HIGH SCHOOL FRESHMEN SHOULD BE CLASSIFIED ON THE BASES OF RESULTS OBTAINED THROUGH MENTAL TESTS, MODIFIED BY EIGHTH GRADE TEACHERS' ESTIMATES AND GRAMMAR GRADE RECORDS.

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INTRODUCTION.

That the present system--or lack of it--which is generally used today in classifying freshmen students as they enter High School, is faulty and unscientific as well as unjust, is information that is daily becoming more and more common to educators; but that a method that will be practical and reliable has not yet been worked out, is also common information to these same modern educators. The present system operates something like this: A student comes to high school on the opening day of school (a time of much hurry and bustle in that particular institution) from one of the grade schools of the town or city. He presents to the Principal his diploma of graduation from the eighth grade. This small document possesses no information other than a statement that the owner has successfully passed the work prescribed for the eighth grade and is now entitled to enter high school. The principal does not know whether the student merely passed the eighth grade work or carried honors in his class; whether the child is mentally keen and alert, industrious and a hard worker or whether he possesses a dull, sluggish mind, and is lazy and careless in his habits. In short they all look alike when they arrive at the high school portals.

But how are these students classified or grouped if they can't all be put into one class? Two methods are commonly pursued; First, that of the principal, class adviser, or some member of the classification committee, (if there be one), parceling out a certain number to each of the several sections or classes that the High School is able to provide, or, second, the student is

allowed free choice in selecting his class. In either case it is a "hit or miss" proposition. The law of chance is playing a prominent part, i.e. recognizing that not all students are endowed by nature with equal mental abilities, there will be in each of these classes some students with superior intelligence, some with average, and some who are really inferior.

It is probably quite unnecessary to dwell at any considerable length upon some of the evils of this irrational and unscientific method of grouping students. However, it might be well briefly to attempt to point out some of its most glaring weaknesses. In the first place there is no recitation, conducted by any teacher any where which is equally suited and adjusted to the brilliant, average and dull student alike. Second, discouragement on the part of the inferior child is sure to result when the mental superiority of his classmates, is ever asserting itself as is the case when we have mixed abilities in the same class, and withdrawal of this student from school will inevitably take place, and perhaps before long. The child would rather be uneducated throughout his life, than be humiliated daily in class. Third, the present system does not provide for the exceptional or gifted child. He also may become discouraged from being denied a chance to go forward in his class work at his natural pace, or he may become careless, inattentive or superficial. In any event his superior ability is not being properly developed. We may be dwarfing a genius for all we know. Fourth, some students of inferior mental power may not become discouraged but will lose

self-respect and self-confidence, qualities that are invaluable to any useful citizen. Hence, it is seen from the foregoing that the problem is to devise a method or plan of selecting and classifying students according to their abilities to do the work of the high school, or expressing it in a slightly different manner, the problem is to group the incoming freshmen students into groups possessing mental homogeneity in order that the best, most effective type of teaching may be done. To accomplish this a group should be made up of those possessing superior mentality, another composed of those who are backward or mentally inferior, and a third group, made up of mediocrities, or students of average mental capacity.

There are some ardent advocates of intelligence tests, who are so convinced of the infallability of intelligence tests that they would advise that this matter of classification is a simple problem, and that if we would only administer one of the more standardized mental tests, i.e. the Army Alpha, Haggerty Delta 11, etc, score the papers, work out the mental ages or intelligence quotients and group or classify the students accordingly, the task would be done. They would probably say, place those with Intelligence Quotients above 112 in the superior class, those with Intelligence Quotients below 90 in the dull or backward class, while those ranging between will rightly fall to the average class; But there are some reasons why this procedure will not solve the problem, and when the problem is spoken of the universal high school problem of classification is meant for it is not local or

limited in scope. In the first place it has not been proven beyond a "peradventure of a doubt" that these so called group intelligence tests do rather accurately and reliably measure, native mental ability. Secondly, educators, and even authors and champions of the mental tests, are now pretty generally agreed that for purposes of classifying pupils the results from intelligence tests alone are not reliable bases. But they consider that there are other factors that contribute to success in school, or life that should be taken into consideration. Unquestionably one of the most conspicuous qualities that stands out in the life of any successful business man, and is also quite noticeable among most honor students in the schools, is a non-intellectual quality, a quality not to be measured by any intelligence test. It is the quality termed industry which may be defined as thorough, persistent, painstaking, enduring, the opposite of lazy, sluggish, indifferent and superficial. The question then arises if the results from group intelligence tests alone are not dependable criteria for the classification of students with what shall they be supplemented?

THE THESIS DEFINED.

Since Intelligence Tests alone are valuable but not fully reliable bases for classifying students and since teachers' estimates are also very helpful but not entirely dependable criteria for grouping students into homogeneous mental groups, it was decided to try the experiment of not only combining the two but of taking into consideration the grammar grade record of the students to be classified. The thesis which was hereby

attempted may be briefly expressed as follows: HIGH SCHOOL FRESHMEN SHOULD BE CLASSIFIED ON THE BASES OF RESULTS OBTAINED THROUGH MENTAL TESTS, MODIFIED BY EIGHTH GRADE TEACHERS' ESTIMATES AND GRAMMAR GRADE RECORDS.

PROCEDURE IN CLASSIFICATION.

In an attempt to find out the mental equipment of the incoming class of freshman the Haggerty Intelligence Test, Delta 11 was given to all the eighth grades in the city, the papers were scored and the mental age and mental class for each of approximately two hundred (200) pupils contained in these grades were determined. Prof. Haggerty, the author of the test used, after having given this intelligence test to over 30,000 children, worked out the following table:-

TABLE OF SCORES EXPECTED. TABLE I.

Chronological Age	9	10	11	12	13	14	15
Score on Haggerty Test	43	55	66	77	88	100	115

The score of each pupil was compared with the above table and the student's corresponding mental age was determined. Some little interpolation was involved in some cases. As for example, if a student scored 108 on the test he would be considered not 14 years old mentally which has the nearest score lower, nor 15 years which has the nearest score higher, but 14 years and 6 months, for 108 is about midway between 100 and 115. In all cases of interpolation the year and month were determined, and in any case where it was difficult to decide on the exact month the student was given the benefit of the doubt. Since the teachers adopted and used a five point system in an effort to rate or

classify these pupils as described above in industry, scholarship and intelligence it was deemed advisable for purposes of comparison to adopt a similar scheme to be used in grouping the pupils after their mental ages had been ascertained. It was decided that if the mental age of a given pupil fell within one year of his actual chronological age he should be arbitrarily classified as an "Average" pupil mentally. If it fell between one and three years above or below his actual age he was called a "Superior" or "Inferior" pupil. If his score was that of a child more than three years older or younger than his own age he was classed "Very Superior" or"Very Inferior". This was an arbitrary classification but, nevertheless, it served well as a basis of division and accordingly the pupils fell into the following groups:

Very Superior	7%
Superior	26.8%
Average	45.5%
Inferior	17%
Very Inferior	3.7%

It is rather commonly considered that the judgment of a teacher in sizing up the mental qualities of students with whom she has had personal classroom contact for a year or more is valuable and to a degree reliable in classifying students. Hence, the estimates of teachers were used as a supplement to the results from mental tests. The departmental teachers of the eighth grades in each grade building in Martins Ferry were called together and without any knowledge of the results from the Intelligence tests estimated each of their grade pupils in regard to (1) general scholarship, (2) general intelligence, and (3) industry or application, using a five point scale for each quality, namely, Very Superior (VS),

Superior (S), Average (A), Inferior (I) and Very Inferior (VI). It is needless to say that every teacher present at the group meeting had every pupil whom she had taught the previous year or years well in mind and seemed to take a particular interest in having a chance to judge and take a part in rating the said pupil whom she had been observing in respect to conduct, school work and attitude towards school and life generally during the period which she had been his classroom teacher. The ratings worked out by these teachers were done with considerable care. Whenever there was a disagreement as to a student's rating his case would be put to a vote of the teachers, and a majority decision held. If the ratings were scattered the median would be taken as final onethis point. As for example, Miss A, Miss B and Mr. C were the departmental teachers of Mary Doe and they rated her in respect to industry. First, if Miss A was caused to believe from observation of and association with this pupil as her teacher that Mary was "Average" in industry while the other two teachers, Miss B and Mr. C regarded her as Superior, or maybe as Inferior the judgment of the two would hold. It seldom happened that the divergence of opinion among the teachers concerning the industry, or either of the other two qualities of the pupil which they rated, would be greater than one group apart. Second, if Miss A rated Mary "Average" and Miss B and Mr. D rated her "Inferior", and "Superior", respectively, the median rating, which is "Average" would be the one taken.

After having found the intelligence scores and after the estimates of teachers had been obtained for each of the incoming

Freshmen students the table submitted below, Table #2, was worked out. This table may be called the Classification Table.

CLASSIFICATION TABLE

Name of Pupil	Age Yrs.	Mos	Score in tests Total		Mental Class	Mental Age	Ratings by teachers Scholarship
A.K.	14	2	7	107	A	14-8	S
A.R.	13	9	12	114	S	14-11	I
B.C.	13	7	12	101	A	14-5	I
B.F.	14	5	13	123	S	15-10	S
B.C.	15	1	5	85	1	12-11	I
B.T.	16	11	5	85	I	12-11	V I
B.W.	14		11	120	V S	15-6	I
B.E.	15	4	10	99	1	14	A
BBH.	14	3	10	93	A	13-6	A
B.A.	14		16	140	V S	17-6	V S
B.H.	13	8	10	116	S	15-1	S
C.G.	14	3	8	119	S	15-5	A
C.J.	15	7	9	98	I	13-11	A
D.J.	14	8	10	96	A	13-10	I
D.J.C.	13	3	9	123	S	15-10	A
F.B.	15	8	13	102	I	14-1	I
F.J.	15	3	14	101	I	14	A
F.T.	16	1	11	111	1	14-8	I
G.C.	14	2	13	106	A	14-5	A
G.A.	15	1	7	93	1	13-6	V I
G.C.	13	7	13	127	S	16-1	A
G.C.	14		11	117	S	15-2	A
G.G	14		11	111	A	14-8	A

Intelligence	Industry	Remarks	Bldg.	Eng. 7 - 8		Arith. 7 - 8		Latin Class	Alg. Class	H.S. Course
S	S		North			G	G			Lat
A	I		Elm				U			Com.
I	I		Elm			G				Com.
A	S		Centr.			G	C		AA	Com.
I	S		Elm				U		C	Com.
VI	VI		Elm				-F		C	Com.
A	A		Elm				U		A	Com.
A	A	No Lat.	North	F	F					Lat.
A	A		North				F		C	Com.
VS	VS		North				E		AA	
S	A		Elm		F		F			Lat.
S	A		Elm	G	F					
A	A	No Lat.	North	F	F		F		C	Lat.
I	I		North							
A	A		Centr.				U			Lat.
I	I	No Lat.	North	F	F		G			Lat.
A	A	No Lat.	North	G	G		G			Lat.
A	VI		Centr.						C	
A	A		North		U			C		Lat.
VI	VI		Elm				U		C	Com.
A	S		Centr.			G	G		AA	
A	I		North				F		A	Com.
A	A		North							Lat.

Name of Pupil	Age Yrs.	Mos.	Score in tests.	Total	Mental Class	Mental Age	Ratings by teachers Scholarship	Intelligence
A.V.	13	10	9	115	S	15	I	A
A.K.	15	1	6	109	A	14-0	A	A
A.V.	15	7	12	120	A	15-6	A	A
A.M	13	6	12	128	S	16-3	S	S
B.F.	14		8	80	I	12-4	I	I
B.F.	13	4	10	122	S	1598	A	A
B.G.	13	4	12	127	S	16-2	V S	V S
B.L.	15	5	8	107	A	14-6	A	A
B.C.	13	11	14	118	S	1554	S	S
B.I.	14	3	6	95	A-	13-8	A	A
B.M.	17	5	12	136	A	16-1	S	A
C.E.	15	2	9	96	I	13-9	I	I
CCG.	12	11	11	90	A	13-10	A	A
C.E.	14	7	10	104	A	14-3	A	A
C.I	15	5	10	105	-A	14-5	V I	V I
C.H.	14	5	10	82	I	12-6	A	A
D.A.M.	12	9	10	107	S	1496	A	A
D.H.	14	11	14	133	S	16-9	S	S
D.A.M.	14	4	13	177	S	16-1	A	A
D.D.	14	4	9	112	A	14-10	I	I
D.G.	13	4	10	112	S	14-10	V S	S
E.E.	13	10	10	119	S	15-5	S	S
E.G.	15	3	6	96	I	13-9	A	A
E.V.	12	7	11	124	V S	15-11	A	A
E.E.	14	8	12	104	A	14-4	S	S
F.G.	14		8	111	S	14-9	A	I

	Industry	Remarks	Bldg.	Eng. 7 - 8		Arith. 7 - 8		Latin Class	Alg. Class	H.S. Course.
	I		Elm		F					Com.
	S		Elm				U		C	Com.
	A		Elm		VP			C		Lat.
	S		Centr.			E	F		A	
	I	No Lat.	North		F		VP		C	Lat.
	S		North		E			A		Lat.
	VS		North			E	E		AA	Com.
	A		North				VP		C	Com.
	S		North			G	G	A	AA	Lat.
	VI		North				G			Com.
	S		Centr.							
	S		Elm				U		C	Com.
	A	No Lat.	Centr.		U					Lat.
	S		Elm							Com.
	I		Centr.				VP		C	
	A		Centr.				G			Com.
	S		North		G		U	A		Lat.
	S		Centr.				G		A	
	A		Elm			G			A	
	I		Elm	U				C		Lat.
	S		Elm		E	U		A		Lat.
	S		Elm		G			A		Lat.
	A		Elm				U		C	Com.
	A		North		G		G	A	AA	Lat.
	S		North		E			C		Lat.
	I		Elm				U		C	Com.

Name of Pupil	Age Yrs.	Mos.	Score in tests	Total	Mental Class	Mental Age	Ratings by teacher Scholarship	Intelligence
F.R.	13	9	10	129	S	16-5	VS	VS
F.M.	13	8	8	111	S	14-9	A	A
G.M.	13	11	10	111	A	14-10	S	S
G.M.	14	11	7	76	-A	11-11	A	A
H.F.	13	11	11	115	S	15	VS	VS
H.V.	12	7	12	105	S	14-4	S	S
H.G.M.	14	11	12	104	-A	14-3	A	A
H.A.	13	8	11	118	S	15-8	S	A
H.G.	14	9	7	78	I	12-1	I	I
H.F.	13	9	9	97	A	13-10	A	A
H.A.	13	8	11	109	A	14-8	I	A
H.G.	13		11	114	A	14-11	S	S
J.E.	13	10	9	95	A	13-7	S	S
J.E.	13	10	9	98	A	13-11	S	S
J.G.	14	6	10	117	A	15-1	VS	A
J.L.	14		11	129	S	16-5	VS	A
J.M.	13	4	8	108	S	14-6	I	I
K.W.	14	11	9	102	A	14-1	I	I
K.E.	13	11	8	79	VI	12-2	I	A
K.D.	13	4	14	135	VS	16-9	S	S
E.F.	14	10	6	78	I	12-1	A	A

	Indus-try	Re-marks	Bldg.	Eng. 7 - 8		Arith. 7 - 8		Latin Class	Alg. Class	H.S. Course.
	S		Elm				U			Com.
	S		Elm		G		U	A		Lat.
	VS		North		E			A		Lat.
	VS	Talk over	North	G	G		F		C	Lat.
	VS		North		E	F		A	A	Lat.
	S		North		E	F	E	A	AA	Lat.
	A	No Lat.	No rth-	F	F					Lat.
	S		Elm		E			A	A	Lat.
	I		North				VP		C	Com.
	S		Ndwth							Com.
	A		Centr.		F			C		Lat.
	S		Elm							Com.
	VS		Elm							Com.
	VS		Elm							Com.
	VS		Elm				F		A	Com.
	A		Elm							Lat.
	A		Elm				U		C	Com.
	I		Elm							Com.
	I		Centr.				U		C	
	S		Centr.				G		AA	Eng.
	S		North	G	G		VP		C	Lat.

Name of Pupil	Age Yrs.	Mos.	Score in tests	Total	Mental Class	Mental Age	Ratings Scholar-ship	by teacher Intelli-gence.
K.M.	14		9	94	A	13-8	A	A
L.L.	15	8	8	88	I	13-1	I	I
L.M.A.	13	9	11	98	A	13-10	I	I
L.M.	14	10	7	106	A	14-5	S	S
L.M.	14	7	15	121	A	15-7	S	S
Mc.O.	13	3	12	128	S	16-3	A	A
M.J.A.	14	7	12	118	A	15-4	I	I
Mc.H.A.	14	7	7	108	A	14-6	I	I
M.M.	13	6	11	133	VS	16-7	A	A
M.B.	15	11	10	122	A	15-8	S	S
M.M.	15	7	10	111	A	14-10	A	A
H.L.	15	6	13	104	A	14-3	VI	VI
H.C.	15	8	10	109	A	14-8	I	I
J.B.	13	1	12	120	S	15-6	I	A
E.R.	15	8	11	111	A	14-9	VI	VI
K.E.	13	7	10	85	A	12-10	I	I
K.L.	13		14	117	S	15-1	A	A
L.R.	14	5	11	132	S	16-9	I	A
L.F.	14	1	11	119	S	15-3	I	A
L.H.	14	10	10	102	A	14-1	VI	VI
L.H.	14	11	11	119	S	15-5	VI	VI

	Indus-try	Re-marks	Bldg.	Eng. 7 - 8		Arith. 7 - 8		Latin Class	Alg. Class	H.S. Course.
	S		North		G			C		Lat.
	A	No Lat.	Centr.	-G	F		U		C	Lat.
	A		Centr.		F			C		Lat.
	VS		Elm				F			Com.
	A		Elm							
	A		Centr.		G	E	P	A	A	Lat.
	I		Centr.							Com.
	V		Elm				F			Com.
	A		Elm				F		A	Com.
	A		North		F			C		Lat.
	A		North				V?		C	Com.
	VI		Elm				G			Com.
	A		Centr.				U		C	
	I		Centr.		F	F			A	Lat.
	A		Elm							Com.
	I		North				F		C	Com.
	I		Centr.				G		A	Lat.
	VI		North						A	Com.
	I		Elm						A	Eng.
	VI		Elm							Com.
	VI		Elm						A	Com.

Name of Pupil	Age Yrs.	Mos.	Score in tests	Total	Mental Class	Mental Age	Ratings by teacher Scholar- ship	Intelli- gence.
M.J.	13	4	10	138	US	17-3	A	S
M.G.	15	4	7	89	I	13-1	VI	VI
M.[illegible]	12	7	12	118	S	15-3	I	VI
M.G.	12	10	13	103	S	14-7	A	A
McM.G.	13	5	13	96	A	13-9	VS	A
N.L.	14	8	10	121	A	15-7	I	A A
O.E.	12	8	12	115	S	15	A	A
O.G.	14		13	92	A	13-5	A	A
P.J.	13		16	133	VS	16-10	A	A S
R.D.	13	10	12	115	S	15	S	S
R.C.	16	1	16	136	A	16-1	S	A
R.M.	15	3	12	102	I	14-1	VI	VI
R.S.	13	10	10	109	A	14-7	S	A
C.R.	14	7	12	116	A	15-1	I	I
S.F.	16	1	12	111	I	14-11	A	S
S.E.	14	4	9	101	A	14	A	A
S.K.	15	8	13	136	Vs	17-1	A	A
S.M.	14	7	11	119	A	15-4	I	I
S.E.	12	2	12	107	S	14-5	A	A
T.A.	14	3	8	104	A	14-3	A	A
T.P.	14		9	121	S	15-6	A	A

Industry	Remarks	Bldg.	Eng. 7 - 8		Arith. 7 - 8		Latin Class	Alg. Class	H.S. Course
I		Centr.			F	G		AA	Lat.
VI		Elm				U		C	Com.
A		Elm			E	E		AA	
I		Elm			G	E		AA	Com.
VI		Elm							Com.
A		Elm		U			C		Lat.
A		Elm				F			Eng.
A		North			G				Com.
A		Centr.		G		G	A	AA	Lat.
S		North		G	F	G	A	AA	Lat.
US		Centr.							
VI		Elm				U		C	Com.
US		Centr.							Com.
I		North							
A		Centr.				F			Com.
I		North		G			C		Lat.
A		Centr.		G	G			AA	Lat.
I		North		F			C		Lat.
A		Centr.	G			U		A	Lat.
A		North	G			U			Lat.
I		North							Com.

Name of Pupil	Age Yrs.	Mos	Score in tests	Total	Mental Class	Mental Age	Ratings by teacher Scholar-ship	Intelli-gence.
T.W.	15	8	13	124	A	15-11	I	I
[redacted]	14	3	10	94	A	13-7	VI	I
[redacted]	13	10	11	114	S	14-11	A	A
W.R.	14	2	11	101	A	14	A	A
W.W.H.	14		7	91	A	13-4	VI	VI
W.I.	14		12	113	A	14-11	S	S
W.C.	13	4	15	129	VS	16-5	S	S
W.H.	13	11	14	142	VS	17-8	VS	VS
W.F.	13	7	13	103	A	14-1	S	A
W.A.	16	6	11	87	VS	13	I	A
W.W.	15	4	9	94	I	13-6	VI	VI
W.W.	14	2	13	126	S	16	A	A
W.N.	14	4	11	106	A	14-5	I	I
C.N.	13	3	11	136	VS	17	S	S
W.H.	14	4	11	121	S	15-7	A	A
K.D.	14	7	15	125	S	16	S	S
B.D.	14	5	9	94	-A	13-7	A	A
D.K.	14	4	11	110	A	14-8	A	A
R.T.	14	4	10	118	-S	15-5	A	A
P.B.	16		11	135	A	17	S	S
P.B.	14	7	7	110	A	14-9	A	A
P.B.	13	7	9	80	I	12-3	-A	A

Indus-try	Re-marks	Bldg.	Eng. 7 - 8		Arith. 7 - 8		Latin Class	Alg. Class.	H.S. Course
I		North							
A		Elm							Com.
A		North						A	Com.
A		Centr.							Com.
VI		Elm		U				C	Eng.
S		Elm							Com.
S		North		G		G	A	AA	Lat.
VS		North		G				AA	Com.
S		Centr.							Com.
A		Centr.						A	Com.
VI	No Lat.	Elm		U					Lat.
A		Elm				G		A	Com.
I		Elm		VP	G				Com.
A		Centr.			G	F		A	Com.
I		Centr.	G	G		G	A	A	Lat.
S		Centr.	F		G			AA	Lat.
A		Centr.	G		F				
A		Elm		F			C		
S		North		F		G		A	
VI		Elm							
S		North				C			Com.
VS		Elm		G		G	C		Lat.

Name of Pupil	Age Yrs.	Mos	Score in tests	Total	Mental Class	Mental Age	Ratings by teacher Scholar-ship	Intelli-gence.
R.E.	13	6	11	112	S	14-9	I	A
R.L.	13	9	7	104	A	14-3	A	A
R.R.	13	9	9	89	A	13-1	I	I
R.H.	14	4	13	104	A	14-7	I	A
S.H.	13	5	6	103	A	14-2	VI	I
S.V.	13	11	8	82	VI	10-6	I	I
S.L.	13	11	9	117	S	15-2	A	A
[illegible]	13	3	11	133	V-S	16-9	I	A
S.K.	12	4	12	121	VS	15-7	A	A
T.S.	14	6	7	89	I	13	I	I
T.L.	13	3	8	87	A	13-	I	I
T.L.	14	11	11	123	A	15-10	S	S
T.H.	14	13	13	113	A	14-11	VS	VS
T.V.	12	9	11	109	S	14-8	S	S
T.M.	13	7	10	106	A	14-5	I	I
W.E.	15	8	11	93	I	13-6	A	A
W.A.	14	9	9	90	L	13-3	A	A
W.I.	14	3	7	77	I	12	I	I
W.S.	13		10	99	I	13-11	I	I
W.K.	12	4	14	117	S	15-2	A	A
Z.F.	14	3	11	130	S	16-6	VS	S
M.L.	15	6	11	92	I	13-5	I	I
M.E.	14	9	14	148	VS	16	S	S

	Indus-try	Re-marks	Bldg.	Engg. 7 - 8		Arith. 7 - 8		Latin Class	Alg. Class	H.S. Course.
	A		Elm							Com.
	S		Elm				F			Lat.
	VI	No Lat.	Elm	F					C	Com.
	S		Elm							Com.
	A		Elm				U		C	Com.
	A		Centr.				VF		C	Com.
	A		North		C		U	A		Lat.
	I		Elm				F		A	Com.
	S		Elm		F	F	U		A	Lat.
	A		Elm				F		C	Com.
	A		North				U			Com.
	S		North							Lat.
	VS		North							Com.
	S		North		F			C	A	Lat.
	I		North							Com.
	A		Centr.				U		C	
	A		North				U		C	Com.
	I		North				F		C	Com.
	I		Elm		F				C	Lat.
	A		Elm		G		E	A	AA	Lat.
	S		Elm		G			A	A	Lat.
	I		Elm		F		U	C	C	
	S		Elm		E		E	A	AA	

TABLE NO. 2 EXPLAINED.

This table contains only such data as would be essential in classifying students by a plan such as the one described in the above mentioned thesis. At the left in column #1 is the student's name. The second column, which is divided, contains the chronological age expressed in years and months for each student. This it the actual age of the student at the time the test was given. Column #3 is also divided and the first division of it contains the scores made by the students in the mathematical exercise of the Haggerty Test, while in the second division are entered the total scores made on the test. Column #4 contains a letter, as A,S or I, etc., which designates the mental class to which the student has been assigned as explained above. In column # 5 there is entered the mental ages of pupils as they were derived from Table #1. In columns 6,7 and 8 respectively, are entered the teachers ratings on scholarship, intelligence and industry expressed in one of five letter symbols which stand for either Superior, Average, Inferior, et. Column #9 headed "Remarks" was left on the table to permit the entry of a remark or remarks concerning the educational guidance that it might be deemed advisable to give the pupil in the light of all the data gathered concerning his mental equipment. For example, a student may have expressed a desire to take the Latin course in High School as indicated in the last column on the chart, but because of his very poor record in seventh and eighth grade English as well as perhaps an Inferior Mental rating he would be

advised not to take Latin and note would be made in column under "Remarks", No Latin, thinking it inadvisable for him to attempt a subject which is not only concededly difficult but very dependent upon a good foundation or preparation in the English language, particularly in the grammar phase of it. In column # 10 is entered the abbreviation for the name of the grade school building in which the student received his grade preperation. This is recorded both for convenience in looking further into the student's past scholastic record, and as a means that the school authorities have of comparing the quality of preparation given in the grade buildings of the city. Column # 11 and # 12 are really self explanatory for they contain the "marks" made by the pupil in either his English or Arithmetic in his seventh and eight grades. The result of all the procedure in classification is entered in columns numbered 13 and 14. Since the entries in these columns are very significant perhaps it is advisable at this juncture to explain fully just what these letter entries signify and how they were worked out.

Owing to the size of the high school, the number of pupils who would enroll in either Freshmen Algebra or Freshmen Latin, the state requirements on size of classes and the teaching facilities which the High School under consideration had to offer, it was considered feasible to have seven sections of Algebra and four of Latin. The nature of these Algebra sections were as follows: (1) a section for very superior students which was called the double A, (AA) section, (2) a section to be composed

of simply the superior students, called (A) section, (3) four sections of average pupils, designated the (B) sections and (4) one section of Inferior or backward students, the (6) section. The four Latin sections were designated as follows: One for the superior students, (A), two for the average, (B) and one for the inferior (C).

The incoming Freshmen students were then classified using the data contained in Table # 2 as a guide. Primary emphasis at all times was placed upon intelligence as revealed by the Haggerty Test. To be sure, the estimates of eighth grade teachers as well as the marks earned by the student in the grammar grades were taken into consideration but the biggest item in classification was the student's intelligence scores. As expressed above, teachers' estimates are helpful in any scheme of classification but when there is a decided disagreement between them and the findings of the Intelligence Test it is not unlikely that the teachers may be wrong. Haggerty found in his recent survey in Virginia, and it is corroborated by other surveys and investigations conducted by other eminent *educational investigators, that teachers (1) invariably fail to make a distinction

*L.M. Terman in "The Intelligence of School Children" Chapter V11, cites the results of a study of about 2000 students in which comparison was made between teachers' ratings and mental ages. There were disagreements ranging from a slight to a great amount in about 40 to 50% of the cases. The author's explanation of the cause of error was, (1) teachers' tendency to set up different standards for quality of work in different classes, and (2) teachers' ratings are likely to be influenced by the personal traits of the children. The child who is vivacious and self-confident, but parrot-like and superficial, is almost sure to be over-rated; the stolid appearing or quiet and timid child, to be under-rated.

between intelligence and scholarship, (2) They usually rate older pupils above their actual intelligence and younger ones below, (3) they underestimate the mental caliber of the lazy-bright pupil and (4) overestimate the mental acuteness of the industrious dull pupil. Practically all of these mistakes were manifested by the eighth grade teachers in Martins Ferry in their attempt to appraise the scholarship and intelligence of their pupils. because of these inaccuracies in teachers' judgments their estimates were used only to verify the intelligence score, and in a few cases of extreme disagreement between the score and the teacher's estimate the latter was given some consideration. But usually in cases of this sort the pupil would be sent up for a re-test. If the re-test did not distinctly change the student's mental class, the estimate of teachers would have a modifying effect upon the students' classification but at all times the mental class was prominently considered.

No student was ever placed in the (AA) Algebra section or the (A) Latin section unless that pupil was classed as either Very Superior or Superior Mentally. But if he were classed superior in mentality by the test, rated average or below by his teachers and did average or unsatisfactory work in the grammar grade subject which is akin to the subject under consideration he would be placed in the average or (B) section. On the other hand only students who were classed Inferior or Low Average were put in the (C) sections, except perhaps those of average mentality who were rated inferior, particularly in "Industry" and had made a poor showing in the related grammar grade subject. In some instances of class-

ifying Algebra students where the classification was in doubt using the items of data mentioned, the mathematics score resulting from the Haggerty Test which is contained in Column #3 in Table 11 would be consulted. It was considered that this score would indicate the student's ability to handle more or less abstract mathematical processes. Sixteen is the highest possible score that can be made on this exercise. Ten (10) is about the average score. It was therefore considered favorable to a student's classification in Algebra for him to have a score above 10, and unfavorable to have one less than 10. If a student was rated average or superior mentally but made a very low score in this mathematics exercise his classification would be lowered one section. In short here was the rule of classification: The intelligence score was considered foremost. If it disagreed decidedly with the teachers' appraisals, a re-test was given and if the disagreement still prevailed the score continued to have primary importance in classification, but the teachers' appraisal was taken into consideration and had some influence in placing the student in either a higher or lower section, depending on the degree of the discrepancy between teachers' estimates and mental score and whether or not the change was apparently justified by the record made in the related grammar grade subject. The system of classification, was a flexible one in that demonstrated ability was allowed in a slight degree to supplement potential ability in our prognosis.

Some might say that it would be more scientific to assign weights or values to the estimates of teachers and average them

somehow with the mental score and thereby reduce the scheme of classification to a mathematical basis; to some tangible formula. By such a plan a definite procedure could be laid down for averaging, and classification would become indeed a simple matter. But the sponsors of that idea are unmindful of the fact that the estimate or appraisal that teachers happen to place upon any one of the qualities of a pupil, be it either industry or intelligence, is apt to be quite variable. And the quality of industry is a vague human quality and to attempt to measure it definitely would be absurd. And to assign a definite value or weight to it for purposes of averaging or comparing would be no less absurd. The evaluations that teachers would assign to such qualities as industry or application and the like are after all little better than conjectures. But with the above used plan no hard and fast rule is applied, each case is considered separately and the classification is effected on the merits of the individual case.

When the teachers' judgment based upon actual class room experience indicates that a pupil would be an incubus upon a superior group, or, because of his perserverence a misfit in an inferior group, common sense dictates that an inflexible grouping based entirely upon the innate mental ability of the pupil would inflict hardships upon both class and teacher.

At this stage the entire freshmen class of approximately 225 *students, with only a few exceptions, has been grouped into homogeneous ability groups for the purpose of more effective classroom instruction. The few exceptions alluded to are students who entered

*An explanation of the classification of the first twenty students is submitted in the appendix.

school late and for that reason had to be assigned to almost any class that afforded room for them. Often they were placed in sections for which they were unfitted. But having no data concerning their industry or application and few if any facts concerning their prior scholastic records because they came mostly from out-of-town, and because of over-crowded classes the person in charge of classification could do no better than place them "hit or miss" into this or that section. It is difficult to know just how far or how much these maladjustments will influence the results of the experiment. However, taking the school year as a whole probably their effect will not amount to much for at the end of the first semester most of the misfits were re-adjusted. Considering that late entries are ever to be expected in every school system it may well be regarded that their damaging influence upon results is unavoidable.

RESULTS OF THE CLASSIFICATION SCHEME.

At the end of the first semester in an effort to determine the success or failure of the plan of classification (1) there were administered achievement tests in Latin and Algebra, (2) there was worked out a table showing the perdentage distribution of class marks,and (3) the teachers who had had charge of these various selected groups of students were asked to express frankly and fully their opinions of the success or failure of the entire grouping scheme.

The Illinois Standard Algebra Test devised by Walter S. Munroe and Lewis W. Williams was chosen as the verifying achievement test in Algebra. The test contains twenty (20) problems involving the

fundamental operations in beginning Algebra (addition, subtraction, multiplication and division), some factoring and the handling of fractions. The problems range from simple problems in transposition to complex problems requiring the changing of signs, clearing of fractions and finding the value of an unknown quantity. The test is apparently designed for the average type of student but will at the same time test students of greater or less ability. The authors have worked out tentative norms for one, two and three semesters. This achievement test was administered to all students taking Freshmen Algebra about two months after the close of the first semester. The table below contains the essential data resulting from the Algebra achievement test.

TABLE III.

RESULTS FROM ILLINOIS STANDARD ALGEBRA TEST.

Section	Enroll ment	Test 1		Test 11		Test 111		Test IV	
		Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt
Groupp AA	24	14	10	14	11	15	8	14	9
Group A	25	11	8	11.4	9.8	13.2	7.2	13.3	7.1
Group B	100	11.3	6.2	11.2	6.8	10.2	4.2	9.9	3.8
Group C	24	11	5.6	10.3	6.7	11	3	9.7	3.5
Median for all Sec.		11.4	6.7	11.9	6.7	11.4	4.7	10	5.7
Norms for 1st. Sem.		9.8	5	10.8	4.6	11	3.6	8.8	1
Norms for 2nd Sem.		10.5	6.4	11.8	6.4	12.2	5.5	11.3	3.8
Arith. Mean for 1st and 2nd Sem. Norms		10.1	5.7	11.3	5.5	11.6	4.6	10.5	2.4
Deviation from Mean Norm.		1.3	1	.5	1.2	.2	.1	.5	3.3

EXPLANATION OF ABOVE CHART.

The median number of problems attempted and correctly solved by each of the classification groups for each of the four tests separately is shown in the chart. Since there were no norms worked out for students of about seven months advancement in Algebra there had to be wroked out what might for present purposes be called the "Arithmetic Mean Norm". It is the average of the norms set up by the authors of the Illinois Standard Algebra Test for the first and the second semesters. This "Mean Norm" will as nearly represent the standard of work expected of pupils with 7½ months training as anything perhaps available, and for comparative purposes it is fortunate that such standards are available.

Examination of the data in the above chart reveals two interesting facts. (1) It will be noticed that the group (AA) or very superior students distinctly excelled all other groups in each of the four Algebra tests. Their medians range from 30 to over 90 percent greater for the tests than the medians for the entire Freshman Class. The Medians for group (A) are distinctly above those of section (B) as one might expect, and likewise the medians for group (B) students are greater in every instance than those in section (C), although the differences between these latter sections are not as decided or as great as they were between the more superior groups. This can be accounted for partly by one of the (B) groups, as a class, making a very poor score on the tests. An investigation revealed that several retarded pupils who were repeating the course were in that section. These students really

should have been placed in the "C" group. (2) The "Mean Norm" explained above which we fell is the nearest obtainable standard for students of 7½ months Algebra preparation is lower on every test than the median for all our Algebra students. In the last horizontal column in Table 111 the differences between the "Mean Norm" and our Median for all students are shown. A plus sign placed before the figure indicates that our median is greater than the "Mean Norm", while a minus sign indicates that the reverse is true. It is rather strikingly significant that not only is our average median greater in every item in every test except the number of problems attempted in Test 111 and 1V but in the fourth which is the most difficult test the class as a whole scored more than twice the value of the norm which was established by the authors.

In an attempt to determine whether or not the above described classification scheme has been successful in grouping the Freshman Latin students into sections of homogeneous ability for the purpose of pursuing such a subject as Latin, the Henmon Latin Test #3 was given. The test was worked out by Prof. Henmon of the University of Wisconsin, and was intended more especially for advanced students, nevertheless, it may be used for testing either 1st or 2nd year students. This test in some respects was not just what was desired but after all it was the best semblence of a "yardstick" for the measurement of Latin achievement, available. It was also necessary that it be used before the end of the 2nd semester, for that reason it was not considered advisable to use the Sentence test which was obviously too difficult for students

of only seven months advancement. The vocabulary test consists of fifty (50) selected words from thirteen recently, widely used beginners' books, Caesar, Cicero and Vergil. The 239 words common to all the books were given a thorough try-out and a scale value or weight was determined for each word. The scale values were obtained by locating each word on the base line of a normal surface of frequency in terms of the probable error equivalents of the percentage of times it was correctly translated. Ability and progress in a foreign language are indicated most evidently by scope and accuracy of vocabulary. And as these abilities are also capable of definite measurement it may be expected that results from such a test would be valuable for comparative purposes even if given to pupils of only seven months advancement.

HOW THE TEST WAS ADMINISTERED.

All beginning Freshmen Latin students, (Superior, Average and Inferior) were assembled in a large study hall. A few brief instructions, relative to the mechanical procedure to be followed in the test, the importance of students doing their best, etc., were given by the teacher in charge. Time devoted to the test was carefully observed. The tests were not speed tests, but a time allowance of eight (8) minutes for the vocabulary tests was allowed. It may be said that the Latin tests were given under as nearly ideal conditions as usually obtain in a modern High School. After the students had completed the test all test manuscripts were collected and turned over to the Freshman Latin teachers of the high school for scoring. The scoring of these

tests really requires the trained Latin ability of a classroom teacher of the subject, for the layman would probably not know all the possible English synonyms that can be translated from a given Latin word as would a regular teacher of the subject. After the teachers had scored the papers the "Sum of pupils' scale values" was determined for each student by adding together all the weighted values of the Latin words which he correctly translated. This "sum of scale values" for words correctly translated is the pupil's score. The score may also be represented by counting the number right or the percents right. The table below contains the essential data resulting from the Henmon Latin tests:

TABLE III.

Results from Henmon Latin Test.

Section	Number of pupils enl.	Medians Score (Sum of pupil's scale values.)	Computed Standard based on Author's Norms.	Deviation from Standard.
Group A	26	28.25	36.6	-8.35
Group B	38	24	36.6	-12.6
Group C	10	17.5	36.6	-19.1
All Latin students.	74	25	36.6	-11.6

EXPLANATION OF ABOVE CHART.

The Median score made by each classified group is shown in column # 3. The author has no standard scores worked out for students of seven months advancement, but has carefully established norms for first year students. From his norms for the first year

or nine (9) months students it was possible to calculate a norm for seven months, which perhaps is only approximately correct, but at the same time is the most reliable score, expressed numberically, to be obtained. The author's nine month norm on the Vocabulary Test for Sum of Pupil's Scale value is seventy one (71), the norm for seven months computed from the author's is 36.6. Column # 4 contains the computed norm. Column # 5 shows the extent of deviation made by each Latin section from the computed norm.

At least two significant facts are revealed by the above chart: (1) The students of group "A" scored distinctly higher than either those of "B" or "C", and the students of Section "B" made a score which approximates very closely the median for all the students and at the same time is quite noticeably higher than the score made by section "C". (2) In column # 5, the deviations with a minus sign before them are meant to show that the median scores made by the classified groups are less than the computed norms, while a plus sign indicates them to be greater. It will be noticed that in every case the deviation is minus. And it is furthermore to be noticed by a study of these deviations that the computed norm is all the way from one-fourth greater in the "A" group to one-half greater in the "C" group than the medians made by the students in the local school. It might be argued and with some degree of validity, too, that the computed standard is unreliable for purposes of comparison in the vocabulary achievement because students study vocabularies more intensively and extensively the last two or three months of the school year than in the earlier

months and therefore it should be expected that a student's vocabulary knowledge would be considerably enlarged by his study of the last few weeks of the year. Yet in working out the so called computed norm that fact has been given no consideration. At least it may be said that the above deviations which are obviously too great should not be wholly attributed to a low degree of achievement on the part of the students in the local school. However, they do clearly reveal that something is wrong. When the discrepency between the median score in a Latin Test made by a Freshmen Class, where Latin is elective, and an established standard is as great as 11.6 units or a difference of nearly 50% some investigation might well be made to determine where the difficulty lies. It is evident that there is an unhealthy condition somewhere, either in the preparation or in the mental equipment of the students and a study might well be made to determine or discover the cause of the trouble and some remedial measures applied to correct the situation.

COURSE OF STUDY.

One of the problems which confronted the teachers and school authorities in carrying into execution the above classification experiment was that of providing instruction and class work suitable to these selected groups. It was a question as to whether there should be a differentiated course of study for each special section, and whether certain minimum essentials should be required of each section (Superior, Average and Inferior); whether these essentials should be alike, or whether they should increase quantitatively and qualitatively beginning with the lowest section

and advancing to the highest. It seems that there has been very little written or worked out, of real substantial and proven value, on this point, and for that reason the teachers of the several special sections were called together early in the term to consider and talk over informally the following questions. (An exact copy of the Bulletin calling this meeting and including the important questions to be considered is submitted below.)

No. 2

MARTINS ~~FERRY~~ Fairy PUBLIC SCHOOLS

Bulletin No. 2 October 4, 1921.

THE AIM OF CLASSIFICATION- Every Child Working to his Full Capacity.

In preparation for the above it is well to have every teacher and principal who teaches such groups of children above mentioned think carefully over the important questions coming in this connection before holding conference.

1. Should we assign less material to the slow groups, eliminating less important topics or allow them a longer time to complete the text?
2. Should we agree on the minimum essentials for all groups and supplement and enrich the curriculum of the upper group? Is there any other suggestion you can make?
3. If first part of No. 2 is followed how is the teacher to know what will be the source and amount of our supplemental material? Our library has much valuable supplemental material in it.
4. Do you have any other plan for keeping pupils in a group busy with profit?
5. What is to be done with the pupil who is bright but lazy? Should he be placed in a lower group?
6. What is to be done with the very industrious slow pupil? Should he be placed in a higher group?
7. Should the same method of class procedure be followed in A, B, and C groups? If any difference what should it be and why?
8. Should the same passing standard be required of all groups?
9. Should the same examination be given to each group? If so, which group should be made the standard in making the test?

Think on the above and come to the conference Tuesday night with something definite in mind. To insure this definiteness of thought and to furnish a basis for our discussion, write briefly

and definitely and on paper 8½ x 11 the answers you desire to make to the above questions, adding under remarks at the end any additional thought you have in the matter. Send answers to the office by Tuesday noon, October 11th.

Let us remember that the best minds disagree on the very questions asked above, hence we do not expect uniformity of answers from teachers.

R. C. Maston, Supt.

The conference which was to consider the differentiation of courses probably did not accomplish all that might have been expected of it. It did cause the teachers to think over and view from every angle the whole scheme of classification which was being undertaken and probably to a large degree it caused them to perceive more clearly the aims of the experiment, as well as the possibilities to be derived from it. However, before the conference adjourned there were worked out in the minds of the different teachers present certain objectives and standards that if converted to writing would amount to a simple differentiated course of study with slightly different standards or essentials for each of the three groups both in Latin and Algebra.

In Algebra it was understood that beginning with the Inferior or "C" section each higher section would be expected (1) to complete a greater amount of work in the text book, i.e. cover more pages, and (2) each succeeding higher group would be provided with more supplemental material, i.e. problems either to be dictated by the teacher or taken from other text books.

As it is a difficult matter to lay out a course of study for such special groups as the above described since the whole idea is new and experimental, so also was it a hard matter for the teachers of these special groups to follow out the general, untried

outline which they had established in their minds. So far as the supplemental material was concerned both in quality and quantity they did splendidly. In algebra practically no extra work was used for the different sections aside from that provided by the adopted text. In the medium sections on an average about half dozen problems or exercises were supplemented to each review list, while in the superior groups, roughly speaking, about twice that number was supplied from outside sources, but in the number of pages covered in the text all sections ended the semester within only a few pages of one another. So it may be said that longitudinally the various special algebra sections kept virtually abreast with one another while vertically each section, being composed of students of more ability than the preceding one, would be enriched more, was built higher than the one it followed.

It might be of profit and interest just at this juncture to have a brief characterization of the Algebra text-book used by the students taking algebra in these classified groups.

The Freshman Algebra Textbook.

The above mentioned Algebra Students studied Prof. G. A. Wentworth's "Elementary Algebra", copyright of 1906. (416 pages). It is a typical Secondary School Algebra. However, in some respects it may be slightly antiquated. During the last decade certain changes in the arrangement of material and content have taken place which of course were not anticipated by the author in writing the book. But on the whole the test is well arranged

and has stood the test of many years of usefulness. The first chapter contains the necessary definitions and illustrations of the commutative, associative, and distributive laws of algebra. The second chapter treats of simple equations and is designed to lead the beginners to see the advantages of algebraic methods before he encounters negative numbers. Only positive numbers are used in the first two chapters. All the rules of these chapters are illustrated and enforced by examples that involve simple algebraic expressions only. The common operations with compound expressions, including resolution in factors and the treatment of fractions, follow in the third chapter. Many examples have been worked out in full in order to exhibit the best methods of dealing with different classes of problems and best arrangement of the work. Many of the chapters contain lengthy exercises graded from easy to difficult problems which are reserved for reviews, or omitted at the discretion of the teacher.

In Latin there was probably a greater differentiation realized both in amount and quality of work than was the case in algebra. The "A" or Superior section covered twenty two chapters in the textbook. The "B" or Average sections covered one chapter less, while the "C"or Inferior Section covered two chapters fewer than the "B" sections. There was also more supplementary material provided the "A" section than the "C" and contrariwise there was more drill on the fundamentals in the "C" section than in either the "B" or "A" groups.

The Freshman Latin Textbook.

The above mentioned Latin students studied, Prof. B. I. D'Ooges "Latin for Beginners." It is a textbook designed to

provide the student with the basic material needed prior to tackling Caesar. The first few pages are devoted to a brief discussion of the Latin language, its history and its educational value. The body of the book consisting of seventy-nine lessons is divided into three parts. Part 1 is devoted to pronunciation, quantity, accent, and kindred introductary essentials. Part 11 is a study of forms and vocabulary together with some elementary constructions and exercises in translation and reading matter. The first few lessons have been made universally simple to meet the wants of pupils not well grounded in English grammar. Part 111 is concerned primarily with the study of syntax and of subjunctions and irregular verb forms. Selections for reading are unusually abundant through out the book and are introduced from the earliest possible moment. They increase in number and length as the book progresses, and, for the most part, are made an integral part of the lessons instead of being massed at the end of the book. This arrangement insures a more constant and thorough drill in forms and vocabularies, promotes reading power, and affords a breathing space between succeeding subjects. A consistant effort seems to have been made to use simple language and clear explanation throughout.

PERCENTAGE DISTRIBUTION OF GROUP GRADES.

Last fall the local school made the intelligent move of discarding its old system of rating pupils in their classroom achievement in terms of hair-splitting percentages and adopted what might be called a system of "relative rating" in which letter symbols are used as the following:-

"A" denotes Excellent quality of work.

"B" denotes Superior quality of work.

"C" denotes Average or Fair quality of work.

"D" denotes Inferior or Poor quality of work.

"F" denotes Very Poor or Failing quality of work.

The teachers have been instructed and encouraged to so distribute their marks that in the long run they will be roughly grouped as follows:-

*3	percent	of	grades	should	be	A
22	"	"	"	"	"	B
50	"	"	"	"	"	C
22	"	"	"	"	"	D
3	"	"	"	"	"	F

So in place of such utterly absurd percentage marks as 72.3% and 72.4% and the like they have a system which gives a letter which symbolizes a grade as well as shows the membership in a classroom sub-group of pupils more or less alike in school success. The aim of this system is to give parents, pupils and teachers a really accurate picture of the pupils progress in school work. Moreover, the classification of pupils into homogeneous mental groups lends itself more readily to the new rating plan. The system of relative rating is beyond any reasonable doubt, the most accurate, as well as the most fool-proof system, yet employed.

For the pupil, likewise, the rating which gives him an idea of how he is keeping up with his fellow is of more value to him

*Parker, "Methods of teaching in High School." Page 379.

than would be a rating which compares what he does to some purely abstract standard which a teacher has put down as a theoretical 100% of work he should do, but of which the pupil himself can at best have but a hazy idea.

With this up-to-date marking system in vogue and with a corps of High School teachers of at least average or better qualifications using it, it is safe to suppose that any data revealed by percentages of class grades will amount to more than mere opinion or speculation.

The following table shows the distribution of class marks using the New Method for the 1st Semester 1921-22.

FRESHMEN ALGEBRA GRADES. TABLE IV.

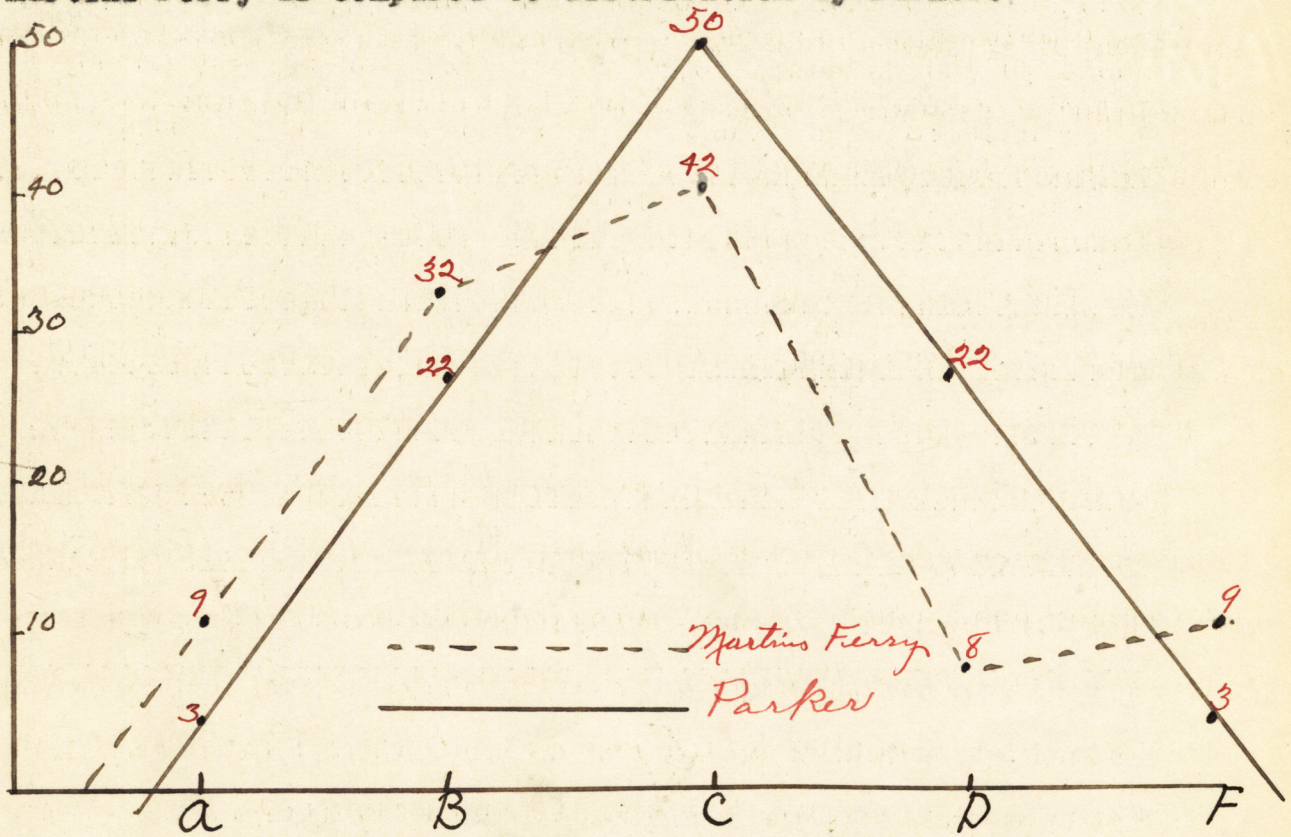
Sections	Median Score Int. Test	Enroll ment.	Percentage of Class Grades A	B	C	D	F
1 Group AA	128	24	20	55	10	4	0
2 " A	126	25	12	32	52	8	0
3 " B	114	100	5	21	62	6	6
4 " C	98	25	0	12	44	12	32
Total	116	174	9	32	42	8	9
Parker's Dist.		100	3	22	50	22	3

Legend:- The group AA is composed of pupils making a high score in the Haggerty Delta 2 and having excellent school records. The groups grade down to group "C" on the basis of intelligence plus school success, etc. "B" being the average section, classroom grades range from "A" (Excellent) to "F" (Failure). Line No. 5 in the above table contains the average

percentage of class grades as they are distributed for the entire freshmen algebra class. Line # 6 gives Parker's ideal percentage distribution of school grades. In the graph below a more striking comparison is shown between Parker's Distribution and the one in the local school.

Graph 1.

Graph illustrating distribution of algebra grades in Martins Ferry as compared to distribution by Parker.



Even in the use of the above explained scientific marking system it might well be expected that teachers would show some inaccuracies and mistakes in the assignment of their marks when compared with a grade distribution scheme. For that reason a close correlation between teachers' marks and intelligence medians would probably not be expected. However the distribution

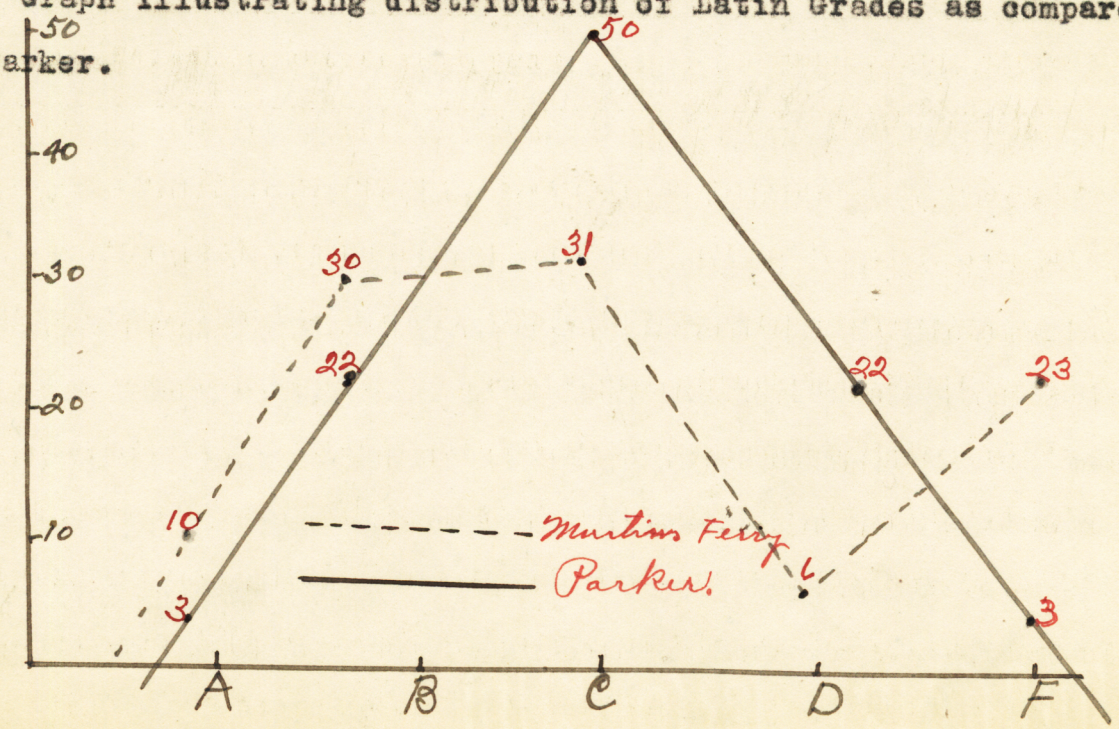
in algebra is fairly significant with 86% of the very superior group above the average and 4% below while the inferior group "C" has only 12% above the average and 44% or nearly one-half below. The following table and graph show the percentage distribution of class marks in the subject of Latin, and compare that distribution with the one worked out by Prof. Parker.

FRESHMEN LATIN GRADES. TABLE V.

	Int. Test Median Score	Enrollment	Percentage of class grades. A	B	C	D	F
Group A	123	27	19	33	29	0	19
Group B	113	46	5	30	32	17	16
Group C	101	15	7	27	33	0	33
Total	113	88	10	30	31	6	23
Parker Dist.		100	3	22	50	22	3

Graph 11.

Graph illustrating distribution of Latin Grades as compared to Parker.



The Latin grades are not strikingly significant but do show:- 52% above average and 19% below average Group A

37% " " " 32% " " " B

35% " " " 33% " " " C

Since class room grades range from "A" (Excellent) to "F" (Failure) and are supposed to be distributed somewhere near a percentage distribution such as the one given above by Prof. Parker, one in examining the above charts might inquire why the small number of "D" grades, or the grade representing inferior work. This variation may be explained largely by the fact that the teachers had been under the impression the 1st semester that the grade of "D" was to be assigned sparingly. Some of them understood that it was to be reserved wholly for the pupil who has done an honest, diligent quality of work but whose actual attainment scarcely reached what may be called a "qualifying mark". A pupil of good native ability according to their understanding could not receive this mark. They understood that if an average or superior pupil did inferior work he should be failed rather than assigned the "D" grade, as a result of the reason explained only 6%,on an average, of all grades were "D" grades, while 23% were"F's" (failures).

TEACHER'S OPINIONS OF SUCCESS OF CLASSIFICATION EXPERIMENT.

The Means used so far in checking up the success or failure of classifying high school freshman on the bases of mental tests, eighth grade teachers estimates and grammar grade records have not directly taken into consideration the opinions or judgments of the high school teachers who have actually had charge of

operating the system. For that reason it was thought advisable to ascertain the reactions of these teachers towards the whole experiment. A positive effort was made by those in charge of the school administration to assure the different teachers that their frank, unbiased judgment was desired and that no damaging results would come to them if for any reason their expressed opinions ran counter to the desired opinions of the sponsors of the classification scheme.

The following written question was ask each teacher individually and in each case he or she was given emple time to consider the question and carefully weigh and plan his or her answer:-

"Will you kindly express in a concise written statement your frank opinion of the success or failure of the classification experiment which was tried out in our high school last fall in an attempt to group incoming freshmen students into homogeneous ability sections, or classes, for the purpose of more effective instruction?"

The complete answers are submitted below:-

(a) Miss Warren, teacher of Freshman Algebra. (Taught two "B" sections.) Her answer: "Without a doubt this system has been a success in making conditions more desirable for the inferior or retarded pupil. The plan enables the pupils to receive attention, in explanation and drill work, that could not be given in a mixed class.

With the average student the plan has not been a marked success. The average student is self-satisfied, and with no

brighter student to compete with is contented to drift. This defect might be remedied if we had the same classification in the grades.

There is no reason why conditions will not improve with time. If the system were started in the grades each special group of students will have had the necessary attention, and by the time they are ready for High School, the teacher will know exactly what to expect."

(b) Mr. Hart, teacher of Freshman algebra. (Taught one very superior section (AA), one superior (A), two average (B), and one inferior (C) section. His answer:-

"By having the students properly grouped at the beginning of freshman algebra, every student will be in his proper plane, giving the teacher a chance to know that each student is working to his full capacity.

Here-to-fore the teacher was unable to know to which group each pupil belonged. So after a semester's work they were arranged and then not according to what they could do but by what they had done, thus working full capacity for some and very little for others.

There is no doubt but what this grouping is a great success, it makes teaching a pleasure, but it is up to the teacher to get results."

(c) Miss Erskine, teacher of freshman Latin. (Taught one average (B) section.) Her answer:-

"My Latin section was classified as a "B" group. The work done was for the most part of a B and C grade. Before the end of the semester those who had special aptitude for the work were

for an A group, while there were some who fell below average and had to join a repeater's class. The others grouped in B or C classes. The classification worked out y well for first semester and gave us a basis for re-classification second semester.

The chief objection to be found with the classification is hat it doesn't give a good basis for choosing those who are good in language; for the first semester results show that some of those who had high averages in the tests fell far below the average work in Latin, while others were above the average. However, I think that can be overcome in different ways as time goes on."

(d) Miss McDaniel, teacher of freshman Latin. (Taught one superior (A) section, one average (B), and one inferior (C). Her answer:- "The classification, according to intellect of pupils in the Latin course, is undoubtedly a success. The greatest hindrance is the fact that it has not been commenced in the primary grades. The pupils have not gained the proper habits of study before coming to High School, which failure is directly traceable to the mixed condition of grade school classes. Also, all pupils of equal mental ability cannot take up the study of a foreign language with the same degree of ease. Notwithstanding these difficulties the work this year has been of a much higher type than formerly, the average classes being the least improved."

(e) Mrs. Brainerd, Director of Research. (She gathered most of the data for classification, took an active part in the actual classifying procedure, directed the administering of the achieve-

ment tests and has shown all along a keen interest in the whole classification experiment.) Her answer:-

"I believe that our experiment in classifying pupils by their I.Q's, slightly modified by school success, can be considered a failure from no standpoint whatever. It has not yet developed to its greatest possibilities largely because a grouping by intelligence necessitates a differentiated method of class procedure which must gradually be worked out by our teachers, since no course of study has yet been fully adapted to the needs of bright, average and slow pupils.

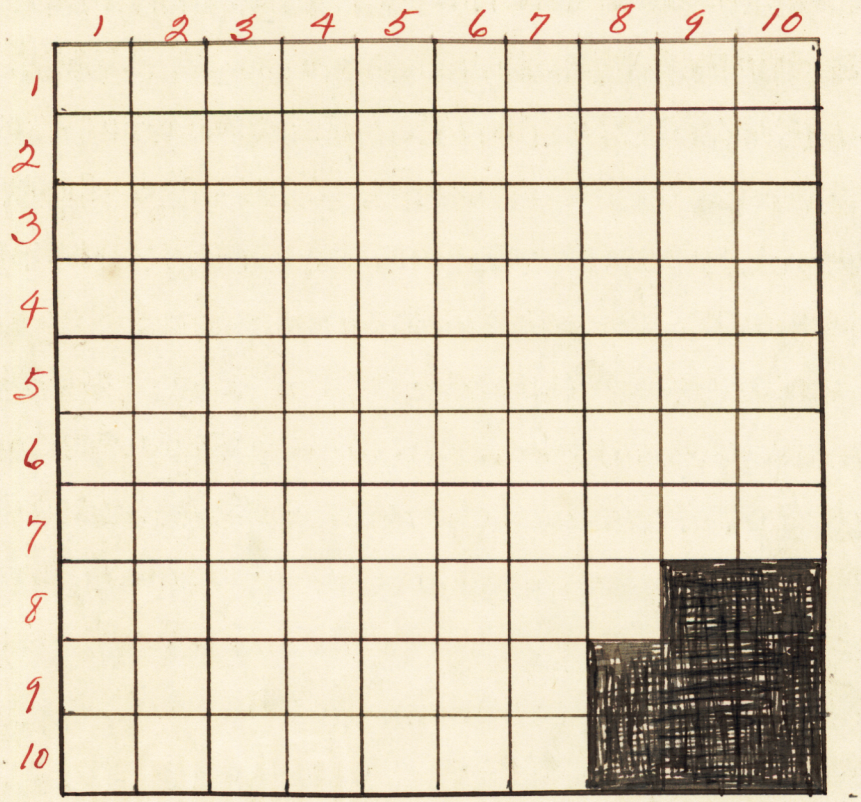
However I am fully convinced that we are building upon a sound foundation and that the ultimate result of our classification scheme will be the betterment of the individual pupil in our school."

"THE MISFITS."

As a final check on the success or failure of any classification scheme such as the above, one might well take into consideration the total number of "misfits" actually reported to have resulted from the system. It may be said, in the aggregate taking into consideration both the algebra and Latin students, that there were 260 students, (counting some of them twice) in one section or another in Latin and algebra and of this number there were 21 students, counting some twice, again, who were actually regarded by their teachers at the end of the first semester to be incorrectly classified, i.e. they were either in too high or too low a section judging from the quality of their apparent ability or inability in the estimation of the teacher, to successfully continue the work in the class in which they had been placed.

Twenty one students out of a total of 260 would be almost exactly 8%. The percentage of maladjustments is illustrated by the following graph.

Graph 3.



Note: The darkened area indicates the "misfits", while the remaining portion represents the 92% correctly classified in the estimation of the classroom teachers. Each square indicates 1%.

It might be interesting to examine a few cases contained within this small group of "misfits". It may be of more than passing concern to know that upon some little investigation of the mistakes in classifying, many of these students can be accounted for. The principal facts contained in the following

descriptions or characters analyses were either gotten from the students in personal interviews or in conferences with the teachers of the students.

No. 1. Student R.S. having an inferior mental classification and having done only fair work in English was placed in the "C" or lowest section of Latin. However it was soon revealed that he was wrongly classified. His work in Latin was of a very superior quality and at the end of the semester his teacher recommended that he be advanced to the "A" or highest section. Upon inquiry it was revealed (1) that R.S. had a particular liking for the Latin language being of Italian parentage and (2) that he was seventeen years of age, and had been out of school three years. His overageness accounts for his low mental class, and the fact that he returned to school after a period of three years had lapsed and after he had arrived at the age of seventeen years suggests a high degree of determination as well as a strong desire on his part to make good. Both allusions are known to be quite true in the case of this young man.

No. 2 J.M. made a very high score in the intelligence test and was rated (VS) very superior mentally. He had done "fair"and "good" work in his grammar grade English and arithmetic respectively. In industry he was rated (1) inferior by his grade teachers. According to the classification criteria he was assigned to the "AA" or highest section in algebfa and to the "A" section which also is the highest section

in Latin. His classification in both subjects proved to be wrong for he failed in Latin, outright, and made a poor showing in algebra. Upon an investigation of his case a couple facts were revealed that probably explain pretty largely the cause of this young man not living up to all prognostics made concerning him. (1) Each of his present teachers testify that he is lazy. It is a laziness, however, that is not necessarily a permanent trait but it is an aversion to work, study or any activity that often is manifested by a boy as he enters his period of adolescence. A period at which Dr. Warner, "Study of Children Chapter X Adolescence, physchologists tell us a boy undergoes some profound and substantial changes, physically, mentally, as well as, perhaps morally. This young man doesn't take life seriously, and seems to have no great concern for his school work. This is evidenced by his testimony that he had no idea as to what he would follow in life, and has no definite purpose in High School. There can be no doubt concerning the boy's superior intelligence but his easy going manner, his lack of industry and his purposeless attitude, account it would seem in a large measure for his not having lived up to expectations. It is possible that he may be aroused later. He has been placed in a repeaters class in Latin, and this second semester has shown considerable improvement. His shiftlessness may be to a degree inherited. His father is an unambitious, unenterprising sort of person.

No. 3. R.L. was rated very superior in intellect, unsatisfactory in arithmetic and very inferior in industry and was

therefore put in the "A" algebra section. He lost out hopelessly. Investigation brought to light the facts that the boy has poor health, is suffering from adenoids, is nervous, anaemic, and dislikes school--a combination of reasons sufficient to account pretty largely for the poor showing the student has made.

No. 4. I.K. was classed superior mentally, did fair work in grammar grade arithmetic and inferior in industry. He was assigned to the very superior algebra class. His work the first semester was very poor hence, he was shifted from the highest to the lowest section in algebra. The boy's own explanation for his poor success is that he has too much work to do, (manual labor) outside of school. The boy says he is tired most of the time but does snatch a little study now and then in his evenings at home. His teachers report him lazy. Whether the boy is over worked at home or inherently lazy the fact is evident that he doesn't possess the quality and degree of pep and enthusiasm for his high school classes that one should possess in order to make good in a section of algebra students, all of whom are supposedly superior.

Not all of the twenty one wrongly classified students can be accounted for as fully and satisfactorily as the above four, some of them can not be accounted for at all, but in most instances the reason for their being in the wrong class can be accounted for either wholly or in part. The common causes of failure to live up to standards expected ar ill health, desire to go to work, which means lack of interest in High School,

purposelessly and aimlessly going along which is described in common parlance as downright laziness. The most evident causes of better work than the prognosis implied are over-ageness which means exceptional determination in some cases, and a high degree of indsutry or application, qualities which were not, and could not conveniently be evaluated for the out-of-town students. Many of the misfits were out-of-town students. Seven of them either came from out of town or enrolled late, and even though they were tested and their mental classes determined it was either necessary because of their late entrance, or so happened because of the overcrowded conditions of some sections or resulted from administrative error that they were assigned to classes in which they did not belong. Subtracting these out-of-town students and the students who for one reason or another can be fully accounted for in their incorrect classifications we reduce the number of misfits to about 10 individual students which is less than 2% of the whole number of students classified. Of the twenty one misfits, eleven were classified too high in the estimations of their teachers, while ten were classified too low. Hence it may be said that the "Misfits" are about equally divided, 50% being classified too high and 50% too low.

AMOUNT AND NATURE OF CRITICISM THE EXPERIMENT CAUSED.

Some would contend that any such experiment as the above would bring down upon its proponents and sponsors much criticism of an undesirable nature, for it is said thatseldom will a child admit that he possesses mental inferiority and certainly will his parent be very reluctant to make any such acknowledgment concerning the mental endowment of his or her child. It would

be rather expected from such reasoning that just as soon as Mrs. "So and So" learned that her daughter had been assigned to a class or section of pupils which had perhaps taken on such an undignified appelation as the "dummy section", the "block-heads", or the like, that she would cause the person or persons responsible for such an "outrage" to correct matters in short order or trouble would be forthcoming. But strange as it may seem no such unpleasantries were experienced by those in charge of the afore mentioned experiment.

The successful avoidance of the anticipated criticisms may be largely attributed to the tactful handling and cautious administering of the classification scheme. During the period when personal data were being gathered concerning each eighth grade child and even through out the procedure in classification no information what-so-ever was divulged to either parent or pupil which would have caused either of them to suspect that this information would be used for grouping students into homogeneous mental sections. It was not until after the scheme had been in operation for fully one month and a number of pupils had begun to "get wise", as we say, to what had been done that any official announcement was made of the classification plan that was being tried out. And the announcement came from the superintendent of schools through a carefully worded exposition which he published in the local paper. In it he assured the parents that the plan was scientific in principle, and would in no way be injurious to the school success of their children and solicited their co-operation in helping to make the experiment a success as well as requested that they suspend judgment on

the whole venture until a fair trial had been given it. It is indeed gratifying to know that up to the present not one parent has voiced a definite complaint against the experiment which has become known to the responsible school officials. However, it should be mentioned that in two (2) cases children of the "C" section have rather modestly stated that they thought that if they were given a chance in a higher section they could make good. In both instances the students demonstrated that they were right, after being promoted and given a trial. There can be no doubt but what in some instances, pupils of average or less than average ability, believe that by exceptional application and the earning of high marks in school they can win a place in a section ordinarily composed of pupils of a higher mental rating. This fact accounts for some of the above described misfits, as well as shows, after a fashion, a praiseworthy result of the classification scheme. In most instances it is the student's pride which is aroused, but in some it is even the parent who is exerting his or her utmost influence to get his or her boy or girl to advance to a higher section.

There was one girl in the school system, K.L., who was rated inferior in intelligence by the Haggerty Test, and inferior straight through by her eighth grade teachers and really had done very poor work in her grammar grades English. Hence she was assigned to the "C" or inferior Latin section. Upon her coming to high school her pride as well as her parent's ambition were aroused and from the very first she prepared her lessons so acceptably

that her teacher recommended her for promotion to the Average or even the Superior Section at the beginning of the second semester. Other instances might be cited to show that classification of students into ability groups stimulates and arouses the best efforts that they possess.

It is quite common for a teacher to attribute the poor classroom work of a given pupil who apparently possesses average or better than average ability to mere laziness. That word (laziness) among many teachers covers a "multitude of sins" when it comes to characterizing their pupils or commenting upon the tendencies of the same to work in school. But a classification scheme such as the above, causes the teachers who are in contact with the system to more critically diagnose their pupils' cases. And many interesting discoveries they are sure to make. You may recall that it was pointed out in the paragraph on "Misfits" that certain students, who were commonly supposed to be inferior mentally as well as lazy physically and indifferent in application, were found, by mental tests, to possess in some cases very good minds. The teacher in an effort to find out what was actually wrong, why the discrepency between his judgment and the intelligence score, may find that the pupil in question is either suffering from some physical defect or handicap, such as adenoids, bad teeth, undernourishment, etc., or is fagged out from overwork, or indifferent to school work because parents expect to put him to work just as soon as he arrives at sixteen years of age, and he is beating time until then.

The interest aroused among the teachers by the classification

experiment in scientific procedure in education should not be overlooked. Of the four teachers in charge of the "Special Sections" probably only one showed much more than luke warm concern for the plan at the outset. But after the classification had been effected, and a couple meetings of the teachers in charge of these sections had been held, a sort of contagious enthusiasm developed among the teachers. At first they payed little or no attention to the classification data but after a time they were eager to consult the classification chart, and from time to time they asked to see the chart in order that they might learn how certain of their pupils had been rated by their former teachers, how they were classed mentally by the Haggerty Test, etc. This awaking on the part of the teachers is most desirable because it cannot be considered temporary. Each of these teachers has testified that the classification of students whatever be the criteria of classification is a step in the right direction and should be followed out for these same pupils during the coming school year.

CONCLUSIONS AND RECOMMENDATIONS.

Our experiment in classifying high school students has led us to the following conclusions. Some of them are confessedly theoretical, while others are incontestable inductions drawn either from carefully compiled data, or evident facts which were revealed at some stage of the experiment:-

1. The criteria used in classification may be regarded as reliable and dependable since only eight percent of all students classified needed re-adjustment. (After deducting those who

were admittedly misclassified as a result of haste, carelessness or mistakes, only two percent of the "misfits" were still unaccounted for.)

2. The anticipated complaints were so negligible as to be almost disregarded. There was no parental complaint whatsoever and only two students voiced objections and they were of a mild nature.

3. In numerous cases the experiment aroused student and parental pride which was very desirable in that it stimulated the students to put forth their best efforts.

4. It aroused a scientific attitude in the minds of all teachers coming in contact with the scheme of grouping pupils and caused them further to diagnose more carefully the individual students of their classes who were either doing better or poorer work than prognostic signs and facts would have caused them to expect.

5. (a) In algebra not only did the class as a whole but each special group (Very Superior, Superior, Average and Inferior) did <u>better by a considerable margin</u> than the standards or norms established by Walter S. Monroe for his Illinois Algebra Test.

(b) In Latin each special section as well as the class as a whole scored <u>decidedly lower</u> than the standards set up for the Henmon Latin test.

6. To achieve the most from any scheme of classifying pupils into ability groups there should be worked out with great care a differentiated course of study; a course of study for each subject which will definitely establish minima essentials, quantitatively and qualitatively for each of the sections. These

standards of essentials should be graded on a sliding scale from the lowest group mentally to the highest.

7. Owing to the close correlation existing between teachers' estimates in students' intelligence, scholarship and industry, it is really unnecessary for anyone classifying students to require estimates on each of these qualities separately. A general estimate made by teachers of the pupil's ability to learn, an estimate which should particularly take into consideration industry or application, might well be made. The most reliable data on a student's scholarship is his eighth grade record while his most reliable mental rating is the result of a Standardized Mental Test.

APPENDIX

THE CLASSIFICATION OF THE FIRST TWENTY STUDENTS EXPLAINED.

The reason why No. 1 A.K. was placed in the average algebra section rather than in the superior is because, (1) his mental class which is given primary emphasis is only average and (2) because he only scored seven on the mathematical exercise which is quite low.

No. 2. A.R., was assigned to the average section even with a superior mental rating because, (1) his teachers rate him inferior in industry, as well as in scholarship, and (2) his demonstrated ability in mathematics in the eighth grade was inferior. Even though he made 12 in the mathematics exercise in the Haggerty test his potential ability and his demonstrated ability being so much at variance that a compromise of placing him in a section just lower than his mental class indicated, seemed advisable.

No. 3. B.C., is really a plain case for his score in the mathematics exercise offsets his poor rating in industry.

No. 4. The reason B.F. was placed in the very superior algebra section rather than in the superior was because he is consistantly superior in all the data we have on him, and in some of those items he is near being very superior. Not having enough very superiors to fill the "double A" section it was necessary to take some of these "consistantly superior" students.

No. 5 and No. 6 are both very clear cases.

No. 7. B.W., being inferior in industry, low in eighth grade arithmetic and not especially high in the mathematics exercise, was placed in the "A" section rather than the "Double A" as his very superior mentality would have placed him.

Numbers 8, 9, and 10 were all plain cases and were easily classified.

No. 11. B.H., was really a bit puzzling to classify for he would seem to be a superior student but since he was average in indsutry, average in mathematics score and average in demonstrated eighth grade mathematics he would hardly be expected to do more than average work in algebra. Hence was placed in "B" section.

No. 12. C.G., the deciding factor in his case was his low score in the mathematics exercise, otherwise he would have been placed in "A" section.

No. 13 and No. 14 were plain cases.

No. 15. D.C., would have been put in "A" section had it not been for his low average mathematics score and low arithmetic grade.

Numbers 16 and 17 according to mental scores should both be placed in the "C" algebra class but owing to their superior scores in the mathematics exercise as well as superior work in eighth grade mathematics it seemed advisable to place them in the average section.

No. 18. F.T., was placed in section "C" because of inferior intelligence, was rated very inferior in industry and there was no data on his mathematics record.

No. 19 and No. 20 were both plain cases.