Teachers College
Columbia University
New York

ILLUSTRATIONS FOR LECTURES ON THE HISTORY OF MATHEMATICS AND MODERN MECHANICAL COMPUTATION

SECOND SERIES

On account of the great demand for stereopticon slides illustrating the history of mathematics, resulting from the circulation of the first list prepared by the Educational Museum, it has been decided to prepare this supplementary list of later acquisitions. The first circular, containing 119 titles, will be sent on request.

The illustrations here mentioned are prepared chiefly from works in the library of Professor David Eugene Smith, although some are from the collection of George A. Plimpton, Esq., and a few are from other sources.

The slides will be furnished only to schools and colleges, or to those who give courses in such institutions. Since the price represents merely the cost to the Museum, no discount can be allowed, whatever the number purchased. The arrangement with the photographer requires that no order for less than twenty-five (25) slides shall be accepted. The price is $10 for twenty-five slides, and 40 cents each for any number in excess.

Since many of the slides are not kept on hand, there will be a delay of two or three weeks in filling any order. Orders should be addressed to

THE EDUCATIONAL MUSEUM,
Teachers College,
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MISCELLANEOUS

120. From Tagliente's arithmetic (1515), showing curious forms of multiplication.

121. From an anonymous MS. (c. 1500), giving the horseshoe nail problem.

122. From Bungus, *Numerorum Mysteria* (1614 edition), showing curious forms of Roman numerals.

123. First page of a MS. of Luca di Firenze, copied c. 1475, showing interesting forms of our numerals.

124. From a MS. of Sacrobosco's *Sphaera*, copied c. 1475, showing the idea of an eclipse.

125. From Reisch's *Margarita Philosophica* (1504 edition), showing the temple of learning, with Boethius representing arithmetic and Euclid geometry.

126. Title-page of Reisch's *Margarita Philosophica* (1504 edition), showing goddesses of arithmetic and geometry.

127. First page of Treviso arithmetic (1478). (See No. 75.)

128. Last page of a MS. copied by Eustachius de Feltro (1469). Shows only the forms of a few numerals used at that time.

129. Elaborate multiplication table, from a Florentine MS. of [illegible]

130. From an early anonymous work on trigonometry, showing the quadrans.

131. From the Treviso arithmetic (1478), showing elaborate treatment of fractions. (See Nos. 75, 127.)

132. From Tartaglia's arithmetic (1556), showing the galley form of division.

133. Title-page of Coutereels' Dutch arithmetic (c. 1600 edition), showing a reckoning school.

134. From a German arithmetic (c. 1520), showing the Testament problem.

135. Multiplication table, fom an anonymous MS. (c. 1400).

136. Title-page of Werner's arithmetic (1561), showing the list of topics then studied.

137. Multiplication table from the arithmetic of Boethius (1488).

138. Initial-page of chapter on Barter in the 1515 edition of Ortega's arithmetic.

139. Two pages from a 1460 MS. of the arithmetic of Benedetto di Firenze, showing the hound and hare problem.

140. From the 1494 edition of Paciuolo's *Summa*, showing finger symbolism. (See No. 80.)

141. From Calandri's arithmetic (1491), showing two pages of illustrated problems. (See No. 70.)

142. Product tables, from the arithmetic of Alexandre Jean (1637).

143. From a child's primer on arithmetic, anonymous (c. 1820), with curious illustrations.

144. Portrait of Erasmus.

? Numbering?

159. Multiplication table from Köbel's arithmetic (1514).

160. From the Papyrus Sallier, with an old Egyptian account.

161. From an Italian arithmetic of c. 1525, showing the testament problem illustrated.

169. Title-page of the first (1494) edition of Paciuolo's *Summa*, showing the topics studied. (See No. 140.)

266. From the Ahmes Papyrus. (See No. 2.)

273. Portrait medallion of Lagrange, by David d'Angers.

274. Portrait medallion of Laplace, by David d'Angers.

275. Portrait medallion of Cauchy, by David d'Angers.

OLD MATHEMATICAL INSTRUMENTS

145 to 150. From the geometry of Finaeus (Paris, 1556), showing the various uses of the quadrans, baculus, speculum, and other instruments.

151 and 152. From the *Libro del Misurar*, by Belli (Venice, 1569), showing curious methods of measuring horizontal distances.

153. Early use of the 'Parallelogrammo' (pantograph). From the *Prattica del Parallelogrammo*, by Scheiner (Bologna, 1653).

154 to 157. From the *Modo di Misurare* of Bartoli (Venice, 1589), showing the uses of the quadrans squadro, baculus, etc.

158. Primitive leveling. From the geometry of Pomodoro, Rome, 1624.

159-161. See after No. 144.

162 to 168. From *De Quadrante geometrico*, by Cornelius de Judeis (Nürnberg, 1594), showing various uses of the quadrans.

169. See after Nos. 144 and 161.

170 to 185. From the *Apiaria Philosophiae mathematicae* (4th edition, Bologna, 1645), by Mario Bettino, showing curious work in the mensuration of distances and surveying.

186. From a German MS. of 1660, with a drawing of the quadrans.

187. From a German MS. of 1660, showing the use of the quadrans.

276. Astrolabes. (1) Italian, 1509; (2) Arabic.

277. Astrolabes. Italian, 1450 and 1558.

278. Sector compasses, Renaissance period.

188 to 199. From Blon's work on *Instrumens de Mathématique* (La Haye, 1723), showing various mathematical instruments and their uses.

200 to 204. From the *Nora Fabricandi Horaria* of Joannes Paulus Gallucius (Venice, 1596), showing various forms of dials.

205. From *L'uso della squadra mobile* by Ottavio Fabri (Venice, 1598), showing the quadrans.

206. From *Del Modo di Misurare* by Bartoli (Venice, 1589), showing the astrolabe in mensuration work.

207. From Forestani's *Arithmetica* (Venice, 1602), showing unusual method of measuring heights.

208-265. See next page.

267. From Alessandro Capra's *Geometria* (Cremona, 1673), showing curious work in leveling.

268. From Fiammelli's *La Riga* (Rome, 1605), showing the surveyor's riga.

269. The groma used by the Roman and Etruscan surveyors. Drawing from an ancient monument.

270. The Lituus or Augur's staff as used by the Roman surveyors. Drawing from an ancient monument.

271. Monument of Lucius Faustus, a Roman surveyor, showing ancient surveying instrument.

272. Monument of M. L. Marcshonus, a Roman surveyor, showing ancient levels.

MODERN MECHANICAL CALCULATION

208. The Comptometer.

209. Principle of the Comptometer.

210. Multiplication on the Comptometer.

211. Type of Comptometer work.

212. The Mechanical Accountant.

213. Beach Adding Machine.

214. The Calcumeter.

215. The Gem Adding Machine.

216. The Universal Adding Machine.

217. The Burroughs Adding Machine.

218. The Standard Adding Machine.

219. The Comptograph.

220. Split key-board of the Burroughs machine.

221. Statement of an account made on a listing machine.

222. Statement of an account made on a listing machine.

223. Invoice made on a listing machine.

224. Burroughs Fractional Machine.

225. Deposit slip made on a listing machine.

226. Trial balance made on a listing machine.

227. Tax accounts made on a listing machine.

228. The Ellis Adding Typewriter.
The National Typewriter Adding Machine.

229. The Arithmograph.

230. The Elliott-Fisher Billing and Adding Machine.

231. Statement of account made on the adding typewriter.

232. Sales sheet made on the adding typewriter.

233. Bank collection letter made on the adding typewriter.

234. Check writing done on the adding typewriter.

235. The National Cash Register.

236. Printed sales-strip made by the Cash Register.

237. The National Cash Register for department stores.

238. Sales-slip printed by the department store Cash Register.

239. The Brandt Change-Making Machine.

240. The Hollerith Electric Tabulating and Adding Machine.

241. Card used in the Hollerith machine.

242. Punch used with Hollerith machine.

243. The Saxonia Reckoning Machine.

244. Principle of Thomas Arithmometer.

245. The Autarith.

246. The Brunsviga Calculating Machine.
The Triumphator Calculating Machine.

247. The Millionaire Calculating Machine.

248. Manufacturing cost sheet computed by the multiplying machine.

249. Least square solution made by the multiplying machine.

250. The Slide Rule.

251. The Thacher Slide Rule.
The Fuller Slide Rule.

252. Sperry's Pocket Calculator.
The Charpentier Calculator.
The Boucher Calculator.

DEVELOPMENT OF CALCULUS AND ANALYTICS

253. From the Paris (1740) edition of Newton's Fluxions showing symbolism.

254. From Cavalieri's *Geometria Indivisibilibus* (Bologna, 1653), showing a geometric figure.

255. From Hayes's *Treatise of Fluxions* (London, 1704), the first work in English on calculus, showing Newtonian symbolism.

256. From Wallis's *Tractatus de Algebra* (Oxford, 1685, 1693 edition), showing first geometric treatment of complex number.

257. From Descartes's *La Géométrie* (1637, 1705 edition), showing first steps in analytics.

258. From Viviani's *De Max. et Minimis* (Florence, 1659), showing early progress towards calculus.

259. From the *Elementa Conica* of Apollonius (Rome, 1679), showing the nature of the definitions.

260. The *Opera* of Archimedes (Rome, 1679), showing first pages *De quadratura paraboloe*.

261. From the works of Pappus (Bologna, 1660), showing his ratio definition of conics.

262. From Newton's *Arithmetica Universalis* (Leyden edition of 1732), showing symbolism.

263. From Euler's calculus (St. Petersburg, 1768), showing symbolism.

264. A mathematical MS. of Newton in Professor Smith's collection.

265. A mathematical MS. of Leibnitz in Professor Smith's collection.

266. See after Nos. 144 and 169.

267-272. See after No. 207.

273-275. See after Nos. 144 and 266.

276-278. See after No. 187.