blood-vessels, and the difference in structure between voluntary and involuntary muscles.

5. By what mechanism is air introduced into and expelled from the lungs in respiration? Enumerate the muscles which are constantly, and those which are only occasionally, employed in inspiration and expiration.

Tuesday, August 8.—Morning, 10 to 1.

CHEMISTRY.

Examiner, Professor DANIELL.

1. A saline powder will be placed before you, with a blow-pipe, lamp, and charcoal: test the powder, state its composition, and describe the phenomena which it presents by the application of the flame, and explain their causes.

2. A saline solution will be placed before you marked A, with appropriate tests: explain the changes which will take place upon their application, and name the acid and base of which the salt has been composed.

3. What was the great fault of the thermometer as originally constructed by the Italian philosophers at the beginning of the seventeenth century? and how was it corrected by Sir Isaac Newton?

4. Describe the processes by which uniformity of temperature is brought about in a system of bodies originally of different temperatures, and the principal circumstances which influence each.

5. Describe and explain the principal phenomena of electric induction.

6. What were the respective shares of Galvani and Volta in the discovery of galvanism or voltaic electricity? Describe and explain the fundamental experiments of each.

7. What are the principal advantages which the science of chemistry has derived from the establishment of Dalton's atomic theory?

8. How may the presence of nitrogen be detected, and its amount be ascertained in an organic compound?

9. What is phosphorus? State its principal physical properties, its equivalent number, and describe its combinations with oxygen.

Afternoon, 3 to 6.

MATERIA MEDICA AND PHARMACY.

Examiner, Dr. PEREIRA.

1. Describe the method of preparing the *antimonii potassio tartras* according to the London Pharmacopœia, and explain the chemical changes which attend the process. State the composition, effects, uses, and doses of this salt, and also the tests by which its presence may be recognised.

2. Give the botanical characters of *aconitum napellus*. Mention the peculiarities of its action on the system; name the diseases for which it is especially adapted; and state the best mode of using it externally as well as internally.

3. How would you distinguish *liquor sodæ effervescens*, Ph. L., from mere carbonic acid water? With what metal is the soda water of the shops frequently contaminated, and how would you detect the impurity?

4. What are the appropriate doses, for an adult, of the following substances:—Benzoic acid, sal ammoniac, trisnitrate of bismuth, biniodide of mercury, and bromide of potassium?

5. How would you detect the adulteration of balsam of copaiba with castor oil?

6. Enumerate the principal cathartics. In how many groups or orders may they be conveniently arranged? What are the peculiar effects and uses of each group?

Afternoon, 3 to 6.

STRUCTURAL AND PHYSIOLOGICAL BOTANY.

Examiner, Professor HENSLOW.

1. Compare a campanulate with a rotate corolla: and a corymbiform with an umbellate inflorescence. Illustrate your comparison by a slight sketch of each.

2. Whence does the arillus originate? Name two good examples of plants of different families in which it occurs.

3. How do you explain the formation of central and parietal placentæ? Name an example of each.

4. What is the nature of vegetable albumen? Is it found in the seeds of *ranunculus*, *pisum*, *sinapis*, *primula*, and *geranium*?

5. What is a stipule? Are the plants in *rosaceæ*, *leguminosæ*, *cruciferae*, generally stipulate or not?

6. How is the genus *cuscuta* supplied with nourishment? What peculiarity is observable in the structure of its embryo?

7. What are "adventitious buds;" and how do you suppose they have originated?

8, 9, 10. Describe these specimens.

METEOROLOGICAL JOURNAL,

KEPT AT SIDMOUTH.

By W. H. CULLEN, M.D.

July, 1843.

Mean of External Thermometer at 9, a.m. 62·03

" " " at 9, p.m. 58·12

Maxima 68·60

Minima 51·92

Mean daily Range 16·24

Extreme Highest on the 11th 73·50

" Lowest on the 8th 41·

" Range 32·50

Mean Dew Point at 9, a.m. 56·85

" " at 9, p.m. 53·70

Mean of Barometer at 9, a.m. 29·992

" " at 9, p.m. 30·012

Extreme Highest on the 17th 30·400

" Lowest on the 23rd 29·650

" Range 0·750

Number of Days Fine 14

" " Dull 3

" " on which any Rain fell . 14

Quantity of Rain in Inches 1·740

PREVAILING WINDS.

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
—	—	—	1	5	9	2	14

REMARKS.

Thunder was heard faintly on the 5th and 13th. On the evening of the 7th a brilliant rainbow was seen. The days marked rainy were not "wet," but variable, or else wet till nine or ten, a.m., and fine for the rest of the day.