Honor Pupils in This Years High School Classes.

The Four Valedictorians Who Receive The Journal Medals are All Girls. This Honor Awarded for Highest Standing Thruout Entire High School Term.

REWEY BELLE INGLIS.
Valedictorian, Central High School.
—Photo by Lee Bros.

MARION LOUISE BARBER.
Salutatorian, Central High School.

MARIE JOHNSON.
Valedictorian, South High School.
—Photo by Lee Bros.

ROSE SCHUSSLER.
Salutatorian, South High School.
—Photo by Miller.

REBECCA VAN CLEVE.
Valedictorian, East High School.
—Photo by Lee Bros.

STANLEY HOUCK.
Salutatorian, East High School.
—Photo by Lee Bros.

ELIZABETH RICH.
Valedictorian, North High School.
—Photo by Lee Bros.

DAISY JUNE HARTSON.
Salutatorian, North High School.
—Photo by Lee Bros.

THE LARGEST CLASS IN THE "U.'S" HISTORY

List of Degrees for the Year Will Reach Total of 500—Class One of Unusual Energy and Enterprise—Class Play Given To-day—Baccalaureate Address by President of Carleton College To-morrow Afternoon—Closing Exercises Thursday.

The largest class ever graduated from any university in the west will receive degrees from the University of Minnesota next Thursday morning. The class numbers in all 453 students and in addition to these there are about fifty who will be able to complete the prescribed work by next September, making the total number of graduates for this year about 500. Since the abolition of the old marking system it is impossible to determine the exact standings of the members of the class, but the instructors say that the records would compare favorably with those of former years, and the fact that nearly all of the seniors completed the work creditably and on time speaks for itself.

The class has, however, demonstrated its superior aggressiveness by the success attained in its various business and social undertakings, and the plans for the commencement week festivities surpass anything ever attempted at a Minnesota commencement. The commencement proper begins with the annual senior class play at the Metropolitan Opera house to-day.

The baccalaureate service comes tomorrow afternoon and the time intervening between Sunday and the commencement on Thursday will be occupied by the various social functions of the seniors and the alumni, including the senior promenade Tuesday evening.

Program for the Week.

The program for the week in detail is as follows:

Sunday, May 31—3 p. m., baccalaureate service in the armory. Music: Anthem, with solo quartet, "The Lord is My Light," Horatio Parker; invocation; music, motet for tenor and bass solos and choir, "King All-Glorious," Barnby, D. Alvin Davies, Alfred R. Wiley and choir; reading of the Scriptures; hymn, "O, Could I Speak the Matchless Worth," tune Ariel; baccalaureate address, by Rev. William H. Sallmon, president of Carleton college; address to class by President Cyrus Northrop; hymn, "America," choir and congregation; benediction. The music is to be furnished by a select choir under the direction of Professor Emil Oberhoffer.

MISS GERTRUDE BALLARD,
Secretary and Treasurer Class of '03.

Monday, June 1—8 p. m., in chapel, Sigma Xi address, by Charles F. Millspaugh, M. D., curator of the department of botany of the Field Columbian museum, upon the topic: "Yucan and a Lost Civilization."

Tuesday, June 2—8 p. m., in the armory, senior promenade, admission by ticket.

The same evening, in chapel, the college of medicine and surgery will close the year with an address by Dr. John M. Dodson, dean of Rush Medical college, Chicago. Judge Edwin A. Jaggard will also make a short address. These exercises will be held in the chapel and all friends of the college are invited to be present.

Wednesday, June 3—9 a. m., in the president's office, library building, meeting of the board of regents; 4 p. m., business meetings of the various alumni associations; 6 and 8 p. m., banquets of the various alumni associations.

Commencement Day.

Thursday, June 4—10 a. m., in the armory, graduating exercises: Overture; "Jolly Students," Kela Bela; prayer; Characteristic, "Anvil Polka," Parlow; address by James Brooks Dill of New York; sextette from Lucia, Donizetti; conferring of degrees; hymn, "America," audience will please join in the singing; benediction; S. I. B. A. Hall; music by U. of M. Cadet band, B. A. Rose, director.

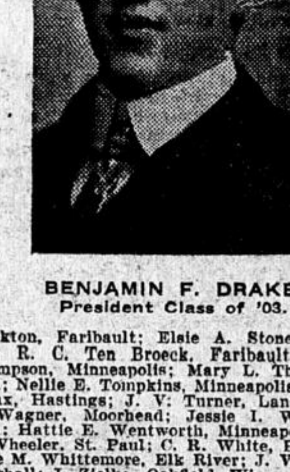
At the Hotel Nicollet, at 7 p. m., business meeting of the law alumni; 8 p. m., banquet of the law alumni, principal address by James B. Dill, Esq.

The list of graduates from the various departments is as follows:

Science, Literature and Arts.

For Bachelor of Arts—Winifred H. Ackerson, Minneapolis; Bessie E. Ainsworth, Chippewa Falls, Wis.; Bonnie F. Andrews, Sisseton, S. D.; Harriet L. Armstrong, Minneapolis; Caroline A. Arndt, St. Paul; C. E. Austin, Barton, Vt.; Ruth E. Babcock, Seavey M. Bailey, Minneapolis; Augusta E. Baker, Austin; Gertrude E. Ballard, Minneapolis; Edna Bomberger, Minneapolis; E. R. Bray, Excelsior; O. Brohough, St. Paul; A. R. Brown, Minneapolis; Elizabeth S. Brown, Elmira, N. Y.; E. A. Burmeister, Wells; K. Burns, Brainerd; Mary B. Butler, White Bear Lake; G. W. Callerstrom, Gowrie, Iowa; Harriet L. Campbell, Alexandria; G. H. Campbell, Litchfield; Alfaretta M. Carpenter, Sauk Center; Grace Chadwick, Owatonna; Anna F. Chapman, St. Paul; R. P. Chase, Anoka; S. Chernausek, Hutchinson; Jennie L. Claypool, Spencer, Iowa; C. W. Colby, Plainview; C. C. Conser, Minneapolis; Mary Cressey, Sioux Falls, S. D.; J. A. Cull, St. Thomas, N. D.; Inga Dahl, Minneapolis; Ethel C. Dann, Clark, S. D.; Jessie B. Dinsmoor, Austin; H. Downey, Minneapolis; B. F. Drake, Jr., Maple Plain; Alice E. Dyar, Winona; W. B. Dye, Winona; John M. Eastby, Norway; B. T. Emerson, Brandon; W. E. Feldman, Arlington; H. M. Feroe, Granite Falls; B. Fisher, Devils Lake, N. D.; Maude R. Fletcher, Minneapolis; P. H. Fogarty, Buffalo; Florence L. Fuller, Crookston; Mary M. Gillis, Minneapolis; Agnes Glasoe, Spring Grove; H. J. Goodwin, Appleton; G. A. Halvorson, Rushford; C. L. Haney, Susan E. Hannemann, Minneapolis; N. Hanso, Willmar; G. B. Haverson, Merriam Park; N. Hegel, Helen R. Hendricks, Minneapolis; Jennie A. Hitchings, Sutherland, Iowa; Magda M. Hoff, Dalton; Ruth Houlton, Elk River; N. Huff, Little Falls; E. F. Humphrey, Winnebago City; Harriet J. Hutchinson, Minneapolis; H. S. Ives, St. Peter; Alice Jackson, Minneapolis; M. L. Jacobson, Slayton; Ursula M. James, Minneapolis; J. P. Jensen, Hutchinson; Bessie Johnson, Minneapolis; T. R. Johnson, Hampton, Iowa; I. T. Johnsrud, St. Cloud; B. M. James, Minneapolis; Leulah J. Judson, Minneapolis; Evelyne L. Kasper, Glencoe; Sadie L. Keatley, Cornelia Kennedy, Minneapolis; Eileen Kennedy, St. Paul; Catherine S. Kerr, Minneapolis; S. S. Kibourne, Lisbon, N. D.; Lillian V. King, St. Paul; Ruth B. Knatvold, Albert Lea; R. R. Knights, Minneapolis; Flora M. Kock, Fergus Falls; J. B. Ladd, Sanborn; S. M. Ladd, St. Peter; Grace W. Layne, Rushford; C. F. Lemke, Wausau, Wis.; C. H. Lewis, Sparta, Wis.; Grace I. Liddell, Wadena; Mary L. Longbrake, Minneapolis; C. M. McCome, Minneapolis; Lorena McFarlane, Minneapolis; Annie McGillis, Irene P. McKeenhan, M. A. MacLean, P. D. McMillan, Minneapolis; E. P. Mallory, Brainerd; Helen Mallory, Minneapolis; G. D. Mann, St. Paul; Leonra C. Mann, Olive Marshall, Minneapolis; Alice M. Mersen, Hutchinson; F. C. Miller, St. Paul; E. R. Mosher, Albert Lea; Alice M. Nelson, St. Paul; A. Nelson, Red Wing; Sadie H. Nelson, Humboldt, Iowa; Bertha G. Newkirk, Minneapolis; Julia O. Newton, Grand Forks, N. D.; Lillian E. Nixon, Pembina, N. D.; Hannah O'Gordon, Sacred Heart; Myrtle T. Oliver, Garden City; H. M. Olson, Belleview; Belle L. Parker, Pickwick; Dora M. Parker, Hastings; Mary A. Parker, Edith L. Peck, Minneapolis; Sara L. Peck, Chicago, Ill.; Ellen M. Pendergast, Hutchinson; Florence McC. Perry, St. Paul; George G. Pinney, Fargo, N. D.; Frances E. Pond, Minneapolis; R. W. Putnam, Red Wing; Mary L. Ray, St. Paul; Iva M. Ricardson, Elgin; W. L. Ricks, Iowa Falls, Iowa; Laura M. Robb, Minneapolis; G. L. Ruddell, Winthrop; J. H. Santee, Fairmont; Marie T. Severance, Minneapolis; R. R. Shumway, Robbinsdale; Grace E. Simis, Mound; Agnes W. Sinclair, Fairmont; E. Smith, Fairmont; F. L. Smith, Sioux Falls, S. D.; Ruth M. Spear, Mildred A. Spencer, R. S. Stanbery, Minneapolis; Katherine D. Steele, Princeton, Ill.; J. G. Steenson, Eden Prairie; A. F. Steckman, Plato; G. B.

EARL P. MALLORY,
Chairman Class Play Committee.



BENJAMIN F. DRAKE,
President Class of '03.

Stockton, Faribault; Elsie A. Stone, Minneapolis; R. C. Ten Broeck, Faribault; Alice E. Thompson, Minneapolis; Mary L. Thornson, St. Paul; Nellie E. Tompkins, Minneapolis; Emma L. Truax, Hastings; J. V. Turner, Lanesboro; Ivy E. Wagner, Moorhead; Jessie I. Weaver, St. Paul; Hattie E. Wentworth, Minneapolis; Cleora C. Wheeler, St. Paul; C. R. White, Pine Island; Josie M. Whittemore, Elk River; J. V. Williams, Marshall; J. Zielke, Oakfield, Wis.

For bachelor of science, in chemistry, O. M. Babbe, Mountain Iron.

Engineering Department.

Civil Engineers—H. D. Barlow, St. Paul; J. Bennett, Minneapolis; T. A. Beyer, St. Paul; H. C. Carr, St. Paul; J. H. Davidson, St. Paul; H. A. Grow, Dawson; F. M. Madden, Eyota; O. Steffenson, Novig, Norway; C. A. Oltman, Red Wing; A. Pedergast, O. B. Robbins, St. Paul; L. Smith, St. Paul; P. S. Smith, Minneapolis; C. H. Stewart, St. Paul.

Mechanical Engineers—F. C. Hughes, Minneapolis; I. G. Kjosness, Madison; E. H. Williams, West Cedar Lake.

Electrical Engineers—G. F. Benedict, St. Paul; B. Dibble, St. Paul; O. I. Eberhard, Milaca; C. G. Erickson, R. A. Ireland Minneapolis; L. E. Laird, Wilmot, S. D.; L. W. Miller, Red Wing; M. L. Page, Minneapolis; L. G. Trask, Caledonia; I. A. Rosok, J. H. Schrumacher, J. C. Vincent, Minneapolis.

For Bachelor of Science (in engineering)—A. F. Crounse, Minneapolis; A. C. Whitney, St. Paul.

Certificate of Proficiency in Drawing and Design—Maud H. Stewart, Minneapolis.

School of Mines.

Engineer of Mines—S. W. Cohen, St. Paul; E. M. Field, Jr., New York city; J. G. Flynn, Lake City; H. J. Hoard, Red Wing; R. I. Johnson, D. M. Rait, Minneapolis; F. W. Smith, S. Paul; L. K. Sowle, Minneapolis; W. H. Truesdell, St. Paul; R. E. Van Bergen, Minneapolis; E. E. Whiteley, Brainerd; A. Winther, Fergus Falls.

College of Agriculture.

Bachelor of Agriculture—F. B. Guthrie, St. Anthony Park; H. L. Tasca, Nerstrand; T. H. Riley, St. Anthony Park.

College of Law.

Doctor Civil Law—W. E. Bates, Minneapolis; J. D. Denegre, St. Paul; A. L. Hermann, H. V. Mercer, Minneapolis; A. R. Moore, St. Paul; H. E. Willis, Minneapolis.

Master of Laws—W. K. Chamberlain, Plainview, Mich.; W. H. Donahue, Minneapolis; G. J. Hibbard, Minneapolis; C. P. Kleinman, Hutchinson; H. G. Lains, St. Paul; G. R. Martin, A. G. Morey, Minneapolis; L. Nash, E. Norton, L. K. Pratt, P. von Kuster, Minneapolis; E. O. Wergedahl, St. Paul.

Bachelor of Laws—C. L. Alexander, Kasson; J. E. Austin, M. Baldwin, Minneapolis; H. L. Berry, Mapleton; H. Borgendale, Lac qui Parle; N. J. Bothne, Abercrombie, N. D.; M. C. Bowler, Minneapolis; S. J. Burchard, Marshall; A. E. Buttz, Buttzville, N. D.; K. S. Chase, Faribault; J. J. Conry, Alta Vista Iowa; J. I. Davis, Marshall; R. L. Dillman, Revillo, S. D.; G. L. Dobie, Hastings; G. E. Dyer, Houston; O. J. Finstad, Windom; E. Freeman, Minneapolis; M. W. Gallagher, St. Paul; A. B. Gunderson, Vermillion, S. D.; A. E. Lamoreau, Minneapolis; O. A. Lende, Cottonwood; C. A. Lyche, Hatton, N. D.; H. I. McClearn, Minneapolis; J. J. McManamy, Cashton Wis.; W. L. C. Michelet T. D. Morrow, Minneapolis; J. L. Murphy, Alma City; S. A. Nietert, Minneapolis; M. C. O'Donnell, Avoca; L. J. O'Marr, White Sulphur Springs, Mont.; T. A. Schacht, Elgin; G. Scholle, St. Paul; P. F. Schroeder, Perham; O. W. Schulz, Montevideo; J. C. Scribner, Eldorado, Wis.; F. G. Shea, Perham; J. P. Smith, Cottonwood; J. M. Smith Brainerd; H. M. Halsted, Sheboygan, Wis.; O. A. Hammond, Spencer, Iowa; G. E. Hanson, Sleepy Eye; N. B. Hanson, New Centerville, Wis.; M. J. Hekland, Roland, Iowa; F. H. Hopkins, Fairfax; Alinda M. Hougan, Northwood, N. D.; A. E. Huntington, Luverne; S. J. B. Jamieson, Minneapolis; H. M. Johnson, Godahl; T. R. Johnson, Cannon Falls; J. A. Kennicott, Luverne; D. P. Smythe, Arlington, Oregon; C. P. Sterling, Elysian; E. A. Williams, Rochester; W. E. Albee, Minneapolis; C. J. Buell, North Hudson, Wis.; F. J. Chapman, New Richmond, Wis.; L. L. Cook, Appleton, Wis.; L. D. Davis, Elgin; A. S. Dowdall, Minneapolis; T. O. Erickson, Flandreau, S. D.; T. P. Perry, De Graff; A. V. Gardner, Hastings; J. W. Gleason Martin; H. Gleason, E. G. Harkness, Minneapolis; L. A. Headley, Luverne; G. C. Huebner, Eau Claire, Wis.; J. J. Keohane, Minneapolis; A. L. Knauf, Jamestown, N. D.; C. O. Lundquist, Minneapolis; G. M. McKenna, St. Paul; W. C. Margeson, Hantsport, N. S.; F. A. Maron, St. Paul; W. F. Nash, C. A. Paulson, Minneapolis; C. A. Pitkin, Euclid; J. E. Rostad, Hader; E. L. Rogers, Aitkin; Mary D. Smith, St. Paul; C. J. Stephanus, St. Paul; V. O. Soule, Minneapolis; A. R. Taylor, St. Paul; J. E. Upson, Minneapolis; J. A. Wayne, Minneapolis; J. A. Wennerdahl, Chicago City.

Department of Medicine.

Doctor of Medicine—W. S. Anderson, Houston; D. L. Axilrod, Cumberland, Wis.; W. F. Bailie, Barnesville; T. F. Bevans, St. Paul; M. W. H. Bockmann, W. F. Braasch, Minneapolis; T. Butler, Jr., Minneapolis; A. M. Call, Knox, N. D.; E. P. Campbell, St. Paul; J. J. Catlin, Delano; L. W. Chilton, Fargo, N. D.; R. Clark, Elysian; W. F. Coon, Eau Claire, Wis.; H. Coulter, Ioamosa, Cal.; F. W. Davis, Taopi; A. A. Deslauriers, St. Paul; B. K. Ellis, D. F. Fitzgerald, Minneapolis; P. H. Fowler, Rochester; E. A.

C. L. HANEY,
General Chairman Senior "Prom." Committee.

French, Plainview; Ellen C. Fullerton, C. E. Gray, Minneapolis; E. K. Greene, Brooklyn Center; G. K. Hagaman, North St. Paul; Kate C. Hardan, A. B. Hart, Minneapolis; Sue Hebard, Mondovi, Wis.; J. H. Higgins, Minneapolis; A. G. Hoyde, Kenyon; F. G. Hubbard, St. Paul; R. Humiston, Worthington; H. G. Irvine, Minneapolis; J. C. Jensen, Spring Grove; A. E. Johnson, Minneapolis; R. O. Juliar, St. Claire; A. J. Kaess, New Ulm; L. N. Klove, Dunbar, Iowa; J. W. Lenfest, Anoka; A. M. Limburg, Hunter, N. D.; Josephine S. Lindstrom, Oberon, N. D.; F. V. Lyman, Caledonia; P. L. Magnusson, Stark; H. A. Makinson, Cedarville; W. N. McDonnell, Detroit; P. H. Mee, Gaylord; B. Melby, Merrillon, Wis.; J. F. Munns, Minneapolis; J. G. Newgord, Jr., Minneapolis; J. Nicholson, Strout; B. S. Nickerson, H. W. Noth, Minneapolis; H. W. Old, St. Paul; C. W. Pettit, Preston; R. J. Phelan, Lake Mills, Iowa; G. D. Rice, Adrian; E. C. Robetshek, Minneapolis; C. Rollefson, Granite Falls; O. W. Rowe, Benton Harbor, Mich.; C. W. Russell, Augusta, Wis.; F. E. Schacht, Elizabeth; H. O. Schaleben, Madelia; F. C. Schuldt, Lakefield; J. L. Shellman, Fergus Falls; J. C. Staley, Jr., Bismarck, N. D.; O. W. Sterner, Minneapolis; E. W. Stimpson, Newport, Ore.; D. L. Tilderquist, Vasa; G. D. Todd, Minneapolis; A. E. Voges, St. Paul; A. G. Wethall, Stoughton, Wis.; C. D. Whipple, Rochester; N. N. Wiger, River Falls, Wis.; Stella L. Wilkinson, C. A. Dawson, Minneapolis; C. F. Holmes, Aberdeen, N. D.; H. D. Newkirk, Minneapolis; G. E. Page, Minneapolis; P. E. Riley, Eau Claire, Wis.; G. Schmidt, St. Paul; J. G. Whittemore, Glenwood.

College of Dentistry.

Doctor of Dental Surgery—J. T. Ahlstrom, St. Peter; C. LaD. Amundson, St. Peter; A. C. Bosel, Hamilton; J. H. Burns, Stewart; J. R. Cain, West Concord; C. L. Cole, Fergus Falls; S. L. Connelly, Cannon Falls; M. F. Cook, Faribault; E. S. Crane, Minneapolis; N. L. Davies, Minneapolis; J. L. Day, Clinton Falls; A. R. Foster, Winona; F. A. Frankoviz, Fergus Falls; L. R. Gholz, Roscoe; H. I. Goodspeed, New Richmond; H. C. Hekner, Mooreton, N. D.; O. E. Hourn, W. C. Huestis, Minneapolis; G. A. Kuncke, Henderson; W. S. Lefans, Minneapolis; W. F. Nasby, Northfield; F. E. Moorhouse, Minneapolis; G. J. Pattison, Herman; E. F. Peterson, Minneapolis; J. N. Pike, Lake City; F. Pendergast, St. Paul; C. M. Smith, G. D. Smith, Paris, Ky.; C. C. Sparrow, Madison; J. F. Trench, Denison; L. E. Tuck, Minneapolis; O. S. Werring, Sleepy Eye; H. W. Whitcomb, Rollis; G. D. Williams, Willmar; O. B. Wood, Blue Earth; F. S. Yaeger, Helena, Mont.

Pharmaceutical Chemist—Helen Brynes, Minneapolis; Laura M. Carrol, Fargo, N. D.; Phoebe M. Clune, Minneapolis; A. C. Carlson, Willmar; Zina N. Cleveland, Northfield; B. O. Gifford, Canton, S. D.; S. W. Jewell, Nellie V. Mober, Minneapolis; P. G. Skartum, Lake Benton.

Advanced Degrees.

For Master of Arts—Oscar Carl Burhard, B. A., Preston; Clara Elizabeth Fanning, B. A., St. Paul; Ernest E. Hemmingway, B. A., Minneapolis; Catharine Hillesheim, B. A., Minneapolis; Daisy S. Hone, B. A., Minneapolis; Maximilian N. Lando, B. S., St. Paul; Clara K. Leavitt, Minneapolis; Grace Livingston, B. L., Minneapolis; Daniel J. Lothrop, B. S. Minneapolis; Olga Mueller, University of Wisconsin, La Crosse, Wis.; Oscar; L. Olson, Minneapolis Henry John Ramsey, South Dakota Agricultural college, Brookings, S. D.; Bert Russell, B. A., Minneapolis; Gertrude Rust, Wellesley, Minneapolis; Herman F. Schrader, B. A., Minneapolis; Emma W. Shellenberger, B. Ph., Iowa, St. Anthony Park; Blanche M. Stanford, B. L., Kelso, N. D.; George C. W. Stein, B. A., St. Paul; Mary A. Tawney, B. S., Albert Lea college, St. Paul; Edith M. Thomas, B. A., Minneapolis; M. Edward Wagnild, St. Olaf, Minneapolis.

For Doctor of Philosophy—John Copeland, M. A., Princeton, St. Paul; Violet D. Jayne, M. A., Michigan; Minneapolis; Harold L. Lyon M. A., Minneapolis.

For Master of Agriculture—Martin L. Erickson, Flandreau, S. D.

WORK DONE IN THE SCHOOLS OF MINNEAPOLIS

III.---Arithmetic, Penmanship, Drawing, Music and General Observations.

BY W. G. SMITH, EDITOR MINNESOTA SCHOOL JOURNAL.

ARITHMETIC

ARITHMETIC is not the most important subject of the school course. In life skill in language and reading is required many times more than in arithmetic. Regardless of all that can be said favorable to modern notions of teaching arithmetic, the good old methods secured correct answers and for mental drill they possessed much merit.

The strongest objection business men raise against those who enter their employ from the public school is: "They know rules and principles, but cannot get results." Several Minneapolis principals have come in contact with the fault and are trying to overcome it.

As newspaper type is not equal to the task of reproducing arithmetical signs, it is impossible to give here many of the test questions and answers of the various grades. Some specimens are appended, however, to show the kind of work done in this subject:

A THIRD GRADE—QUESTIONS.

1. A man had 94½ acres of land. He sold 45 1-10 acres. How many acres had he left?
2. If $397 is the cost of one lot, what will six lots cost?
3. A ring cost $395, a chain $166. Cost of both?
4. How many bushels in 768 pecks?
5. From 900 take 176.
6. From 305 take 196.
7. Multiply 49 1-10 by 6.
8. Find the sum of 39 1-5 and 44 1-10.
9. Divide 525 by 7.
10. What is ⅛ of 46?

ANSWERS (MARKED 100.)

1. 94½ acres less 45 4-10 acres is 49 4-10 acres. There are 49 4-10 acres left.
2. $397, cost of one lot, multiplied by six equals $2,382, cost of six lots. Six lots cost $2,382.
3. $395 cost of ring, $166 cost of chain, $561 cost of both. Both cost $561.
4. 768 pecks divided by 4 pecks equals 192 times. There are 192 bushels in 768 pecks.
5. 900 minus 176 is 724; 305 minus 196 is 109; 49 1-10 times 6 is 294 6-10; 39 1-5 times 44 1-10 is 83 3-10; 525 divided by 7 is 75 times; 46 divided by 8 is 5 6-8 times.

Fourth and Fifth Grades.

I found very neat work in most fourth and fifth grade rooms and considered the character of problems and methods of solution very suitable to the class of pupils. I did not see enough work for the sake of good, quick, accurate figuring.

The following is a very commendable set of questions. The answers were equally commendable.

QUESTIONS (B SIXTH GRADE).

1. 747 is 9 per cent of what?
2. 87 is what per cent of 300?
3. A man set out 650 trees; 8 per cent of them died. How many trees were dead?
4. A farmer sold 98 bushels of oats; these were 7 per cent of all he raised. How many bushels did he raise?
5. A grocer sorted 400 bushels of apples; 56 bushels were "specked" and the remainder were sound. What per cent of the apples had begun to decay?

QUESTIONS (B 6th GRADE.)

1. Cost $534; loss 15 per cent. What was the selling price?
2. A teacher earned $1,500 and spent $1,140. What per cent of his salary did he save?
3. If six horses consume 23,640 lbs of hay in a year, how much do nine horses consume at the same rate? Solve by proportion.
4. Write a rule for measuring 14 feet 1¼ inches in boards.
5. (a) Divide $47.25 by 9. (b) What does it mean? (c) Write a number story.
6. The continued product of three numbers is 2,400. Two of the numbers are 8 and 12, what is the other number?
7. Find the cost of linoleum sufficient to cover a floor 24 feet by 15 feet at 65c per square yard.
8. Peter buys chestnuts at $2 a bushel and sells them at 5 cents a pint. How much does he gain on two bushels?
10. A man sold a farm for $7,020; this was 8 per cent more than he paid for it. How much did the farm cost him?

ANSWERS (MARKED 100.)

1. If he had lost 1 per cent he would have lost $5.34; since he lost 15 per cent, he lost 15 times $5.34 or $80.10; $5.35 less $80.10 equals $453.90.
2. He saved the difference between $1,500 and $1,140 or $36; 1 per cent of $1,500 is $15; he saved as many per cent of his salary as $15 are contained in $360. It is contained 24 times, therefore he saved 24 per cent of his salary, less 24 per cent.
3. The ratio of six horses to nine horses is the ratio of 23,640 lbs to —— lbs. In the first couplet the consequent is 1½ times the antecednt. In the second couplet the consequent is 1½ times the antecedent, 23,640 lbs, or 35,460 lbs. The consequent is required, 35,460 lbs.
4. To measure a pile of 14 feet 1¼ inch boards measure them as tho they were 12-foot boards; then because they are 14 feet long, add 6 of itself to the sum thus obtained; then because they are 1¼ inches thick, add ¼ of itself to the sum last obtained.
6. If two numbers are 8 times 12, 96, the other number is as much as 96 is contained times in 2,400. It is contained 25 times, therefore the other number is 25.
8. If it is 24 feet long and 15 feet wide, one row contains 24 square feet, 15 rows contain 15 times 24 square feet or 360 square feet; 9 square feet equals one square yard. In 360 square feet there are as many square yards as 9 square feet are contained in 360 square feet, or 40 times, which equals 40 square yards; at 65c per square yard, 40 square yards cost 40 times 65 cents or $26. $26 is answer.
8. At $2 a bushel two bushels cost two times $2 or $4: one bushel, 64 pints, two bushels two times 64 quarts, or 128 pints; 128 pints at 5 cents a pint, 128 times 5 cents, or $6.40. He gained the difference between $6.40 and $4, or $2.40.

IMPROMPTU TEST (A SIXTH GRADE).

1. (a) The numerator of .00308 is ——; the denominator is——
(b) Multiply seven and forty-five ten thousandths by six.
2. If the specific gravity of seasoned white oak is .8, how much does a cubic foot weigh?
3. How many square yards of plastering will be required for a ceiling that is 25 feet by 21 feet?
4. What is the ratio expressed in its lowest terms of an oblong 3 feet by 4 feet to an oblong three times as wide and three times as long?
5. What per cent of the principal equals the interest if the rate is 6 per cent and the time three years and eight months?
6. To-day Mr. Scott borrowed of Mr. Bennett, for two years and four months, at 6 per cent, $248. When must Mr. Scott pay Mr. Bennett? How much must he pay Mr. Bennett?
8: 45 pounds 10 ounces divided by 1 pound nine ounces. Change 240 rods to the fraction of a mile.
9. An agent collected for a firm $2,821.50. His commission for collecting was 6 per cent. What was the cost of collecting? What amount was paid to the firm?

PROBLEMS (B SEVENTH GRADE).

1. Robert is twice as old as Henry and the sum of their ages is 36 years. How old is each?
2. A house and lot together cost $1,600. The cost of the house was three times that of the lot. How much more did the house cost than the lot?
3. How many more marbles has John than his sister if he has five times as many as she has and their marbles all together amount to 72?
4. A farmer raised seven times as many bushels of oats as of rye, and all the grain he raised amounted to 20,000 bushels. How many bushels were there of each?

PROBLEMS (A SEVENTH GRADE).

1. How many times is 2½ contained in 467½? Why?
2. Tell which of the following are exactly divisible by 25 and why: 37625, 34836, 27950, 38575.
3. Find the g. c. d. of 64, 96, 256.
4. (a) What is an equation? (b) Of how many parts is it made up?
(c) What four changes can you make in an equation without altering its value?
5. (a) What must always be done when one term of an equation is transferred from one number to another?
(b) Find the value of x in the following: 3x plus 2x minus 4 equals x plus 6.
6. (1) Write a proper fraction; (2) an improper fraction; (3) a compound fraction; (4) a complex fraction (5) tell the difference between a common fraction and a decimal fraction.
7. Explain the division aspect of the fraction and the ratio aspect.
9. (b) Divide $140 between two men, giving to one man $30 more than to the other.

PENMANSHIP

Penmanship in the Minneapolis schools is almost wholly vertical, and while I am not heartily in favor of vertical penmanship, I would never advise a change for pupils whose hands have become established. In less than half the rooms in which the regular penmanship classes were observed, the pupils were permitted to sit in awkward positions and to hold their pens carelessly. Where the instructions for "writing position" given by the supervisor of physical training are strictly adhered to, the positions are good. The general results in writing cannot be seriously complained of. I am satisfied, however, that the "little tots" cannot be taught too early, and any shirking of the regular writing class in the "baby rooms" will prove permanently harmful to the pupil's penmanship, as well as to all their later success in any line of industrial effort. I have two papers from a first room, which would be praiseworthy if written in a second grade. Let there be less talk about systems in penmanship and more about presentable results comfortably acquired.

DRAWING

The influence of the supervisor of drawing in establishing a higher artistic taste is evident in all sections of the city, and the results justify her efforts. I believe, however, that lines of work for which pupils would have a more natural aptitude—drawings of a more practical character, with less attempt at painting—in lower grades, would prove more satisfactory to pupils and parents, and would not harm the higher influence to those who later come to possess power to appreciate "art for art's sake."

MUSIC

The teaching of music in the public schools improves rapidly. In Minneapolis it is surely well done. The supervisor's influence is very favorable, but possibly sometimes she demands more than time permits teachers to accomplish. There seems to be no effort at display in singing, while pure tones, appropriate expression, correct interpretation, seem to be the controlling purposes of the work. The marvelous influence of music in moral culture is not overlooked and in some school nearly every day the music "soothes a savage."

BASKETRY AND WEAVING

Basketry and weaving are substituted for the better industrial work, sewing, whittling and cooking. As soon as the board of education can afford these better industrial features the schools should have them.

Later—The board of education has reinstated cooking and manual training.

DISCIPLINE AND MORAL CULTURE

The discipline in Minneapolis is not severe, it is not lax; as a rule it is comfortable. One of course sees, occasionally, a tired or incompetent teacher, and lax discipline is one of the surest indications of general inability. The purpose, made prominent from the beginning, to have pupils realize they must do all they do right, because "it is right to do right," is the strongest moral influence in the schools. The greatest achievement of the schools is that manner of teaching reading, writing, spelling, geography, history, arithmetic, music, drawing, physical culture weaving and basketry, which impresses upon pupils that their work should be correct, because by right doing we secure right living. There is no stronger influence upon moral culture than the military manner of marching now taught in all the schools. In buildings where the children gather from poorest homes, the marching is often unexcelled.

SUPERVISION

The superintendent of schools, while general-in-chief, cannot directly supervise the work. I think he should be relieved from much work he does that more naturally belongs to the board of education or its assistants. He should be permitted to give all his time to the educasive. Many supervisors are sometimes very tional features only of the schools, or he should have supervisory assistance in the grades from fourth to eighth inclu-hard on teachers. Each is likely to demand that the work she assigns shall be done regardless of any other. It seems possible to control the supervisors thru the principals and the superintendent. One must assume that the superintendent will as easily modify the influence of a supervisor as of a principal. He will as surely check a supervisor who is asking too much in her specialty as a principal would check a teacher who is giving too much time to arithmetic, music or any one study in the curriculum. My advice is: Tell the supervisors candidly if they try to crowd too hard in their specialty, and make them stop. The strongest features in the grades are music, drawing, physical culture, moral training and reading. The last two are essentials. The first three are accomplishments.

The greatest weakness in the grades is lack of definite results from teaching language, history, arithmetic, grammar and geography. The order here given expresses my judgment of the order of weakness, the first subject being poorest taught.

BASKETRY IN PUBLIC SCHOOLS OF MOORHEAD

Indorsed by Superintendent Mickens as an Educational Tool of Value—Conclusions Drawn From a School Year Experiment and the Consensus of Pupils Who Have Worked at It.

Basketry was introduced into the public schools of Moorhead last September in order to meet the ever increasing demand for some kind of work that should train both mind and hand. Other forms of manual work accompanied the basketry, such as sewing and weaving, but the raffia and reed work was considered in the light of an innovation in the system of education. What the results would be was uncertain and could be determined only by trial.

To make the work pass off as well as possible, instruction was provided for the teachers thru a series of twenty lessons in which the various stitches, designs and detail work were taught. When teachers had become sufficiently skilful, the easier work of braiding and sewing raffia was given to the pupils. A few trials made the pupils ready for the more difficult work of making the baskets.

Progress was slow at first; fingers unpracticed to such manipulations as were required were soon brought into perfect

BASKETS MADE IN THE MOORHEAD CITY SCHOOLS.

harmony with the action of the mind; skill replaced clumsiness, and in due course of time reed and raffia articles, or reed work entirely, reached the degree of perfection shown in Plates I. and II.

Owing to the newness of this kind of work, many questions arose concerning the time and method of pursuing it. Experience determined that one hour a week, at which period the teacher gave instruction upon the making of stitches, introducing of designs and other necessary details, was adequate time to be spent at school. This period was sufficient to interest the pupil. Further work was left for pupils to do at home by way of rest and recreation.

At the end of five or six months of work pursued in this manner, tangible results in the form of hats, napkin rings, mats and baskets began to be much in evidence. But along with these results there arose certain questions as to the disciplinary, the educational and the pedogogical ends gained by the experiment.

In order to make the study of the whole matter as practical as possible, and as comprehensive as necessary, it was decided to gain needed information by enlisting the pupils in a limited investigation relative to the efficacy of the interest in and the objections to this form of manual training. A set of questions was proposed calling for certain information from the pupils, that would be beneficial in both reaching conclusions and dispelling doubts that possibly had arisen. The questions were as follows:

1. "Do you like raffia work?"

In reply to this question I learned that a small percentage of the whole number did not like the work. The reasons assigned were various. Upon investigation it was invariably found that those who raised objections were the slower and less skilful pupils. Many of these have since developed a taste for the work. Upon such a basis, all real objections fall to the ground.

2. "Do you think you have neglected your studies on account of raffia work?"

To this the almost universal answer was, "I have not." Thus the greatest objection that can be raised is brought low at a single thrust.

3. "Do your parents object to it?"

In these answers we find no valid reasons offered against it, the chief objection to its use being in the fact that it "mussed up the house."

4. "Do you like raffia, as well as music and drawing?"

The testimony was in no way more favorable to music and drawing than to basketry, and I am led to believe that were a comparison made between arithmetic and basketry one would be found as popular as the other.

Our conclusions are, then, somewhat as follows: Basketry is a legitimate and useful educational tool and serves the purpose of hand training better than any of the socalled traditional studies. It does not hinder the work of the school, it makes children love their school; there are no valid reasons that can be urged against it by pupils or by parents, and it is in line with the best and the newest in education.

But does it not do more than train the hand? Verily he who would do good work of this kind must have patience. He must exercise the utmost care and precision; he must have a large amount of perseverance and give the work the utmost attention. Painstaking care, undivided attention, unswerving patience, rigid perseverance—these are some of the elements of success. What study affords more elements of true value in the formation of character than this work in basketry?

After our investigation made along the lines mentioned above we are ready to indorse it as an educational tool of no small value.

Other reasons of a psychological or scientific nature can be urged in favor of manual work, one form of which is basketry. It seems to be in accord with the "epoch theory" advocated by many eminent scholars in recent years. Again, it is in accord with the doctrine of interest. The work in most cases proves most fascinating. Children love it and are thoroly interested in it. If then those things that interest pupils are legitimate subjects for study, surely basketry would fall within the list.

Basketry may be made the center of certain correlated work, e. g., race study and kindred subjects, and especially can it be made the prominent center in the study of the Indian. There seems to be much that can be said in favor of a judicious use of basketry as one form of manual training.

—C. W. Mickens,
Superintendent of Schools.