Anorthite ..... $\overset{II}{Ca}\overset{III}{Al}\overset{III}{Al}Si_2O_8$.

In this series the valences of some of the individual elements vary, but their total and also the number of atoms in each compound are the same.

The galena group illustrates an isomorphous series in which the individual valences and the total number of atoms may both vary.

Galena ..... $\overset{II}{Pb}S$

Argentite ..... $\overset{I}{Ag}_2S$.

(For other examples of isomorphous series see Brauns's "Chemische Mineralogie," Arzruni's "Physikalische Chemie der Krystalle," and Groth's "Tabellarische Uebersicht der Mineralien," preferably the French edition of 1904.)

The similarity of beryl and benitoite is also to be noted by comparing their axial ratios. Both minerals crystallize in the hexagonal system.

	a	c
Beryl	1	0.4989
Benitoite	1	0.4230.

The value for benitoite is one half of one of those suggested by Louderback and is, no doubt, to be considered only as approximate, since no data concerning the reliability of the readings are given.

It is well known that TiO_2 has either acidic or basic properties. In the case under consideration, the quantitative analysis simply reveals the presence of TiO_2 as such. As to whether it is acid or basic, depends upon which of these assumptions will allow of the simplest explanation and yet be in strict accord with the observed facts.

The similarity of the composition of beryl and benitoite indicates a metasilicate and that TiO_2 is to be considered basic in this instance. The metasilicates are very common in nature, which is not the case with the salts of $H_2Si_4O_9$, a derivative of the tetrasilicic acid $H_4Si_4O_{10}$, to which Louderback would refer benitoite. Up to the present time only one mineral, lorenzenite with the composition $Na_2(Ti, Zr)_2Si_2O_9$, has been observed which can be referred to $H_2Si_4O_9$. In lorenzenite, Ti and Zr replace two atoms of silicon, but in benitoite, according to Louderback's interpretation, one atom of silicon would be replaced by titanium. Thus, in both cases, $H_2Si_4O_9$ is to be considered the basis. Hence, even though Louderback's interpretation be correct his statement, page 152, "Benitoite . . . stands in a class by itself, both as regards acid silicates and titanosilicates," needs to be modified.

In a very recent paper by Ralph Arnold,[2] it is pointed out that benitoite occurs in an area of basic rocks, such as serpentine and glaucophane schists. In fact, benitoite is found in cracks and cavities in the latter and is always associated with the hydrated basic metasilicate natrolite, $Na_2Al(AlO)(SiO_3)_3.2H_2O$. According to Arnold, benitoite may have crystallized before the natrolite, but some occurrences seem to indicate that probably the crystallization of these minerals was practically contemporaneous.

Therefore, the interpretation suggested above, which is based (1) upon the similarity of the chemical composition and axial ratios of beryl and benitoite; (2) upon the fact that TiO_2 may act as a base; (3) that benitoite occurs in an area of basic rocks, and (4) is always associated with the hydrated basic metasilicate, natrolite, seems amply justified. Accordingly, from what has been published, benitoite is not to be considered "a very acid titanosilicate of barium," but rather a metasilicate of barium and titanium.

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SOME PHYSICAL CHARACTERISTICS OF COLLEGE STUDENTS[1]

A PHYSICAL examination is required of all freshmen in Columbia College and the Schools of Applied Science during the first month of the academic year. The examination includes

[2] "Notes on the Occurrence of the Recently Described Gem Mineral, Benitoite," by Ralph Arnold, SCIENCE, N. S., Vol. XXVII., pp. 312–314, 1908.

[1] Read before the New York Academy of Sciences, Section of Anthropology and Psychology, on October 28, 1907.

a record of personal and family history, 31 measurements, 7 strength tests, vision and hearing tests, condition of skin, heart, lungs, nose, throat, teeth and of any abnormalities of spine, shoulders, chest, feet, etc.

The main purpose of these examinations is to help the medical director in guiding and advising each student in matters of physical exercise and hygienic living. The data collected are of interest to the physician and the anthropologist by showing the occurrence of various abnormalities and physical characteristics in healthy young men.

AVERAGE MEASUREMENTS OF 790 COLUMBIA STUDENTS 17, 18 AND 19 YEARS OLD

	First Exam.	Averages			Second Exam.
		206 Students	317 Students	267 Students	
Date					
Age		17.5	18.1	19	
Weight		58.20	58.36	60.32	
Stretch of Arms		177.86	178.14	178.36	
Height Standing		171	171.31	171.61	
Height Sitting		88.84	89.24	90.1	
Length of Trunk		63.67	63.9	64.63	
Girth of Neck		33.5	33.79	34.27	
Girth of Upper Chest—Repose		84.44	85.08	86.17	
Girth of Upper Chest—After Expiration		81	81.07	82.23	
Girth of Upper Chest—After Inspiration		89.53	90.06	91.2	
Girth of Lower Chest—Repose		78.2	79	79.7	
Girth of Lower Chest—After Expiration		76.17	76.94	77.52	
Girth of Lower Chest—After Inspiration		84.52	84.96	85.94	
Girth of Waist		69.5	69.86	71.00	
Girth of Right Upper Arm		24.54	25.14	25.4	
Girth of Right Upper Arm—Flexed		27.75	28.24	28.8	
Girth of Right Forearm—Contracted		25.7	26	26.5	
Girth of Left Upper Arm		24.14	24.5	25.1	
Girth of Left Upper Arm—Flexed		27.15	27.65	28.2	
Girth of Left Forearm—Contracted		24.97	25.32	25.67	
Girth of Right Thigh		49.76	50	50.77	
Girth of Right Calf		33.2	33.35	33.76	
Girth of Left Thigh		49.54	49.78	50.48	
Girth of Left Calf		33.14	33.33	33.7	
Depth of Chest—Repose		18.41	18.57	18.64	
Depth of Abdomen		17.3	17.32	17.4	
Depth of Head		19.35	19.33	19.42	
Breadth of Head		15.35	15.39	15.43	
Breadth of Shoulders		39.38	39.55	40.04	
Breadth of Chest—Repose		25.57	25.58	25.9	
Breadth of Waist		24.74	24.75	25.15	
Breadth of Hips		31.88	31.98	32.3	
Capacity of Lungs		395	401.2	406.4	
Strength of Right Forearm		45.4	47.54	50.84	
Strength of Left Forearm		40.85	43.22	45.2	
Strength of Back		131.75	138.95	144.0	
Strength of Legs		211.8	231.1	238.8	
Strength of Upper Arms (Push Up)		4.39	5.43	5.9	
Strength of Upper Arms (Pull Up)		5.46	6.22	7.0	
Total Strength		508.68	549.22	577.5	

The occurrence of flat foot and weak foot appears to be increasing from year to year, as shown in the following table.

ABNORMALITIES OF THE FEET

	Class of 1910, 364 Students Per Cent.	Class of 1911, 305 Students Per Cent.
Normal feet	61.2	48.2
Both feet flat	15.4	16.9
Both feet weak	20.4	29.5
One foot weak	1.8	3.6
One foot weak and one flat	0.9	1.7

The following table shows the occurrence of abnormalities of the spine. More than 95 per cent. of the abnormalities recorded in this table were postural and not pathological.

ABNORMALITIES OF THE SPINE

	Class of 1910, 365 Students Per Cent.	Class of 1911, 305 Students Per Cent.
Normal spine	18.3	15.4
Kyphosis (round back)	17.3	18.0
Lordosis (hollow back)	12.6	12.1
Scoliosis (lateral curvature)	6.6	4.0
All three abnormalities combined	15.6	13.7
Kyphosis and lord sis	20.5	29.0
Kyphosis and scoliosis	4.6	3.6
Lordosis and scoliosis	4.4	4.2
Scoliosis alone or combined	31.2	25.5

The nationality of the students is of interest in connection with the above data.

BIRTHPLACE OF 283 STUDENTS IN THE CLASS OF 1911

		Per Cent
United States	240	84.8
Russia	14	4.9
Canada	5	1.8
Austria	4	1.4
Roumania	3	1.0
West Indies	3	1.0
Italy	3	1.0
Hungary	3	1.0
England	2	
Scotland	1	
India	1	
China	1	
Germany	1	
South America	1	
Japan	1	

NATIONALITY OF PARENTS OF 288 STUDENTS

		Per. Cent
American (both parents)	100	34.7
German (both parents)	57	20.0
British (both parents)	33	11.5
Hebrew (both parents)	20	6.9
Russian and Pole (both parents)	16	5.5
Hungarian (both parents)	4	1.4
Italian (both parents)	3	1.0
Latin-American (both parents)	3	1.0
French (both parents)	2	
Scandinavian (both parents)	2	
Chinese (both parents)	1	
Japanese (both parents)	1	
Roumanian (both parents)	1	
Bohemian (both parents)	1	
American and foreign	12	4.1
Mixed foreign	19	6.6
Three or more nationalities represented in parents and grandparents	13	4.5

G. L. MEYLAN

THE AMERICAN FEDERATION OF TEACHERS OF THE MATHEMATICAL AND THE NATURAL SCIENCES

GENERAL STATEMENT OF THE POLICY

THE officers of the federation deem it advisable to make the following brief statement of plans and policy, for the information of associations which may be interested in joining the organization.

The general purpose of the federation is to increase the efficiency of the federated (local) associations by bringing each of them into helpful cooperative relations with others that are working along similar lines in other parts of the country, and with the new Section L on Education of the American Association for the Advancement of Science.

The work of the federation through its officers and committees is expected in the near future to be developed along the following principal lines:

As a clearing house for the federated societies the federation will undertake to collect and to keep up-to-date information in regard to the work and the publications of these societies, and to aid as opportunity offers in the formation of new societies when needed.

As a publishing agency the federation will systematically print such of this information as may be of general interest in simple bulletins or in reports in scientific periodicals. Each federated society will be furnished with a list of the principal papers published in its field, and available to its members by purchase or exchange.

As a cooperative organization the federation will from time to time, of its own initiative or at the instance of a particular society, propose questions of general interest for the consideration of the federated societies, or appoint committees on questions of national scope in the teaching of science.

In relations with national societies, such as, for example, the American Association for the Advancement of Science, the National Educational Association, the National Society for the Promotion of Industrial Education, etc., the federation will endeavor to secure due recognition of the interests of the associations composing it, and of the great body of teachers of science.

At its Chicago meeting the American Association for the Advancement of Science showed its interest in and approval of the movement by affiliating the new federation with itself, and then extending to members of the federated associations the opportunity of joining the association without the usual initiation fee.

In general, the federation is expected in the future development of its policy to promote the advancement and improvement of science teaching in whatever manner may seem wise under the restrictions fundamental to its organization, which leave entire freedom of action to the federated associations, and which contemplate the transaction of federation business mainly