	37	-	5	2	3	-
J.S.4.	402	444	42	-	6	5	1	-
R.P.	394	409	15	-	7	10	-	3
N.T.	391	408	17	-	8	11	-	3
M.B.	386	412	26	-	9	7=	2	-
J.S.3.	373	401	28	-	10	12	-	2
S.J.	371	412	41	-	11	7=	4	-
J.G.	366	411	45	-	12	9	3	-
J.P.1.	356	388	32	-	13	13	-	-
D.M.	354	368	14	-	14	22=	-	8
J.S.1.	353	374	21	-	15	18=	-	3
J.C.	351	315	-	36	16=	41	-	25
J.H.	351	359	8	-	16=	26=	-	10
A.C.	351	381	30	-	16=	14=	2	-
J.P.2.	348	381	33	-	19	14=	5	-
H.F.	347	368	21	-	20	22=	1	2
G.P.	346	374	28	-	21	18=	3	-
R.D.	345	369	24	-	22	21	1	-
J.M.	342	371	29	-	23	20	3	-
E.L.1.	339	350	11	-	24=	29=	-	5
E.L.2.	339	360	21	-	24=	25	-	1
S.B.	333	330	-	3	26	38	-	10
H.C.	331	326	-	5	27	26=	1	-
D.C.	329	359	30	-	28	40	-	11
E.McM.	325	316	-	9	29=	16=	11	-
R.S.	325	376	51	-	29=	37	-	6
P.M.	321	329	8	-	31	34	-	2
C.C.2.	319	336	17	-	32	33	-	1
P.P.	318	327	9	-	33	34	-	1
D.B.	317	276	-	41	34	32	2	-
A.R.	304	346	42	-	35	28	7	-
W.L.	299	351	52	-	36	31	5	-
V.P.	297	348	51	-	37	43	-	6
P.F.	296	310	14	-	38	24	14	-
C.C.1.	290	362	72	-	39	35	4	-
V.McR.	286	332	46	-	40	45	5	-
J.S.2.	285	293	8	-	41	44	3	-
W.M.	278	304	26	-	42	42	-	-
L.T.	273	313	40	-	43	29=	14	-
J.J.	268	350	82	-	44	39	5	-
E.P.1.	266	313	51	-	45=	47	2	-
M.S.	266	287	21	-	45=	46	1	-
H.W.	251	288	37	-	47	49	2	-
A.F.	224	250	26	-	48	48	-	-
E.P.2.	208	259	51	-	49	50	1	-
R.T.	191	204	13	-	50	50	-	-

TABLE 6.

THE MARKS OF THE CONTROL CLASS IN THE FIRST AND LAST EXAMINATIONS AND THE GAIN OR LOSS:

Name.	Marks. 1st Exam.	Marks. Last Exam.	Gain in Marks.	Loss in Marks.
D.C.	471	446	-	25
K.J.	444	428	-	16
R.S.	428	416	-	12
J.B.	419	344	-	75
C.P.	411	426	15	-
L.B.	407	414	7	-
N.P.	405	411	6	-
M.B.	401	280	-	121
H.S.	396	440	44	-
J.H.	396	427	31	-
H.L.	378	360	-	18
F.U.	373	347	-	26
M.P.	372	324	-	48
E.P.1.	365	352	-	13
G.E.	361	357	-	4
D.T.	356	373	17	-
E.B.	352	344	-	8
M.R.	345	330	-	15
M.E.	340	325	-	15
N.C.	328	279	-	49
R.N.	327	344	17	-
E.P.2.	326	308	-	18
J.R.	319	313	-	6
L.H.	313	291	-	22
A.E.	303	272	-	31
W.B.	295	302	7	-
W.M.	295	291	-	4
D.M.	267	278	11	-

A study of Table 5 clearly reveals the fact that the majority of pupils in the experiment class increased their marks in the last examination, this increase, in some cases, being very substantial. Out of the class of 50, 42 pupils increased their marks while 1 obtained the same score and only 7 obtained fewer marks. This appears in itself to be sufficient proof of an all-round improvement.

Comparing Table 5 with Table 6 these results are still more illuminating and convincing. Table 6 shows that in the control group 9 pupils only out of 28 increased their marks, the other 19 recording a decrease. The increase in the experiment class ranged up to 82 marks while the greatest increase in the control class was 44. Furthermore, the greatest decrease in the experiment class was 36 while in the control class the greatest loss was 121.

When all the marks of all the pupils in each class are totalled, further confirmation of the above figures is received. These marks totalled are as follow :-

EXPERIMENT CLASS:		CONTROL CLASS:	
Total Marks gained in First Examination	= 16627	Total Marks gained in First Examination	= 10196
Total Marks gained in Last Examination	= 17889	Total Marks gained in Last Examination	= 9833
GAIN	= 1262	LOSS	= 363
GAIN %	= 7.59	LOSS %	= 3.56

Combined gain = 11.15%

These facts appear to the experimenter to establish clearly that the last examination, as shown by the loss recorded in the control class, was more difficult than the first, the improvement

in the experiment class being largely due to the employment of the handicap system.

SECTIONS BASED ON ABILITY.

For the purpose of determining which children were most influenced by the experiment, the results of both classes have been divided into five groups (a), (b), (c), (d) and (e), according to the marks obtained in the first examination.

The following table in the sections (a), (b), (c), (d) and (e) contain the gains or losses in marks of each pupil of the section in the experiment class and the gains or losses of the corresponding section in the control group. Each section in the experiment class contains 10, pupils and the corresponding section in the control class has 5 or 6. The sections are arranged so that the first section, (a), contains the brightest pupils, and each succeeding section contains the children of lower and lower achievement. In the columns showing gains (+) or losses (-), the numbers represent gain or loss in marks obtained by each pupil in the last examination.

TABLE 7.

THE GAINS AND LOSSES IN MARKS OF THE TWO CLASSES WHEN DIVIDED INTO SECTIONS ACCORDING TO ABILITY.

	Experiment Class.				Control Class.			
	Name.	Rank. 1st Exam.	Hand-icap.	Gain or Loss.	Name.	Rank. 1st Exam.	Gain or Loss.
(a)	M.C.	1	40	- 4	D.C.	1	- 25
	T.B.	2	40	- 14	K.J.	2	- 16
	K.S.	3	50	- 6	R.S.	3	- 12
	K.J.	4	70	0	J.B.	4	- 75
	M.Y.	5	90	37	C.P.	5	157
	J.S.A.	6	100	42	L.B.	6	7
	R.P.	7	110	15			
	N.T.	8	110	17			
	M.B.	9	110	26			
	J.S.J.	10	130	28			
	Total gains in section= 165				Total gains in section= 22		
	" losses " " = 24				" losses " " = 128		
	Net gain " " = 141				Net loss " " = 106		
	Average gain per pupil=14.1				Average loss per pupil=17.6		

Combined gain by (a) section in experiment class over control class = 31.7 marks.

Table 7 (contd.)

	Experiment Class.				Control Class.		
	Name.	Rank in 1st Exam.	Hand-icap.	Gain or Loss.	Name.	Rank in 1st Exam.	Gain or Loss.
(b)	S.J.	11	130	41	N.P.	7	8
	J.G.	12	130	45	M.B.	8	-121
	J.F.1.	13	140	32	H.S.	9	44
	D.M.	14	140	14	J.H.	10	31
	J.S.1.	15	140	21	H.L.	11	- 18
	J.C.	16 =	150	- 36			
	J.H.	16 =	150	8			
	A.C.	16 =	150	30			
	J.F.2.	19	150	33			
	N.F.	20	150	21			
	Total gains in section			=245	Total gains in section		= 83
	" losses " "			= 36	" losses " "		= 139
	Net gains " "			=209	Net loss " "		= 56
	Average gain per pupil			=20.9	Average loss per pupil		= 11.2

Combined gain by (b) section of experiment class over control class = 32.1 marks.

Table 7 (contd.)

	Experiment Class.				Control Class.		
	Name.	Rank in 1st Exam.	Hand-icap.	Gain or Loss.	Name.	Rank in 1st Exam.	Gain or Loss.
(c)	G.P.	21	150	28	F.U.	12	- 26
	R.D.	22	150	24	M.P.	13	- 48
	J.M.	23	150	29	E.P.1.	14	- 13
	E.L.1.	24 =	160	11	G.E.	15	- 4
	E.L.2.	24 =	150	21	D.T.	16	- 17
	S.B.	26	150	- 3	E.B.	17	- 8
	H.C.	27	160	- 5			
	D.C.	28	170	30			
	E.McM.	29 =	170	- 9			
	R.S.	29 =	170	51			
Total gains in section =				194	Total gains in section =		17
" losses " " =				17	" losses " " =		99
Net gain " " =				177	Net loss " " =		82
Average gain per pupil =				17.7	Average loss per pupil =		13.6

Combined gain by (c) section of experiment class over control class = 31.1 marks.

Table 7 (contd.)

	Experiment Class.				Control Class.		
	Name.	Rank in 1st Exam.	Hand-icap.	Gain or Loss.	Name.	Rank in 1st Exam.	Gain or Loss.
(a)	P.M.	31	170	8	M.R.	18	- 13
	C.C.2.	32	180	17	M.E.	19	- 5
	P.P.	33	180	19	N.C.	20	- 49
	B.B.	34	160	59	R.N.	21	17
	A.R.	35	200	42	E.P.2.	22	- 18
	W.L.	36	180	52			
	W.P.	37	190	51			
	P.F.	38	200	14			
	C.C.1.	39	200	72			
	W.McR.	40	210	46			
	Total gains in section		=	380	Total gains in section		= 17
	" losses " "		=	0	" losses " "		= 85
	Net gain " "		=	380	Net loss " "		= 68
	Average gain per pupil		=	38	Average loss per pupil		= 13.6

Combined gain by (a) section of experiment class over control class = 51.6 marks.

Table 7 (contd.)

	Experiment Class.				Control Class.		
	Name.	Rank in 1st Exam.	Hand-icap.	Gain or Loss.	Name.	Rank in 1st Exam.	Gain or Loss.
(c)	J.S.2.	41	210	8	J.R.	23	- 6
	W.M.	42	220	26	L.H.	24	-22
	L.T.	43	220	40	A.E.	25	-31
	J.J.	44	220	82	W.B.	26	4
	E.P.1.	45 =	230	51	W.M.	27	- 7
	M.S.	45 =	240	21	D.M.	28	11
	H.W.	47	250	37			
	A.F.	48	250	26			
	E.P.2.	49	290	51			
	R.T.	50	300	13			
	Total gains in section			=355	Total gains in section		= 15
	" losses " "			= 0	" losses " "		= 66
	Net gain " "			=355	Net loss " "		= 51
	Average gain per pupil			= 35.5	Average loss per pupil		= 8.5.

Combined gain by (c) section of experiment class over control class = 44 marks.

A study of Table 7 (a), which is composed of the section of brightest children, reveals an average increase in marks per pupil of 14.1 in the experiment class, while in the corresponding section in the control class an average loss of 17.6 marks per pupil was recorded. Similarly, with Table 7 (b), (c), (d) and (e) average gains of 20.9, 17.7, 38 and 35.5 respectively, per pupil in the experiment class are shown, while the corresponding sections in the control class have revealed losses of 11.2, 13.6, 13.6 and 8.5 marks respectively.

The greatest average gain under the handicap system is recorded in those two sections (d) and (e), composed of the pupils of a lower level of intelligence, in the experiment class. Here the average gains have been almost double that of the other three sections, (a), (b) and (c). Furthermore, no pupil in either of these two lower sections has recorded a loss of marks. Each of the other three higher sections has one or more individual pupils recording losses.

These figures appear to the experimenter to be additional evidence which confirms the impression that, while the employment of the handicapping has been decidely beneficial to the majority of the pupils, it is particularly so in the case of the duller pupils.

Table 8, which follows this, illustrates still more clearly the fact that the greatest benefit from the handicapping is derived by the duller pupils, the gain increasing more and more in each section as we go down the class order.

This table shows the average gain per section expressed as

a percentage of the average marks of the section in the first examination. These figures are given for the five sections (a), (b), (c), (d) and (e) of both the experiment class and the control class. The last column of the table contains the percentage improvement of each section of the experiment class over the corresponding section of the control class.

It will be noted how these combined increases of the sections, (a) 7.5%, (b) 8.7%, (c) 9%, (d) 16.5% and (e) 17.5% increase most markedly in the last two sections which confirms still more surely what was shown in Table 8 about the greater benefit of the handicapping to the duller pupils.

TABLE 8.

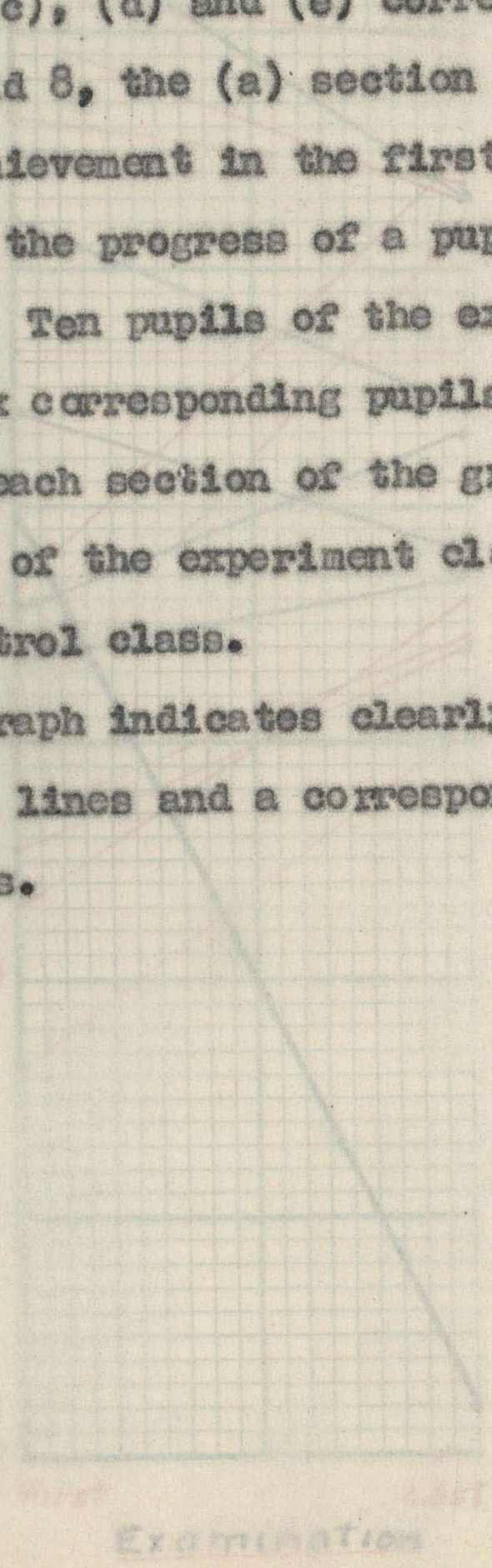
THE GAINS AND LOSSES OF SECTIONS IN THE TWO CLASSES COMPARED ON A PERCENTAGE BASIS:

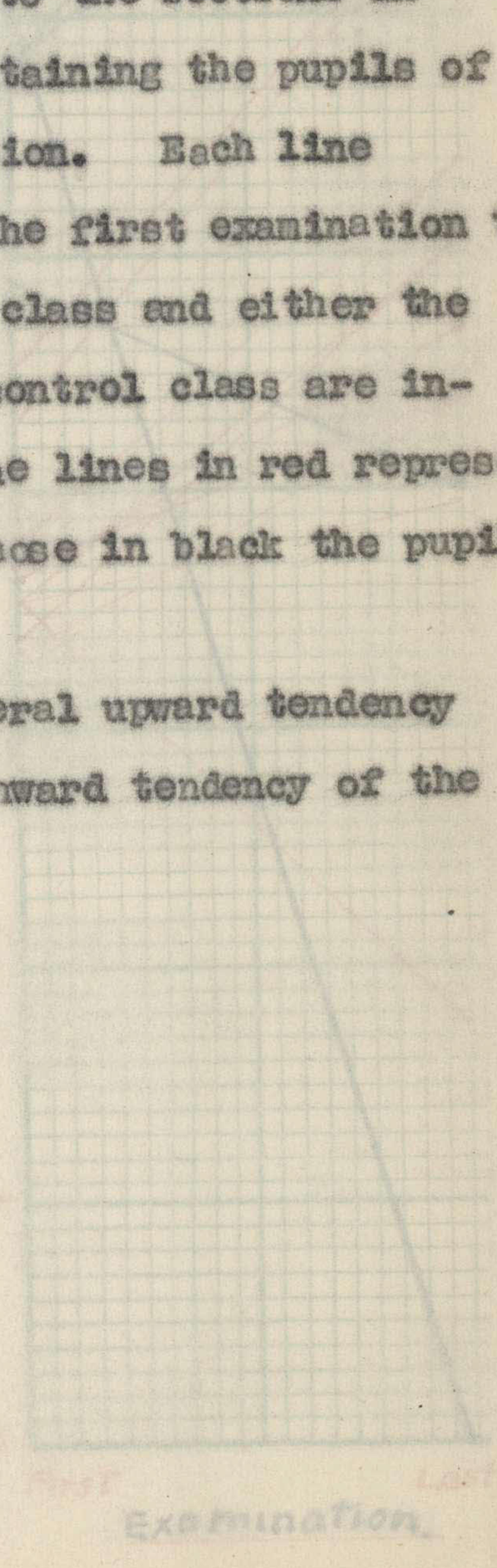
	Experiment Class.			Control Class.			Combined Increase by Experiment Class in per cent.
Section of Class.	Average Mark of Each Pupil in 1st Exam.	Average Gain.	Gain per Cent.	Average Mark of Each Pupil in 1st Exam.	Average Loss.	Loss per Cent.	
(a)	417	14.1	3.4	430	17.6	4.1	7.5
(b)	355	20.9	5.9	395	11.2	2.8	8.7
(c)	395	17.7	5.3	365	13.6	3.7	9
(d)	305	38	12.4	333	13.6	4.1	16.5
(e)	251	35.5	14.1	280	8.5	3.4	17.5

The following graph further bears out Tables 5, 6, 7 and 8 as it shows at a glance the upward tendency of most of the pupils of the experiment class when the marks of the first examination are compared with the marks of the last. In contrast there is shown a downward tendency for most of the pupils of the control class.

This graph is broken up for convenience into five sections (a), (b), (c), (d) and (e) corresponding to the sections in Tables 7 and 8, the (a) section again containing the pupils of highest achievement in the first examination. Each line represents the progress of a pupil from the first examination to the last. Ten pupils of the experiment class and either the five or six corresponding pupils of the control class are included in each section of the graph. The lines in red represent the pupils of the experiment class and those in black the pupils of the control class.

The graph indicates clearly the general upward tendency of the red lines and a corresponding downward tendency of the black lines.





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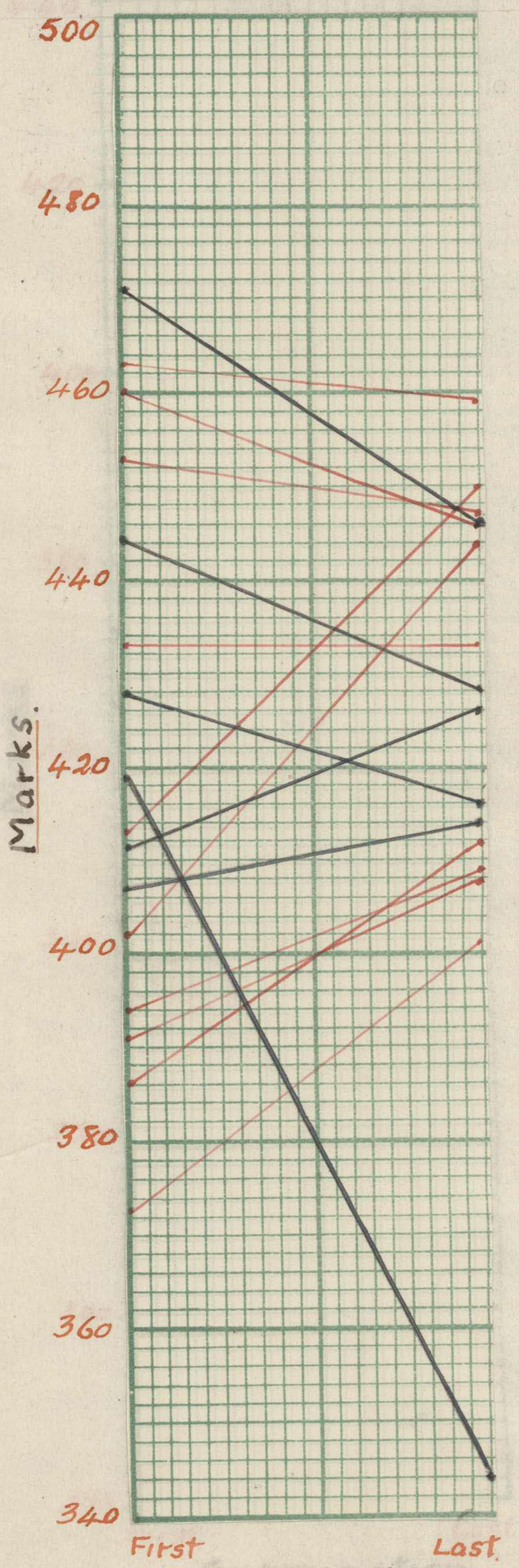
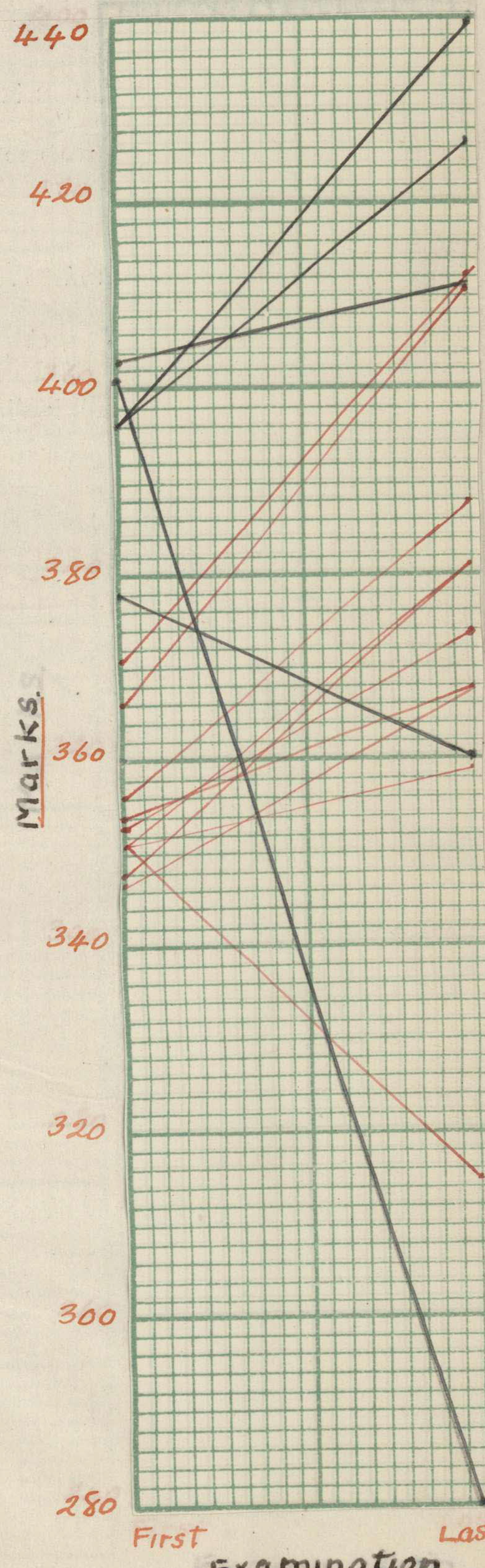
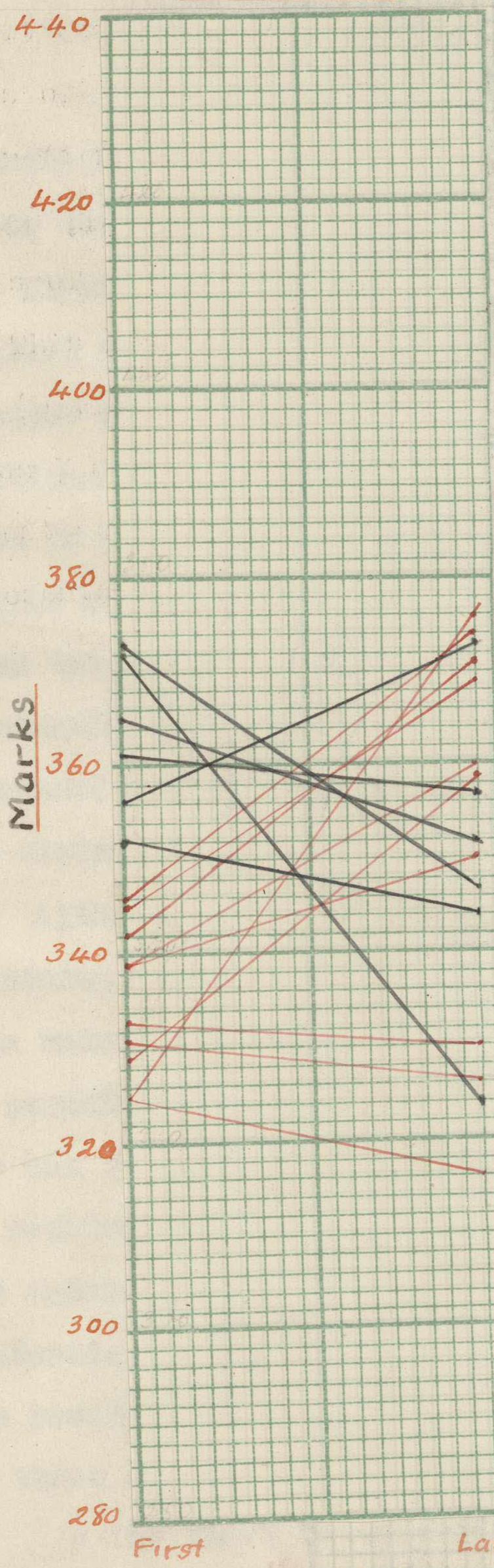


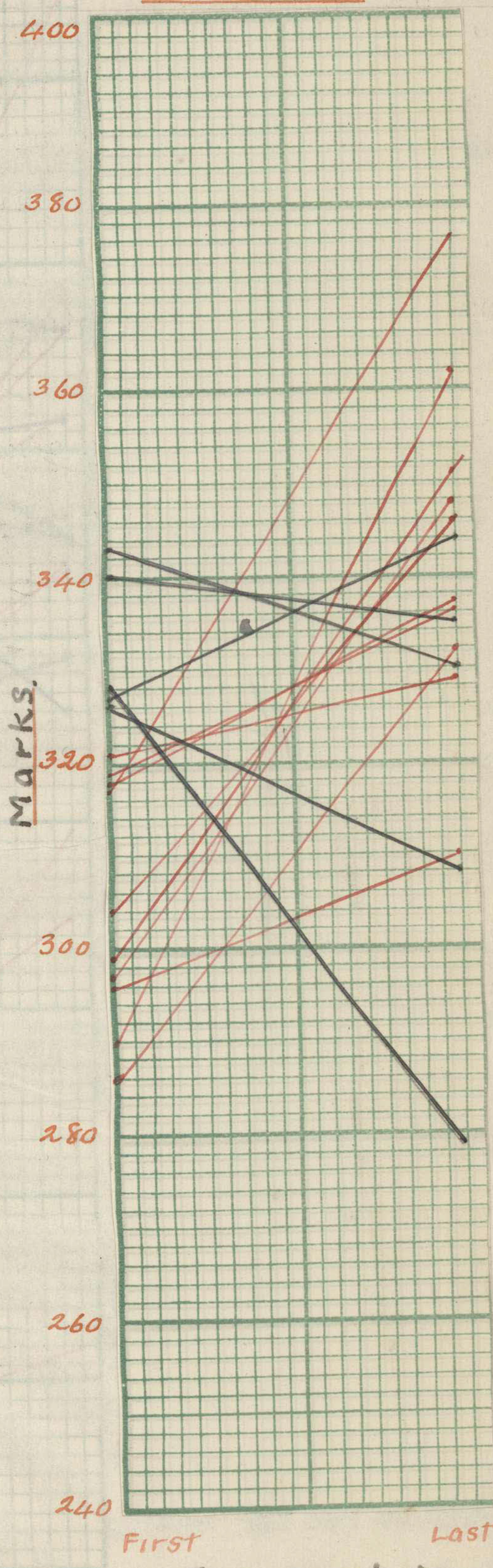
Section (b).



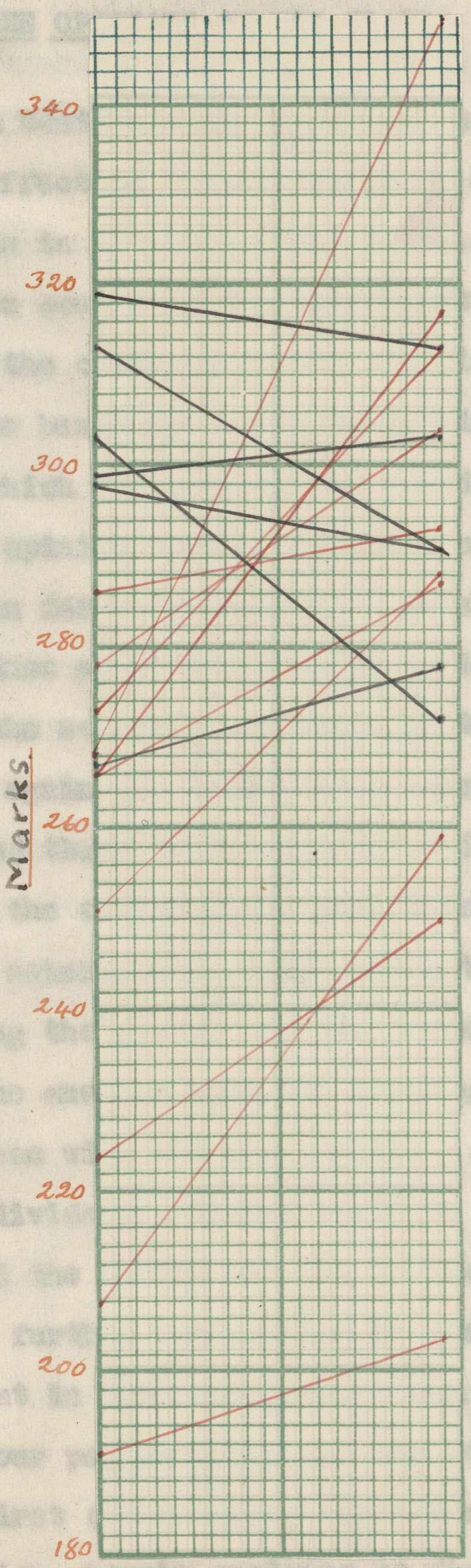
Section (c).



Section (d).



Section (e).


340
320
300
280
Marks.
260
240
220
200
180
First
Last.
Examination

THE OPINIONS OF THE CLASS:

This section will be devoted to an endeavour to estimate the effect of the handicapping on the mental attitude of the children in the experiment class.

During the course of the experiment the experimenter obtained from the children of the experiment class only their opinions of the handicap system by issuing to each child a questionnaire which was answered in writing. It was worded, "What is your opinion of this examination system? Give any reasons you can for your answer". This questionnaire was given twice, once after the results of the first handicap examination (the second examination in the experiment) had been announced and again after the final examination when the pupils had experienced three handicap examinations.

Although the experimenter considered that he had, in outlining the scheme, made quite clear to all the children the idea underlying the system and the procedure involved, he found in perusing the answers from the first questionnaire that such was not the case with all the pupils. In a considerable number of replies individual children wrote to the effect that they did not understand the system and so, in these cases, no opinion was ventured. A further explanation of the system was given with the result that in the second questionnaire this answer occurred in three or four papers only, all the others expressing an opinion.

In the first questionnaire quite a number did not express any definite opinion, merely replying to the effect, "Have not made up

my mind yet." In the second questionnaire this answer did not occur. Furthermore, the first questionnaire furnished replies from several giving this idea, "It is fair in a way", the writers apparently having some doubt about it. In the second questionnaire, however, all these children expressed a definite opinion either in favour or against.

The following table contains the results of the second questionnaire summarised as in favour of the handicapping or against it. The table shows the results in five sections corresponding to the previous divisions of tables (see Tables 7 and 8.) For each child the rank in the first examination, the gain or loss in marks in the last examination and the opinion are shown. A favourable opinion of the handicapping is shown in the table by the letter F, an unfavourable opinion by a cross, (X), and when no opinion was given the result is shown by a question mark, (?).

TABLE 9.

THE OPINIONS OF THE PUPILS OF THE HANDICAPPING SYSTEM:

Section (a).			Section (b).			Section (c).		
Rank In First Exam.	Gain(+) or Loss(-) In Marks.	Opinion.	Rank In First Exam.	Gain(+) or Loss(-) In Marks.	Opinion.	Rank In First Exam.	Gain(+) or Loss(-) In Marks.	Opinion.
1	- 4	F	11	41	F	21	28	F
2	-14	X	12	45	X	22	24	F
3	- 6	F	13	32	F	23	29	F
4	0	X	14	14	X	24=	11	F
5	37	F	15	21	F	24=	21	F
6	42	X	16=	-36	X	26	- 3	F
7	15	X	16=	8	F	27	- 5	F
8	17	F	16=	30	X	28	30	F
9	26	X	19	33	F	29=	- 9	F
10	28	X	20	21	X	29=	51	F
Number in favour = 4					4			9
" against = 6					6			0

Section (d).			Section (e).		
Rank In First Exam.	Gain(+) or Loss(-) In Marks.	Opinion.	Rank In First Exam.	Gain(+) or Loss(-) In Marks.	Opinion.
31	8	X	41	8	?
32	17	?	42	26	F
33	19	F	43	40	F
34	59	F	44	82	F
35	42	X	45=	51	F
36	52	F	45=	21	F
37	51	F	47	37	X
38	14	F	48	26	F
39	72	F	49	51	F
40	46	X	50	13	?
Number in favour = 6					7
" against = 3					1

Table 9 reveals that in the two sections, (a) and (b), composed of the more clever pupils, there were, in each case, 4 pupils in favour of the handicapping and 6 were against. Sections (c), (d) and (e) each have more in favour than against. This was more pronounced in sections (c) and (e) where 9 and 7 respectively were in favour and 0 and 1 respectively were opposed to the handicapping. It will be noticed that success or failure is obviously not the only criterion on which the opinion was based as several who have done well prefer the old type of examination while, on the other hand, several are in favour though they themselves did not do well. In all, there were 30 pupils who preferred the handicap system while 16 were not in favour of its employment. Only 4 failed to express an opinion, professedly because of lack of understanding.

It appears, then, that opinion among the more clever pupils was comparatively evenly divided, with the tendency to be more against than in favour of the handicapping. Among those of average and below average ability opinion was overwhelmingly in favour, although there were opponents even among those occupying some of the lowest positions.

An investigation into the reasons for the opinions expressed in the second questionnaire are interesting. Following are answers which are typical of the ideas expressed by the children in giving their viewpoint on the handicapping.

G.P. "I think it is a good idea because it gives the children who are at the bottom of the class more confidence in themselves."

E.L.2. "I think that it is good because it gives the weaker ones a chance to get top of the class; also that it helps us to learn what might have been missed by being absent."

W.P. "I think it gives those duds a hope who want to leave at the end of the year."

A.C. "I agree with the handicap examination because it makes the higher pupil work hard."

J.J. "I agree with it because it tells you whether you revised your back work and helps you on. Makes you keep your work up to date to keep your place."

These replies, all in favour of the system of handicapping, cover most of the reasons advanced in favour of the system.

J.S.1. "It was fair and it made me work."

This opinion, expressed by a few, is a grudging approval, but illustrates the fact that the pupils put in a large amount of extra work in some of the subjects.

N.F. "I like the other examination better than the one with the handicap."

In this unfavourable reply no reasons were given. There were several replies like this.

P.M. "It makes the top people work hard but I think I would prefer the other examination without the handicap."

W.McR. "It is a good way of helping the weaker ones in the way of trying to get first, but I like the old way much better because there is no start."

A.R. "I think this handicap is no good because you want to see if you can be top without handicap."

J.F.1. "I think handicaps are unfair because the people who were top get put right down and the lower people come top."

These last four answers give typical reasons and viewpoints of those who were unfavourable to the employment of handicaps.

During the course of the experiment some confusion and disappointment with the results from time to time did happen in individual cases where a pupil gained higher marks than in the previous examination and yet filled a lower rank. This was caused by the pupil concerned not realising that almost every pupil in the class was gaining higher marks too and in order to gain a higher rank it was necessary to gain more than the average gain in marks. In each succeeding examination each pupil was compelled to increase his marks to maintain his position, so increase in marks did not necessarily imply an improved ranking. However, explanation and encouragement generally removed this disappointment.

From the foregoing, then, the concensus of opinion appears to be predominately in favour of the employment of a system of handicaps.

THE SEVERAL CLASS SUBJECTS:

In this section it is proposed to analyse the effect of the handicap system on the various subjects not only to discover the improvement made in each individual subject, although this in itself is interesting and worthy of note, but also to endeavour to ascertain the extra activities of the children in the various subjects, through the encouragement afforded by the employment of

the handicapping system.

The following table contains the medians in the several subjects in the first and last examinations of the experiment class with the corresponding medians of the control class. The table also sets out the gain or loss in each of the subjects recorded by the two classes. The last column of the table combines the gain or loss in each subject for the two classes in order to show the improvement of the experiment class over the control class and so obtain a clearer insight into the effect of the handicapping on each subject. All figures are expressed in percentages. Gains in Columns 4, 7 and 8 are expressed as plus and losses as minus.

TABLE 10.

THE MEDIANS OF THE SEVERAL SUBJECTS IN THE FIRST AND THE FINAL EXAMINATIONS FOR BOTH CLASSES:

Subject.	Experiment Class.			Control Class.			Combined Difference.
	First Exam.	Last Exam.	Gain or Loss.	First Exam.	Last Exam.	Gain or Loss.	
Reading	59	62	3	58	57	- 1	4
Spelling	84	72	-12	88	82	- 6	- 6
Writing	56	64	8	74	72	- 2	10
Essay Writing	55	55	0	60	65	5	- 5
Grammar	54	64	10	66	56	-10	20
Arithmetic	41.5	52	10.5	47.5	45	- 2.5	13
Drawing	60	58	- 2	63	54	- 9	7
Geography	50	58	8	57	58	1	7
History	48	63	15	64	52	-12	27
Science	60	68	8	70	62	- 8	16
Total gains in all subjects			= 62.5	Total gains		=	6
" losses " " "			= 14	" losses		=	50.5
Net gain			= 48.5	Net loss		=	44.5
Average gain per subject:			= 4.85%	Average loss		=	4.45%

The Combined Difference in favour of the Experiment Class shows.

Total gains	= 104
" losses	= 11
Net gain	= 93
Real average gain per subject	= 9.3%

A study of Table 10 reveals in another way the improvement which followed the employment of this handicapping system. Column 4 shows that in seven of the subjects the medians reveal an increase in the experiment class, this increase being substantial in two or three of the subjects. In only two subjects of the ten, spelling and drawing, is a smaller median recorded. In the case of spelling, the papers in the last examination were assessed on a different basis from what they were in the first examination. The first examination spelling test was confined solely to words contained in a list which contained only those words learned by the class during the year to the date of the examination. In the final examination, in addition to marks being deducted for errors in words from the class-list for the year, a further deduction was made for words spelled wrongly in the examination essay; e.g. A. gains 24 out of 25 for spelling from the class-list. However, he lost 3 more marks for errors in essay-writing, making his score not 24 but 21. (Note: 1 mark in spelling equals 4%.) Thus the spelling scores tended to be considerably lower in the last examination.

In contrast to the medians of the experiment class, column 7 shows that in only two subjects in the control class, geography and essay-writing, was there an increase in the medians, while in the other eight subjects a decrease is recorded. The same conditions held for spelling as in the experiment class.

Column 8, the combined results of columns 4 and 7, shows clearly the real gain or loss made by the experiment class over the control class. In eight of the ten subjects a gain is noted.

In four of the subjects, grammar, arithmetic, history and science, this increase is very considerable, history revealing the surprising gain of 27%. In the remaining two subjects, spelling and essay-writing, the experiment class showed a decrease. As a possible explanation for the decrease in spelling the experimenter wiuld suggest that, as the control group is stronger (10%) in essay-writing, fewer errors in spelling would occur in the class with the better essays, so that the median in the spelling of the control class would not suffer to the same extent as that of the experiment class through the altered basis of marking.

The figures at the bottom of the table summarise the gains and losses in all the subjects, showing that the average gain per subject in the experiment class was 4.85%, while the average loss per subject in the control class was 4.45%. The net average improvement per subject in the experiment class then has been calculated to be 9.3%. (Compare with the gain of 11.15% on page 22 where the improvement has computed on the total marks.)

An endeavour will now be made to show the effect of the handicapping on the various subjects when studied in the light of the amount of self-effort that each pupil might be able to put forward in each of the subjects. By self-effort is meant the amount of further improvement that a pupil, on his own initiative, could make in each of the subjects by doing extra work in those subjects in spare time either in or out of school. (Note - no homework was set.)

In order to assist in the ascertainment of the effect to the handicapping in each of the subjects, they were divided into three groups, each group containing those subjects which allow of approximately an equal amount of self-effort. The reasons for the classification are included in the subsequent discussion of each group. The classification is as follows :-

First Group: {Reading: Essay Writing: Drawing:

Second Group: {Grammar: Writing:

Third Group: {Spelling: Arithmetic: Geography: History: Science:

Reading, essay-writing and drawing are classified together because there appears, to the experimenter, comparatively little scope for extra practice for self-improvement. Reading includes comprehension, 40%, oral reading, 40%, and poetry 20%. The comprehension does not lend itself to much definite improvement by the pupils themselves as it is tested by written exercises to which they have no access. It is also difficult for pupils to improve their oral reading themselves and few parents trouble to help them. Certainly, silent reading indirectly helps. It is also difficult for a pupil to improve himself at poetry. He is able to memorize the subject matter thoroughly, but can do little himself to improve enunciation and expression. Thus children can do comparatively little definitely to improve them-

selves in reading. Essay-writing is to the child a very indefinite and consequently difficult subject, in which he would rarely attempt to improve himself, especially as the class used no text-book as an aid to activity. Drawing also seems to the experimenter to lend itself to little purposive self-improvement for the child, the subjects of the other groups providing a more easy and definite field for practice. Table 10 shows that in reading a gain of 3% was recorded or a combined gain over the control class of 4%. In essay-writing no gain was made by the class and a loss of 5% was recorded when compared with the control class. Drawing revealed a gain of 2% by the class which was increased to 7% when compared with the control class. From these data then it seems to the experimenter quite justifiable to assume that the handicapping is of no outstanding value in stimulating the pupils to effort in these subjects.

Grammar and writing were formed into a second group because of approximately equal opportunities for extra work. Grammar has an advantage over essay-writing as a class text-book is provided, which contains numerous explanations, examples and exercises. There was no direct evidence that this book was used by individual pupils on their own initiative but it is more than probable that such was the case. The improvement in this subject was 10% or when compared with the control class was 20%. As the time devoted to this subject was not increased after the first examination the experimenter suggests that it is more than probable that some of the improvement is due to the additional use of the text-book by children individually.

In writing, the other subject of the second group, the improvement was 10% which, when compared with the control class, was reduced to 8%. Although no copy book was used by the class, writing appears to the experimenter to present more opportunity for self-improvement than any of the subjects in the first group. A few pupils at intervals did present writing which they had done at home and it is probable that others did extra practice at home without showing it. This then appears to account for some of the improvement.

From the foregoing data the experimenter suggests that the greater improvement in the subjects in this group is due, in part at least, to the fact that in both subjects there existed the possibility of pupils on their own initiative improving themselves, i.e. knowledge and improvement is more easy of access than in the subjects of the first group.

The third group included spelling, arithmetic, geography, history and science for the reasons given below. In spelling and science, while there were no set text-books for either subject, all the work done during the year was noted by each child in a special exercise book for each subject. Thus, it can be seen that each child had all the information required for the examination written in his book and it was only necessary to know that matter thoroughly to do well in the examination. In arithmetic a class text-book was used by every pupil. This contained numerous examples of how to work out different types of "sums", each with a list of similar problems to work out. Thus it was obvious to each child that it was comparatively easy to

become familiar with the procedure for each type of "sum" and, as a result, gain high marks in the examination. In both geography and history also, each pupil had a class text-book. In addition, an exercise-book containing a full summary of the work done in each subject was kept by the individual pupils. These summaries and text-books contained most of the knowledge required for the examination, but further knowledge necessary to answer more fully and accurately could be obtained by additional reading from an excellent collection of reference books and charts in both subjects in the class library. These clarified and amplified what was contained in the summaries and text-book. In these two subjects then, it was clearly evident to the pupils that extra effort in an easily accessible field of knowledge would be well repaid.

In the following paragraphs is an analysis of the effect of the handicapping on the subjects in this group. In spelling a loss of 12% is recorded but this is reduced to 6% when the result is compared with the result in the control class. It is difficult to account for this adverse result as the knowledge was easily accessible to the pupils. Because of the altered conditions, (previously explained), the experimenter suggests that this provides no reliable guide for estimating the effect of the handicapping on the subject. He has, however, no definite indication of extra effort by the children in this subject.

Arithmetic reveals a gain of 10.5% which is increased to 13% when compared with the control class. All pupils were well aware that they could borrow the experimenter's answer book to

mark sums from their text-book done at home. The experimenter wishes to suggest that much of the improvement is a direct result of extra work done by pupils on their own initiative. During the course of the experiment, the experimenter kept a diary in which he noted interesting happenings in the class routine which might be illuminating in estimating later the effect of the handicapping. A glance over this diary reveals such entries as these - (a) "September 13th, R.D. and B.B. doing arithmetic at home - inquire for the answer book.," (b) "October 1st, A.R. brings sums to the teacher to correct", (c)"November 4th, S.J. marked many homework sums." These are typical entries from the diary and are submitted as valuable evidence that this system was a useful aid to self-improvement by the pupils. Although there are on record in this diary enquiries, some regular and some spasmodic, for the answer book to correct sums from only ten of the pupils out of fifty, it is more than probable that many of the others did extra work at home and had it marked by parents or other relatives. From these data then, it appears quite justifiable to conclude that the substantial improvement in this subject is a direct result of the handicapping which stimulated the children to use their spare time for extra practice.

Geography resulted in a gain of 8% or, when compared with the control class, of 7%. The text-book, the summaries and maps in the exercise-books, and the interesting reading in the numerous reference books in the class library all provided ample

scope for extra work. As evidence that the pupils did do

additional work in this subject the following two typical entries from the diary are quoted. "September 6th, J.S.3 wanted to know what extra reference books to take home to learn more geography." "October 30th, E.P. 2 and J.S. 4 came in early to revise geography." The increase, though smaller, than that in arithmetic, is further evidence of the effect of the handicapping on the child's industry.

The result in history is quite outstanding. The initial percentage, 48%, was certainly low and allowed of much improvement. Nevertheless the gain of 15% is none the less striking. When the result in the experiment class is compared with that in the control class this gain is increased to 27%, which is even more noteworthy. For extra work in this subject the pupil could and did turn to the same sources as in geography. Stimulated by the handicapping, pupils who previously would not have bothered, turned often to the reference books to gain more information and found the novel presentations in the several books interesting and pleasurable. The experimenter often noticed these reference books being read in class by pupils who usually previously wasted their time chattering. "October 31st, E.McM. came in at lunch-time to borrow a history book." This entry from the diary bears out the last observation of the experimenter. Much of the substantial improvement appears to be the outcome of extra effort by the pupils on their own initiative.

The gain in science was 8% which was increased to 16% when compared with the result in the control class. All subject matter for the examinations was contained in note and diagram form

in the exercise books. This was definite and easily accessible subject matter with which the children could become familiar, and the substantial improvement is surely evidence of the additional time given by the pupils to this subject.

From the foregoing then, it must be admitted that in this group of subjects much additional work was done by the pupils themselves to their ultimate profit, and this reflected itself in the substantial improvement in all the subjects of the third group with the exception of spelling.

In summing up the analysis of the effect of the handicapping on the various subjects it is evident that under it the children were more industrious and persevering as it stimulated them to much more extensive and more continued efforts. The data obtained show that the first group of subjects, reading, essay-writing and drawing, did not lend themselves to individual study to any extent outside the definite class lessons; and here the improvement was least. In contrast, in the third group of subjects where the revision work and also additional information was easily accessible to the pupil the benefit to be obtained, from the handicapping was most outstanding.

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Section 6.

CONCLUSIONS:

Direct Conclusions.

The foregoing data clearly warrant the following conclusions:-

(1) That, under the handicapping system, the duller pupils have achieved much more because of the encouragement it has afforded them.

(2) That the more equal competitive element in the handicapping has appealed to pupils of all grades of intelligence though less to those of higher intelligence.

(3) That the use of the system results in much increased efficiency in the general class work as a whole.

(4) That especially in those subjects where extra subject matter for self-effort is easily accessible to the pupils great improvement results.

PERSONAL OBSERVATIONS:

The personal observations of the experimenter lead him to the conclusion that the experiment has been well worth while. In most cases the duller children, who had previously been apathetic and resigned to the idea of failure, had their interest aroused. They became more helpful, industrious, appeared brighter and began to think that the road to success was open to them also. The experimenter has noticed that not only the duller pupils but

but also many of the brighter ones felt impelled to increase greatly their efforts. Moreover, in no case was the experimenter able to observe any evidence of strain from too great a stress on the competitive element in the children. The pupils generally gave the impression that they enjoyed the handicapping, treating it more as a game. They displayed great keenness for each succeeding examination and were more than usually eager for the results, especially as they more fully understood the significance of the handicap.

There appeared to be less waste time in the class, as often, when pupils had finished the set work in a lesson before the others had, on their own initiative they utilised this spare time for further work in that or other subjects. As a result there were less talking and other interruptions, the pupils being more industrious. This meant that disciplinary problems did not loom so large.

From the beneficial effect especially on the duller pupils, the employment of this system appears to the experimenter to be especially desirable where a class consists of a substantial section of weaker pupils.

As pointed out in the introduction, it is readily recognised that the device employed is merely the patching of a worn-out garment - that the motive for effort should lie in the intrinsic interest in the activity itself and not be artificially motivated. But the teacher in the classroom must conform to the requirements of the system in which he is working and make the best of that system. This is the one and only justification for the experiment.

BIBLIOGRAPHY:

Adler, Alfred. Education of Children. Greenberg, 1930:

Ballard, P.B. The Changing School. Hodder & Stoughton, 1926:

Bode, Boyd H. Fundamentals of Education. MacMillan Coy., 1926:

Dewey, John. Interest and Effort in Education. Houghton, Mifflin Coy., 1913:

Lane, Homer. Talks to Parents and Teachers. George Allan & Unwin Ltd., 1928:

Morton, G.F. Childhood's Fears. Duckworth, 1925:

APPENDIX:

Official report form issued to each child after each examination.

SUBJECTS	
Reading	
Spelling	
Writing	
Composition	
Grammar	
Arithmetic	
Drawing	
Geography	
History	
Science	
Handwork	
Nature Study	
Physical Instruction	
Needlework	
Totals	
Number in Class	
Place in Class	
Half-days Absent	
Times Late	
Conduct	

Signature—

Class Teacher

Parent or Guardian

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The pupil is required to hand this Report to the teacher each term after the parent or guardian has signed it.

The Report may be retained by the parent or guardian when it is returned by the teacher at the beginning of the Christmas vacation, or when the pupil leaves the school.

APPENDIX:

Official report form issued to each child after each examination.

SUBJECTS	FIRST TERM			SECOND TERM			THIRD TERM		
	Marks		Remarks	Marks		Remarks	Marks		Remarks
	Possible	Obtained		Possib	Obtained		Possible	Obtained	
Reading									
Spelling									
Writing									
Composition									
Grammar									
Arithmetic									
Drawing									
Geography									
History									
Science									
Handwork									
Nature Study									
Physical Instruction									
Needlework									
Totals									
Number in Class									
Place in Class									
Half-days Absent									
Times Late									
Conduct									
Signature— Class Teacher									
Parent or Guardian									

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APPENDIX:

Official report form issued to each child after each examination.

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For the Year

Name

Standard

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