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Numbers And/In Chemistry

After opening the evening, the Dean, by plugging the Descarte shortage, introduced the speaker amid waves of stony if expectant silence.

Mr. Standen began by trying to fit chemistry into the *quadrivium*. Geometry, he said, is the science of the shapes of things, and plays no part in their chemical composition. By way of example he showed how the Geometrist and the Chemist would each of them deal with a cube of wood. The one of them would throw away the wood and try to keep the cube; the other, *vice-versa;* each takes what the other rejects. Of course the Geometrition could throw the Chemist into a tantrum by asking, "Well, if sodium is some kind of matter, what shape has it?" But with the advent of modern theories involving sub-microscopic particles we really must admit that this is not a fair question. We hope that this is not too discouraging to those of you who like to admire the pretty diagrams of Bohr atoms found in present day text books.

Arithmetic, as the title shows, is more to the point; also music. The chemist is constantly seeking ordered and commensurable ratios in his elements. Also astronomy, in that both the astronomer and chemist are trying to explain and account for appearances; anud in doing that both sciences are, as it turns out, branches of physics.

The lecturer then launched into his history of chemistry which is, as he showed, a history of numbers or music in chemistry. For Mr. Standen, in the beginning was Lavoisier, and Lavoisier was with Chemistry, and Lavoisier was Chemistry, at least for a while. It was Lavoisier who first put music in chemistry, giving order to it, and like the astronomers, accounting for the appearances. In the writer's opinion Lavoisier did more of a trivial than a musical or arithmetical job in composing and dividing substances, as he did according to their proper manners and categories.

Following Lavoisier came Dalton who we gather was the first chemist to rejuvenate the atomic theory. The only difficulty with his hypothesis was that about eighty different types of atoms were required to account for the known elements of his time. The atoms themselves were very beautiful, hard, round and Lucretian; but the mode of their combination was unexplained, and besides "there were just too darn many of them."

We gather that even in his time certain peculiar regularities or near regularities were cropping up in the atomic specific weights of certain elements; regularities which resembled the small number ratios found in musical scales. Mr. Standen illustrated this point profusely on the black board all throughout the lecture, but space does not permit us to reproduce his figures here.

In 1815 William Prout used these ratios and mean ratios to jump to a conclusion: the atomic weight of every element was commensurable by some number with that of every other element; and therefore the universe is composed not of 80 atoms, but just of one, from which all the other atoms and all the chemical combinations were built up. These atoms would be called *protyles* from two Greek words meaning "prime matter." Not Aristotelian prime matter, of course, but the kind of prime matter that bricks which are used to build a house are made of. And since hydrogen was the lightest element, and one which obviously measured beautifully a number of known atoms, the hydrogen atom would be Prout's protyle.

Unfortunately, Prout oversimplified. His statement about commensurability was found to be 'bunk'—by a Belgian by the name of Spas, whose hairbreadth accuracy in observation rivaled Tycho Brahe's. For convenience in calculation, however, where hairbreadth accuracy was not required, a protyle was still retained; not hydrogen, but oxygen, because of the latter's wider use. Around this time, Mr. Standen, precipitated a periodic table on us, which consists of an arrangement of the different elements by rows in the order of their weight. Thus, whenever an element is found which has no chemical properties, a new row is started. In the first row are 2, in the second 8, and so on, 8, 18, 18, 32. If these are all divided by 2, one gets 1, 4, 4, 9, 9, 16, a peculiar ordering by squares, known as Rydberg's Formula.

Next comes the Vacuum Tube, by which we discover in some mysterious manner, that many elements, especially all of the even-numbered ones (by weight), are not simple at all, but are of different kinds, varying in weight, and called *isotopes*. Even hydrogen was discovered as late as 1932 to have one such *isotope*. This discovery raised high hopes in the best circles. Maybe the *istopes* do rescue Prout's hypothesis. Perhaps there is a protyle, not the hydrogen atom, but maybe an electron or something which would measure all the other elements. Unfortunately, this has not been found to be the case. Einstein is said to have solved the enigma with his Theory of Energy.

Your reviewer went upstairs after the lecture in order to find out as much as he could about this theory, which in brief runs something like this: Whenever matter changes its state, it turns into energy. Energy is that mysterious something, given off whenever matter changes its state. A sort of high-powered non-entity, whose *modus operandi* is very much like that of The Little Man who wasn't there. The conversion of atoms into this stuff accounts for the discrepancy between the atomic weights very nicely indeed.

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War Meeting

Those attending Col. Taylor's Sunday night talk on *Peace* got an accurate picture of the kind of thinking that goes into treaty-making. The speaker is an experienced professional in this field, and his description of the requirements that treaties must satisfy had the authentic ring that is only sounded by those who have sat at peace tables and who have talked and argued with treaty-makers.

Col. Taylor was not concerned to present us with an ideal treaty, or any definite statements about what must go into the settlement following this war. His primary concern was to indicate those requirements of positive law which a treaty must satisfy, and to point out how distant these requirements, perhaps necessarily, may be from the concepts of "moral propriety" held by the people whose diplomatic representatives formulate the treaties.

The speaker divided the treaty-making problem into two grand divisions. The *jus gentium* is that positive law, "realistic" and "practical", which holds such principles as that (1) a treaty is a title deed to sovereignty; (2) all international law is based on treaties; (3) private rights may be destroyed by treaties. The *jus naturae* is the law of humanism and "moral propriety", and it is noble and unscientific. In contrast with the three principles stated above, the law of humanism states that (1) the sovereignty of the country rests in the people; (2) the aim of all political organization is to conserve the natural and inalienable rights of man; (3) property being a right inviolable and sacred, no one can be dispossessed of it. It should be borne in mind that these last three statements are not universally agreed humanistic principles. For example, the last two are drawn from a particular political document, the *Rights of Man*. Col. Taylor made it clear that this was where one of the great difficulties lies, i.e., in that peoples of different areas and different religions have different concepts of what is morally proper.

Treaty law (positive law), according to the speaker, must be considered entirely separate from questions of moral propriety. For example, the judgment of whether or not to recognize a certain governmental regime depends only on the ability of that government to carry out its treaty obligations. It is no concern of the State Department whether that government derives its powers from the just consent of the governed. It is power that decides. De Gaulle could not be recognized because he could not satisfy the State Department that he had the power to fulfill France's treaty obligations. On the other hand, France could be recognized because he demonstrated this ability.

When moral proprieties have been injected into treaties they have raised false hopes. Treaties are designed to define boundaries and recognize sovereignties. Good treaties don't ty to do more. When as many different concepts of moral propriety are represented as are represented by the nations involved in this war, any attempt to state such humanist principles in treaties is sure to cause trouble; to raise false hopes in some places, and to foster hatred and despair in others.

There are two main kinds of treaties—real and private. Real treaties are made between continuous powers and these treaties do not lapse. Private treaties are made between temporary powers, such as dynasties, and they lapse with the fall of the dynasty. Debts incurred under real treaties cannot be repudiated. For example, the Hague holds the USSR responsible for treaty debts incurred under the Czar, but the USSR has repudiated the positive law, as well as whatever moral proprieties are involved, and refused to pay these obligations.

Treaties are made between sovereigns; so it follows from this that a treaty cannot destroy the sovereignty of another, and at the same time expect the vanquished to carry out treaty obligations, if the carrying out depends on the exercise of sovereignty.

A treaty is a program for peace; it is not a statement about the end of war. Therefore it is bad for a treaty to include retributions and guilt clauses, as did the Versailles Treaty of 1919, because these provisions foster conflict and do not promote peace. The Versailles Treaty was excellent in this sense; it obliterated the war guilt immediately upon payment of the assessments.

The question period following Col. Taylor's talk suggested pretty definitely that one of the real difficulties in making a good peace lies in the confusion of 'natural law' with something noble and unscientific, idealistic, and unreal. There is no different natural law for different peoples, but it is true, as the speaker pointed out, that ideas about what this natural law consists in vary with different people. And yet at the same time it seems likely that if the natural law could be stated so clearly as to appear self-evident, it would have this same appeal of self-evidence to the nature of men everywhere under any conditions. Col. Taylor conceded at this point that perhaps the two divisions he made so sharply in the beginning have some bearing on one another, and it might be that a clear statement of the natural law would bring positive law and moral proprieties into some kind of workable unity. But treaty makers are not talking this kind of language.

We didn't leave the meeting feeling happy about the brave new world. But we feel grateful to Col. Taylor for presenting an accurate picture of what happens and what we can expect.

C. N.

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Isn't it marvelous what modern science can do. We are given to understand that the last part of Mr. Standen's lecture was hurried and a trifle confused, winding him up by 9:15 despite warnings to the contrary lavished prominently on the margins of his notes.

J. G.

Four Violin Sonatas

The concert began with J. S. Bach; agitated stuff, and intensely emotional, and yet made to fit—by pure magic—into the tight, symmetrical form of the Suite movement. Then we had a sonata by Handel, with the same white-hot fire, but controlled this time by a powerful genius, who gave it a smooth flowing dignity and made it into something completely satisfying. Mr. Roman Totenberg (violin) and Mr. Artur Balsam (piano), played the music, and let it speak for itself; they were like the much-wished-for-perfect translation of Homer, which would never obtrude itself between us and the poet.

However, in the next sonata, they seemed to be playing Mozart with kid gloves on. The first and third movements lacked the fire and the humor, while the second movement dragged; but then if these are emphasized, the delicacy is apt to be missed, and certainly we could enjoy the delicacy of Mozart to the full.

Immediately after this, they played a sonata by Hindemith.

Now, if we had listened to a lecture by Plato on "Truth" and then one by Aristotle on "The Good," would we immediately wish to hear even Mr. Mortimer Adler? Do concerts always have to be this way round? Give us the Hindemith at the beginning, that we may listen to it with fresh ears.

Disengaging ourselves from the sweet strains of 18th century music, we listened to the Hindemith, finely played, with great strength and fire. For encores, we had a shimmery, pretty-pretty piece by Ravel, and an agitated piece of fireworks by a lesser composr. They served beautifully to illuminate the Hindemith by contrast, showing it to be real music, with plenty of stuff in it. Let us hope we may have an opportunity of hearing it again, and this time at the start of the program.

A. S.

Backcampus

The athletic year was brought to a formal close last Wednesday evening with the annual Athletic Dinner. Individual and team awards were given out by Mr. Hammond and Frank Marshall.

Randall and Paca-Caroll tied for the team award, with each house winning an equal number of points in the five-team sports that were played: lacrosse, spring softball, summer softball, track and football. Of the two teams, nine men played a sufficient number of games to be eligible for a blazer. In Paca-Caroll these were: Bounds, Trimble, Elliott, Evans, Nagler and Thomas. In Randall the men were: Welch, and, after a long and courageous four-year struggle, Erich Nussbaum, whom we congratulate.

John Wakefield received the high point award in track, while blazers for tennis were given to Bob Wilson, Dave Haines, and Tom Robertson (in absentia).

The Edward Flint Lathrop Award, which goes to the athlete who has done most to encourage the athletic program at St. John's, went to Randall's mighty atom, Pat Welch, who has done a great job getting his Randall boys out on the field, come what may, as well as playing long, hard and well himself throughout the year.

Steve Benedict received the Beatrice Thorne Award for tennis, given in memory of her brother.

Not awarded this year was the Crimson Blazer, nor the individual high point award, and the Seamanship prize.

Thus ends the athletic year, a distinct success in the face of many wartime difficulties. We hope that by this time next year all the awards may be given, Ned Lathrop will be back, and that our own post-war construction and reconstruction may begin.

College Meeting

Mr. Barr extended a cordial invitation from the library staff to a party being held in Library on Sunday. He also mentioned that the students would be welcome at the Baccalaureate service and at the graduation ceremony.

Mr. Novak hoped we were not confused because of the lack of a box. He drew the alternatives which we must consider in our voting. Historically, there have been only two arrangements between the administration and the dormitory; one of complete administrative control when Mr. Novak first arrived, and later the present committee system. To be brief Mr. Novak sees the present system as working efficiently, and finds that the only advantage in the proposed revision would be one body of rules which would apply to the whole college (this would permit effective inter-dormitory relations), and perhaps a more general and stablized dormitory control.

Mr. Barr felt called upon to point out that at a recent college someone might have gotten the impression that the Dean was senile. Nothing of the sort. Although the Dean may be a "tired old man in the midst of chaos" one should not vote to relieve him of responsibility because of that. Instead, as Mr. Barr was careful to point out, the issues are those mysterious things such as political thought and better communal life; and generally such knowledge of their own condition and their remedy which the students can be presumed to have more of than the administration.

As an aside, it seems that the words of the Dean and this column have a pervading effect. *Mr. Darkey and Miss Fletcher did have a party.*

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A Merry Christmas