BIBLIOGRAPHY OF OFFICIAL ALKALOIDS FROM 1820-1936

By

JOHN LeROY GUNSOLLEY

A Thesis Submitted for the Degree of

BACHELOR of SCIENCE

(Pharmacy)

University of Wisconsin

1941

TABLET OF CONTENTS

ALKALOIDS

The alkaloids opened up a great field in chemistry, because the chemist thought the alkaloids were a connecting link between inorganic and organic chemistry, therefore a great deal of research was carried out which opened up the field in organic chemistry. This great field was pioneered by Freadrich Serturner, a pharmacist of Eimbeck, in Hanover.

The alkaloids as a group are poorly defined; in fact it appears to be impossible to formulate a definition which inculudes all alkaloids. One property they all have in common. They are nitrogenous organic bases and form salts with acids just as ammonia does.

Serturner made a comphrehensive study of morphine and published his results in 1817. He named thealkaloid Morpheum, and described it as a new salifiable plant base. Other chemists, following the methods of Serturner soon isolated other salifiable plant bases. These substances were called alkaloids, because of their salt forming property, and for many years thereafter were defined as nitrogenous plant bases. In the course of time many substances identical with or similar to the plant alkaloids were prepared synthetically and others were found in animal products. The idea of the alkaloids being exculsively plant products, therefore was abandoned. The synthetic alkaloids now on the market are numerous. One which was introduced in the United State Pharmacopoeia was Novocaine.

As a result of the great pioneering work of Sertürner many alkaloids were isolated, a few which are official in the United States Pharmacopeia and National Formulary from 1820-1936 are set forth here with the date of isolation and the men accredited with the isolation.

ALKALOIDS AND ALKALOIDAL SALTS OF THE U.S.P.

1820-1930

The first United States Pharmacopoeia issued in 1820 did not include an alkaloid although morphine had been isolated.in 1817.

The Philadelphia revision of 1830 introduced one alkaloid morphine, and three alkaloidal salts, viz, morphine sulphate, morphine acetate, sulphonate of morphine, and sulphate of quinine.

The New York revision of 1830, had two mixtures: morphine mixture and quinine mixture.

From this time on the alkaloids and alkaloidal salts have increased rapidly, each revision having the introduction of more alkaloids.

The following list of alkaloids and alkaloidal salts show the introduction in the United States Pharmocopoeia.

OFFICIAL ALKALOIDS AND ALKALOIDAL SALTS

U.S.P. 1820-1930

U.S.P. 1820 None Official

U.S.P. 1830 (Philadelphia)

Acetate of Morphia	p. 151
Impure Sulphate of Quinia	p. 181
Morphia	p. 149
Sulphate of Morphia	p. 151
Sulphate of Quinia	p. 179

U.S.P. 1830 (New York)

Morphine Mixture	p. 117
Quinine Mixture	p. 117

U.S.P. 1840

Acetate of Morphia	p. 144
Morphia	p. 144
Muriate of Morphia	p. 145
Sulphate of Morphia	p. 145
Sulphate of Quinia	p. 172

U.S.P. 1850

Acetate of Morphia	p. 700
Aconitia	p. 70
Morphia	p. 173
Muriate of Morphia	p. 175
Sulphate of Morphia	p. 176
Sulphate of Quinia	p. 206

U.S.P. 1860

Acetate of Morphina	p. 238
Aconitia	p. 82
Atropia	p. 108
Morphia	p. 237

Muriate of Morphine	p. 239
Sulphate of Atropie	p. 110
Sulphate of Morphine	p. 240
Sulphate of Quinine	p. 274

U.S.P. 1870

Acetate of Morphia	p. 230
Aconitia	p. 74
Atropia	p. 100
Morphia	p. 229
Muriate of Morphia	p. 230
Sulphate of Atropia	p. 102
Sulphate of Morphia	p. 231

U.S.P. 1880

Acetate of Morphine	p. 225
Atropine	p. 50
Atropine Sulphate	p. 51
Bisulphate of Quinine	p. 277
Caffeine	p. 58
Cinchonine	p. 81
Codeine	p. 82
Hydrobromate of Quinine	p. 278
Hydrochlorate of Apomorphine	p. 40
Hydrochlorate of Morphine	p. 226
Hydrochlorate of Quinine	p. 278
Morphine	p. 225
Quinine	p. 277
Sulphate of Cinchonidine	p. 80
Sulphate of Cinchonine	p. 81
Sulphate of Hyoscyamine	p. 182
Sulphate of Morphine	p. 226
Sulphate of Quinidine	p. 276
Sulphate of Quinine	p. 279
Valerianate of Quinine	p. 280
Veratrine	p. 373

U.S.P. 1890

Apomorphine Hydrochlorate	p. 45
Atropine	p. 60
Atropine Sulphate	p. 60
Caffeine	p. 68
Cinchonine	p. 93
Cocaine Hydrochlorate	p. 95

Codeine	p. 96
Hydrastinine Hydrochlorate	p. 213
Hyoscine Hydrobromate	p. 214
Hyoscyamine Hydrobromate	p. 215
Hyoscyamine Sulphate	p. 215
Morphine	p. 261
Morphine Hydrochlorate	p. 260
Morphine Sulphate	p. 262
Quinine	p. 331
Quinine Bisulphate	p. 332
Quinine Hydrochlorate	p. 334
Quinine Hydrobromate	p. 333
Quinine Sulphate	p. 3344
Quinidine Sulphate	p. 331
Quinine Valerianate	p. 335
Veratrine	p. 446

U.S.P. 1900

Aconitine	p. 27
Apomorphine Hydrochloride	p. 48
Atropine	p. 62
Atropine Sulphate	p. 63
Caffeine	p. 78
Cinchonidine Sulphate	p. 103
Cinchonine Sulphate	p. 104
Cocaine	p. 107
Cocaine Hydrochloride	p. 107
Codeine	p. 109
Codeine Sulphate	p. 110
Codeine Phosphate	p. 109
Homatropine Hydrobromide	p. 233
Hydrastine	p. 242
Hydrastinine Hydrochloride	p. 242
Hyoscine Hydrobromite	p. 244
Hyoscyamine Hydrobromite	p. 245
Hyoscyamine Sulphate	p. 245
Morphine	p. 293
Morphine Acetate	p. 294
Morphine Hydrochlorate	p. 295
Morphine Sulphate	p. 295
Physostigmine Salicylate	p. 341
Physostigmine Sulphate	p. 341
Pilocarpine Hydrochloride	p. 342
Pilocarpine Nitrate	p. 343
Quinine	p. 373
Quinine Bisulphate	p. 374

Quinine Hydrobromate	p. 375
Quinine Hydrochlorate	p. 376
Quinine Salicylate	p. 376
Quinidine Sulphate	p. 377
Sparteine Sulphate	p. 412
Scopolamine Hydrobromide	p. 391
Strychnine	p. 426
Strychnine Nitrate	p. 426
Strychnine Sulphate	p. 427
Veratrine	p. 498

U.S.P. 1910

Aconitine	p. 28
Apomorphine Hydrochloride	p. 51
Atropine	p. 68
Atropine Sulphate	p. 68
Betaeucaine Hydrochloride	p. 77
Caffeine	p. 85
Caffeine Sodio-Benzoate	p. 88
Cinchonidine Salicylate	p. 509
Cinchonidine Sulphate	p. 113
Citrated Caffeine	p. 508
Cocaine	p. 116
Cocaine Hydrochloride	p. 116
Codeine	p. 117
Codeine Phosphate	p. 118
Codeine Sulphate	p. 119
Colchicine	p. 120
Coniine	p. 509
Cotarnine Hydrochloride	p. 124
Diacetylmorphine	p. 129
Diacetylmorphine Hydrochloride	p. 130
Emetine	p. 510
Emetine Hydrochloride	p. 133
Ethylmorphine Hydrochloride	p. 34
Holocaine	p. 511
Homatropine	p. 511
Homatropine Hydrobromide	p. 212
Homatropine Hydrochloride	p. 511
Hydrastine	p. 222
Hydrastine Hydrochloride	p. 223
Hyoscine	p. 516
Hyoscyamine Sulphate	p. 511
Morphine	p. 275
Morphine Acetate	p. 213
Morphine Hydrochloride	p. 276

Morphine Sulphate	p. 277
Novocaine	p. 514
Pelletierine Tannate	p. 311
Pilocarpine Hydrochlordie	p. 321
Pilocarpine Nitrate	p. 322
Piperine	p. 514
Quinine	p. 349
Quinine Bisulphate	p. 350
Quinine Dihydrochloride	p. 351
Quinine Hydrobromide	p. 352
Quinine Hydrochloride	p. 353
Quinine Salicylate	p. 354
Quinine Sulphate	p. 355
Quinine Tannate	p. 356
Quinine and Urea Chloride	p. 351
Quinine and Urea Hydrochloride	p. 351
Quinine Valerate	p. 515
Strychnine	p. 415
Strychnine Nitrate	p. 416
Strychnine Sulphate	p. 416
Theophylline	p. 441
Veratrine	p. 441

U.S.P. 1920

Aconitine	p. 30
Apomorphine Hydrochloride	p. 54
Atropine	p. 69
Atropine Sulphate	p. 69
Caffeine	p. 83
Cinchonidine Sulphate	p. 109
Cocaine	p. 112
Cocaine Hydrochloride	p. 112
Codeine	p. 113
Codeine Phosphate	p. 114
Codeine Sulphate	p. 115
Colchicine	p. 117
Cotarnine Chloride	p. 119
Emetine Hydrochloride	p. 128
Homatropine Hydrobromide	p. 187
Hyoscyamine Hydrobromide	p. 145
Morphine Hydrochloride	p. 241
Morphine Sulphate	p. 242
Physostigmine Salicylate	p. 287
Pilocarpine Hydrochloride	p. 287
Philocarpine Nitrate	p. 288
Quinidine Sulphate	p. 311
Quinine	p. 312
Quinine Bisulphate	p. 313

Quinine Dihydrochloride	p. 314
Quinine Ethylcarbonate	p. 312
Quinine Hydrobromide	p. 315
Quinine Hydrochloride	p. 316
Quinine Sulphate	p. 317
Quinine Tannate	p. 318
Quinine and Urea Hydrochloride	p. 314
Scopolamine Hydrobromide	p. 330
Strychnine Nitrate	p. 359
Strychnine Sulphate	p. 360

U.S.P. 1930

Apomorphine Hydrochloride	p. 43
Atropine	p. 76
Atropine Sulfate	p. 77
Caffeine	p. 92
CaffeineWith Sodium Benzoate	p. 94
Citrated Caffeine	p. 93
Cocaine	p. 123
Cocaine Hydrochloride	p. 124
Codeine	p. 125
Codeine Phosphate	p. 126
Codeine Sulphate	p. 127
Colchicine	p. 128
Emetine Hydrochloride	p. 138
Ephedrine	p. 144
Ephedrine Hydrochloride	p. 145
Ephedrine Sulfate	p. 145
Epinephrine	p. 146
Ethylhydrocupreine Hydrochloride	p. 138
Ethylmorphine Hydrochloride	p. 43
Eucaine Hydrochloride	p. 150
Morphine Sulfate	p. 237
Physostigmine Salicylate	p. 289
Pilocarpine Nitrate	p. 290
Procaine Hydrochloride	p. 307
Quininidine Sulfate	p. 312
Quinine	p. 313
Quinine Bisulfate	p. 315
Quinine Dihydrochloride	p. 315
Quinine Ethyl Carbonate	p. 314
Quinine Sulfate	p. 317
Quinine and Urea Hydrochloride	p. 316
Scopolamine Hydrobromide	p. 329
Strychnine Nitrate	p. 362
Strychnine Sulfate	p. 363
Theophylline	p. 383

ALKALOIDS AND ALKALOIDAL SALTS OF THE N.F.
1888-1936

The National Formulary first introduced the alkaloid in 1916, Quinidine. The first three issues of the National Formulary did not include an alkaloid although a great many had been isolated and purified. The 1936 issue introduced the most alkaloids, as alkaloidal salts.

The following is a list of the alkaloids and alkaloidal salts of the National Formulary.

OFFICIAL ALKALOIDS AND ALKALOIDAL SALTS

N. F. 1888-1936

N. F. 1888	None official
N. F. 1896	None official
N. F. 1906	None official

N. F. 1916

Quinidine	p. 336
Quinine Glycerophosphate	p. 336
Quinine Hypophosphite	p. 337
Quinine Valerate	p. 338

N. F. 1926

Hydrastine Hydrochloride	p. 343
Quinidine	p. 383
Strychnine	p. 398

N. F. 1936

Arecoline Hydrobromide	p. 55
Brucine Sulfate	p. 60
Cinchonidine Sulfate	p. 82
Cinchonine Sulfate	p. 82
Cotarnine Chloride	p. 91
Hydrastine Hydrochloride	p. 200
Morphine Hydrochloride	p. 263
Pilocarpine Hydrochloride	p. 286
Quinine Hydrobromide	p. 308
Quinine Hydrochloride	p. 309
Quinine Phosphate	p. 310
Quinine Salicyalte	p. 311
Sparteine Sulfate	p. 332
Strychnine	p. 341
Strychnine Phosphate	p. 342

ALPHABETICAL LIST OF OFFICIAL ALKALOIDS FROM

1820-1936

Aconitine

Atropine

Caffeine

Chinidin

Cinchonine

Cocaine

Codeine

Colchicine

Coniine

Emetine

Ephinephrine

Ephedrine

Hydrastine

Morphine

Novocaine

Piperine

Quinine

Scopolamine

Strychnine

Theophylline

Veratrine

First Use of the Word Alkaloid

Brandes, R. 1819

Alkaloid

Trommsdorff's Newes Jour. der Pharm, 3. St. 2. p.173.

"Meissner schrieb mir, dass er für diese (alkalisch reagirenden Pflanzensubstanzen) Körper den namen Alkaloide gewahlt habe, welcher dieselben auch zweckmässig bezeichnet."

ATROPINE

Geiger, P. L. & Hesse, O. 1831

Die Darstellung des Atropins.

Ann. d. Chem. u. Pharm. 6, p. 67. (Pictet, A., Bk. I. Vegetable Alkaloids, 1904, p. 189; Guareschi, I. Alkaloide, 1896, p. 256.)

"Als ich im August 1831, das Vergnügen hatte, Herrn Apotheker Mein in Norderney kennen zu lernen, horte ich mit grofsem interesse, dafs es ihm gelungen sey, ein krystallinisches Atropine darzustellen."

Pictet, A. Atropine, discovered almost simultaneously by Mein as well as Geiger and Hesse in roots of Belladonna.

Guareschi, I. Atropine first isolated by Mein, and then by Geiger and Hesse in 1833.

Geiger, P. L. & Hesse, O. 1833

Darstellung des Atropins.

Ann. d. Chem. u. Pharm. 5, p. 43. (Pictet, A., Vegetable Alkaloids, p. 189; Guareschi, I, Alkaloide, p. 256; Pictet, A., Die Pflanzen Alkaloide translator Wolffenstein, K., p. 173.)

Atropine isolated by Geiger and Hesse.

Pictet, A. Atropine was discovered almost simultaneously by Mein as well as Geiger and Hesse in roots of Belladonna.

Guareschi, I. Atropine first isolated by Mein in 1831, and by Geiger and Hesse in 1833.

ACONITINE

Geiger, P. L. & Hesse, O. 1832

Fortgesetzte Versuche über die verschiedenen blaublühenden Aconiten.

Ann. d. Chem. u. Pharm., 4. p. 66. (Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein, K., p. 354; Guareschi, I, Alkaloide, 1896, p. 510; Dupuy, M. B., Alkaloides, 1889, p. 129; Pictet, A., Vegetable Alkaloids, 1904, p. 400.)

Report aconitine as a volatile uncrystalizable and very poisonous alkaloid.

Pictet, A. Geiger and Hesse isolated aconitine.

Dupuy, M. B. Geiger and Hesse obtained active principle aconitine as a volatile, uncrystalizable and very poisonous alkaloid.

CAFFEINE

Runge, F. F.

1820

(Phytochemischen Untersuchwenguen)

Schweigger's Journal fur Chemie & Physik 31, 308 (Pictet, A., Vegetable Alkaloids, p. 428; Guareschi, I., Alkaloide, p. 401.)

The Original was not available.

Pictet, A., Caffeine (Thein) discovered in 1820 by Runge.

Guareschi, I., Caffeine discovered in 1820 by Runge.

QUINIDINE(CHINIDIN)

Winckler, F. L. 1848

Briefliche notiz über die wahrscheinliche Entdeckung eines neuen Chinarinden-Alkaloids (Chinidin).

Berchner's Repertorium fur du Pharmacie, 85., p. 392; 98., p. 384;&99., p. 1. (Pictet. A., Die Pflanzenalkaloide, translator Wolffenstein, K., p. 324.).

"Vorlaufig nenne ich das neue alkaloid wegen der alhnlichkeit mit Chinin 'Chinidin', und werde Ihnen meine anderweitigen Resultate baldigst mittheilein."

Pictet, A. Quinidin was discovered in 1848 by Winckler.

CINCHONINE

Pelletier, J., & Caventou, J. B. 1820

Recherches Chimiques sur les Quinquinas Du Quinquina gris (Cinchona Condaminea).

Ann. de. Chimie et de Physique, 2., V. 15, p. 291, (Pictet, A., Vegetable Alkaloids, p. 339).

Purified a crystalline alkaloid isolated from gray cinchona and named it Cinchonine.

Pictet, A. Cinchonine was obtained by Pelletier and Caventou from gray quina.

COCAIN

Neimann, A. 1860

Ueber ein organische Base in der Coca.

Ann. d. Chem. u. Pharm., vii 4. p. 213 (Pictet, A., Vegetable Alkaloids, p. 233; Dupuy, M., Alcoloides, p. 377; Guareschi, I., Alkaloide, p. 266; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein, K., p. 210; Schmidt, J., Wichtiger Pflanzen Alkaloide, p. 59).

Cocain was isolated by Niemann from Coca in March 21, 1860.

Pictet, A. Cocain isolated in 1860 by Niemann.

Dupuy, M. Cocain isolated in 1860 by Niemann.

Guareschi, I. Cocain isolated in 1860 by Niemann.

Schmidt, J. Cocain isolated in 1860 by Niemann.

CODEINE

Robiquet, P. J. 1832

Neue Beobachtungen über die vorzuglichsten produkte aus dem Opium.

Ann. d. Chem. u. Pharm., 5. p. 106. (Pictet, A,. Vegetable Alkaloids, p. 268; Guareschi, I,, Alkaloide, p. 374; Dupuy, M.B., Alcaloides, p. 410; Schmidt, J., Wichtiger Pflanzen Alkaloide, p. 162; Pictet, A., Die Pflanzen Alkaloide, p. 240).

Reported isolation of Codeine from Opium.

Pictet, A. Codeine was isolated from Opium by Robiquet in 1832.

Guareschi, I. Codeine discovered by Robiquet in 1832.

Dupuy, M. B. Codeine discovered by Robiquet in 1832.

Schmidt, J. Codeine isolated by Robiquet in 1832.

COLCHICINE

Hubler, M. 1864

Ueber Colchicin.

Jenaischen Zeitschrift für medicin u. Naturwissensch. 1. No. 2., June, 1864. (Archiv. der Pharm., S. 2. V. 121, p. 193; Pictet, A., 1904, p. 417; Dupuy, M. B., Bk.I., 1889, p. 423; Guareschi, I., Alkaloide, 1896, p. 480; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein, K., 1900, p. 371).

Hubler gives credit to Pelletier and Caventou for obtaining a basic substance which they regarded as veratrine; to Geiger and Hesse who recognized it as a new alkaloid Colchicine. But Hubler reports the isolation of the alkaloid Colchicine.

Pictet, A. In 1819 Pelletier and Caventou obtained substances of basic properties which they regarded as veratrine. In 1833 Geiger and Hess recognized it as a new alkaloid Colchicine. But not until 1864 was the alkaloid isolated in a condition of purity by Hubler.

Dupuy, M. Pelletier and Caventou first to obtain substance of basic property which they regarded as Veratrine. Later Hesse and Geiger analyzed an extremely poisonous alkaloid which they named Colchicine.

Guareschi, I. Colchicine was isolated in 1819 by Pelletier and Caventou, but they thought it was identical to Veratrin. Later in 1833 the work of Geiger and Hesse brought out that this was a new alkaloid Colchicine.

COLCHICINE

Pelletier, J. & Caventou, J. B. 1819

Examen Chimique de plusieurs végétaux de la famille des Colchicées, et du principe actif qu'ils renferment. [Cévadille (veratrum sabadilla); hellebae blanc (veratrum album); Colchique commum (Colchicum autumnale).]

Annales de chimie et de Physique S. 2. vi 4., p. 69. (Pictet, A., 1904, p. 417; Dupuy, M. B., Bk. I, 1889, p. 425; Guareschi, I., Alkaloide, 1896, p. 480; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein, K., 1900, p. 371).

Pelletier and Caventou obtained substances of basic properties which they regarded as veratrine.

Pictet, A. In 1819 Pelletier and Caventou obtained substances of basic properties which they regarded as veratrine. In 1833 Geiger and Hesse recognized it as a new alkaloid Colchicine. But not until 1864 was the alkaloid isolated in a condition of purity by Hubler.

Dupuy, M. Pelletier and Caventou first to obtain substance of basic property which they regarded as Veratrine. Later Hesse and Geiger analyzed an extremely poisonous alkaloid which they named "Colchicine."

Guareschi, I. Colchicine was isolated in 1819 by Pelletier and Caventou, but they thought it was identical to Veratrin. Later in 1833 the work of Geiger and Hesse brought out that this was a new alkaloid "Colchicine."

COLCHICINE

Geiger, P. L. and Hesse, O. 1833

(Colchicin, Entdeckung, Darstellung) und Eigenschaften.

Ann. d. Chem. u. Pharm., 7. p. 274. (Pictet, A., 1904, p. 417; Dupuy, M. B., Bk. I., 1889, p. 425; Guareschi, I., Alkaloide, 1896, p. 480; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein, K., 1900, p. 371).

Pictet, A. In 1819 Pelletier and Caventou obtained substances of basic properties which they regarded as Veratrine. In 1833 Geiger and Hesse recognized it as a new alkaloid Colchicine. But not until 1864 was the alkaloid isolated in a condition of purity by Hubler.

Dupuy, M. Pelletier and Caventou first to obtain substance of basic property which they regarded as Veratrine. Later Hesse and Geiger alalyzed an extremely poisonous alkaloid which they named "Colchicine."

Guareschi, I. Colchicine was isolated in 1819 by Pelletier and Caventou, but they thought it was identical to Veratrin. Later in 1833 the work of Geiger and Hesse brought out that this was a new alkaloid "Colchicine."

CONIINE

Geiger, P. L. 1831

Versuche mit Conium maculatum.

Magazin fur Pharmacie, 35, pp. 72 & 259. (Pictet, A., Vegetable Alkaloids, 1904, p. 127.)

Recognized alkaloid as coniine.

Pictet, A. Coniine noticed by Giesecke in 1827. Geiger in 1831 first isolated the free base and recognized its alkaloidal character.

Giescke, L. 1827

Ueber das wicksame Princip des Schierlings.Conium Maculatum.

Archin. der Pharm. 20, p. 97. (Pictet, A., Vegetable Alkaloides, p. 127; Guareschi, I., Alkaloide, p. 281; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein; Scholtz, M., Der Kunstliche Aufbau der Alkaloide, p. 38; Henry, T., Plant Alkaloids, p. 26).

Giescke didn't isolate coniine, but recognized as an alkaloid.

Pictet, A. Noticed by Giescke in 1827. Geiger isolated the free base and recognized its alkaloidal character in 1831.

Guareschi, I. Coniine noticed by Giescke in 1827.

Scholtz, M. Coniine noticed by Giescke in 1827.

Henry, T. Coniine first isolated by Giescke in 1827.

EMETINE

Pelletier, J. & Magendie, F. 1817

(Recherches Chimiques et physiologiques sur l'Ipecacuanha.)
(Memoire lu a l'Academie des Sciences le 24 fevrier 1817.)
(Extrait par Robiquet.)

Ann. Chim. Phys., S. 2, V. 4., p. 172; (Henry, T., Plant Alkaloids, p. 427; Dupuy, M. B., Alcaloides, Bk. I. p. 582; Guareschi, I., Alkaloide, p. 526).

Pelletier & Magendie reported the isolation and analysis of a new substance which they named Emetine.

Henry, T. Emetine was obtained by Pelletier in 1817.

Dupuy, M. B. Emetine was isolated by Pelletier and Magendie in 1817.

Guareschi, I. Emetine was isolated by Pelletier in 1817, from Ipecacuanha, which they gave name Emetine.

EPHEDRINE

Nagai, N. 1887

Kinnosuke Muica.

Vorläufige Mittheilung über Ephedrin, ein neues Mydriaticum.

Berliner Klinische Wochenschrift, V. 38, p. 706. (Henry, T., Plant Alkaloids, p. 330; Guareschi, I., Alkaloide, p. 479).

Dr. Nagai hat aus der Ephedra volgaris Rich. var. helvetica Hook et Thomp. ein alkaloid dargestellt.

Henry, T. Ephedra vulgaris yields 2 alkaloids ephedrine and x-ephedring, the first obtained by Nagai, and second by Merck.

Guareschi, I. Ephedrine was first isolated by Nagai, from Epedra vulgaris, and later by E. Merck also from Ephedra vulgaris, var. helvetica and by the latter was thoroughly investigated.

EPINEPHRINE

Abel, J. J. & Crawford, A. C. 1897

On the Blood-Pressure-Raising Constituent of the Suprarenal Capsule.

Johns Hopkins Hospital Bulletin, V. 8, 1897, p. 151. (Bethea, O. W., Materia Medica Drug, p. 191; Wood-LaWall, U. S. Dispensatory, 22 ed., p. 429).

Isolated benzoyl chloride of the base from the suprarenal glands.

Bethea, O. W. In the year 1897 Abel isolated the benzoyl-chloride of the base from the suprarenal glands. In 1901, the pure product was isolated by Furt, who named it Suprarenin, and by Takamine who named it Adrenalin.

Wood&LaWall. In 1897 Dr. John Abel separated from the suprarenal capsule the benzoyl-chloride of a base to which he gave the name epinephrine. The pure base was isolated in 1901 almost simultaneously by von Furth who named it suprarenin, and Takamine who named it adrenalin.

EPINEPHRINE

Takamine, J. 1901

Adrenalin the Active Principle of the Suprarenal Glands and it's Mode of Preparation.

Amer. J. Pharm., 73. p. 535.

Succeeded in isolating the active principle in a pure stable crystalline form, the base itself. Termed his substance which he isolated, 'Adrenalin.'

EPINEPHRINE

Furth, V. O. 1903

Zur Kenntris des Suprarenins (Adrenalins).

Monatsh. fur Chemie, V 24, p. 261-290.

Declared that epinephrine is not the active principle of the gland but an inert substance mixed with diversified proportion of his suprarenin, which he claims to be the real principle, according to conditions of preparation, hence its varegation of physiological activity.

HYDRASTINE

Durand, A. A. B. 1851

On Hydrastis Canadensis.

Am. Jour. Pharm., 23, p. 112. (Henry, T., Plant Alkaloids, p. 279; Pictet, A., Vegetable Alkaloids, p. 314; Dupuy, M. B., Alcaloides, p. 33; Guareschi, I., Alkaloide, p. 343; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein, K., p. 281).

Observed a new organic principle Hydrastine.

Pictet, A. Hydrastine was observed by Durand in 1851, but first isolated in a pure condition by Perrins in 1862.

Dupuy, M. B. Hydrastine was recognized in 1851 by Durand.

Guareschi, I. Hydrastine in 1851 was observed by Durand; 10 years later, 1862 was isolated by Perrins, who gave it the name Hydrastine.

HYDRASTINE

Perrin, J. 1862

On Hydrastine, an Alkaloid Occurring in Hydrastis Canadensis.

Pharm. Jour., 21, p. 546. (Henry, T., Plant Alkaloides, p. 277; Pictet, A., Vegetable Alkaloids, p. 314; Dupuy, M. B., Alcaloides, p. 33; Guareschi, I., p. 343; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstrin, K. p. 281).

"The substance hitherto known as Hydrastine in the Ecletic school of American Pharmacy proves to be little more than impure Berberine; it therefore appears to me that the term Hydrastine may with great propiety be transferred to another alkaloid which I have recently observed in H. Canadensis."

Pictet, A. Hydrastine was observed by Durand in 1851, but first isolated in a pure condition by Perrins in 1862.

Dupuy, M. B. Hydrastine was recognized in 1851 by Durand.

Guareschi, I. Hydrastine was observed in 1851 by Durand; 10 years later, 1862 was isolated by Perrins who gave the name Hydrastine.

Wolffenstein, K. Hydrastine was observed by Durand in 1851, isolated by Perrins in 1862.

MORPHINE

Serturner, F. 1806

Saure in Opium.

Trommsdorff's Journal der Pharmacie, v. 13, pt. 1, p. 234; v. 14, pt. 1, p. 47; v. 20, p. 99. (Schmidt, J., Wichtiger Pflanzen Alkaloide, p. 161; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein, p. 238).

Serturner was working with a salt in opium which was something like ammonia.

Pictet, A. Das morphin wurde im Jahre 1806 von Serturner isoliert.

Schmidt, J. Das morphin ist die Hauptbase des Opiums. Es ist das erste aus dem Pflanzenreicke gewonnene alkaloid. Seine Entdeckung durch den Apotheker Serturner stammit aus dem Jahr 1806.

NOVOCAIN

Wintersteiner, H. 1906

Kokain und seine Ersatz mittel (Novocain) in der Augenheilkunde.

Wiener Klinische Wochenschrift. V. 19, 1906, p. 1347.

"Zum Schlusse noch einige worte über das Novokain, welches 1905 von Einhorn und Uhlfelder und von Biberfeld bezüglich seiner pharmakodynamischen Eigenschaften geprüft und anempfohlen worden ist."

PIPERINE

Oersted, H. C. 1819

(Om et nyt aesk i Peberen)

Kiöbenhavnn Oversight, 1819-20. p. 13. (Schweigger's Jour. für Chemie & Physik., 29. p. 80; Henry, T., Plant Alkaloids, p. 35; Pictet, A., Vegetable Alkaloids, p. 143; Dupuy, M. B., Alcaloids, p. 345; Guareschi, I., Alkaloide, p. 280).

Original not available

Henry, T. Piperine was isolated in 1819 by Oersted from fruits of Piper Nigrum.

Pictet, A. Piperine was isolated in 1819 by Oersted.

Dupuy, M. B. Piperine was isolated in 1819 by Oersted.

Guareschi, I. Piperine was isolated in 1819 by Oersted.

QUINIDINE

Henry, T. et Delondre, A. 1833

Sur une nouvelle substance alcaloide decouverte dans le quina jaune.

Jour. de Pharm. et de Chimie, v. 19, p. 623, 1833. (Pictet, A., Vegetable Alkaloids, p. 377; Dupuy, M. B., Alcaloids, Bk. II, p. 396).

Isolated and gave name quinidine.

Dupuy, M. B. Quinidine discovered by Henry and Delondre in 1833. Later studied by Pasteur in 1853.

Pictet, A. Quinidine was discovered by Henry and Delondre in 1833.

QUININE

Pelletier, J. & Caventou, J. 1820

Recherches Chimiques sur les Quinquinas Lues a L'Academie des Sciences le 11 septembre 1820.

Ann. de Chimie et die Physique, S. 2, V. 15, p. 291, & 337. (Henry, T., Plant Alkaloids, p. 137; Pictet, A., Vegetable Alkaloids, p. 373; Dupuy, M. B., Alcaloids, Bk. II, p. 402).

They gave name Quinine to new alkaloid which they isolated.

Henry, T. Quinine was isolated in an impure condition by Fourcrary in 1792, and described by Vauquelin under the name 'quina' in 1809.

Pictet, A. Quinine was isolated by Pelletier & Caventou in 1820.

Dupuy, M. B. Quinine was isolated by Pelletier & Caventou in 1820.

SCOPOLAMINE

Schmidt, E. & Henschke, H. 1888

Über die Alkaloide der Wurzel von Scopola japonica.

Archiv. der Pharm., 226, p. 185. (Pictet, A., Vegetable Alkaloids, p. 196; Guareschi, I., Alkaloide, p. 254).

From the root of Scopola japonica Maxin Schmidt and Henschke extracted Atropine, Hyoscyamine, and Hyoscine. (Hyoscine being a isomer of Scopolamine.)

Pictet, A. Scopolamine extracted in 1888 by Schmidt from roots of <u>Scopola Atropoides</u> Bercht. and those of <u>Scopola japonica</u> Maxim.

Guareschi, I., Scopalmine isolated in 1888 by Schmidt from roots of Scopola japonica Maxim, and Scopola Atropoides Bercht.

STRYCHNINE

Pelletier, J. & Caventou, J. B. 1818

Sur un nouvel Alcali végétal (la Strychine) trouvé dans la féne de Saint-Ignace, la noix nomique.

Ann. de Chimie et de Physique, S. 2, v. 10, p. 142. (Pictet, A., Vegetable Alkaloids, p. 382; Guareschi, I., Alkaloide, p. 499.)

They gave the name Strychnine to new substances which they isolated.

Pictet, A. Strychnine discovered in "St. Ignatius' beans," by Pelletier & Caventou.

Guareschi, I. Strychnine discovered in 1818 by Pelletier & Caventou.

THEOPHYLLINE

Kossel, A. 1888

Ueber das Theophyllin, einen neuen Bestandtheie des Thees.

Zeits. physiol. Chem. 13, p. 298. (Henry, T., Plant Alkaloids, p. 319; Pictet, A., Vegetable Alkaloids, p. 437; Pictet, A., Die Pflanzen Alkaloide, translator Wolffenstein, K, p. 386; Dupuy, M. B., Alcaloids, p. 647).

Isolated a previously unknown base which he named Theophyllin.

Henry, T. Theophylline, isomer of theobromine, occurs in small quantities in tea, was obtained by Kossel.

Pictet, A. Theophylline, an isomer of theobromine, was isolated from tea leaves by Kossel in 1888.

Dupuy, M. B. Theophylline was discovered by Kossel.

VERATRIDINE

Schmidt, E. & Köppen, R. 1876

Zur Kenntniss des Veratrins.

Ber. der deutschen Chem. Gesell, 9, p. 1115.
(Pictet, A., Vegetable Alkaloids, p. 413).

Isolated a basic principle from Veratrin.

Pictet, A. Veratridine was isolated by Schmidt and Köppen in 1876.

APPROVED BY W.O. Richtmann

Date June 11, 1941

Prof. of Pharmacognosy.