

(a) The Savilian Professor of Astronomy shall have the charge of the University Observatory, and shall undertake the personal and regular supervision of the same, and of the several demonstrators and other assistants employed therein, and shall be responsible for all the work carried on there.

(b) The Professor of Experimental Philosophy shall have the charge of the Clarendon Laboratory, and shall undertake the personal and regular supervision of the same, and of the several demonstrators and other assistants employed therein, and shall be responsible for all the work carried on there.

(c) The Waynflete Professor of Chemistry shall have the charge of the chemical laboratories in the University Museum, or such part thereof as the university may by statute assign to him, and shall undertake the personal and regular supervision of the same, and of the several demonstrators and other assistants employed therein, and shall be responsible for all the work carried on there.

(d) The Linacre Professor of Human and Comparative Anatomy shall have the charge of the anatomical and ethnological collections and the anatomical laboratories in the University Museum, or such part thereof as the university may by statute assign to him; and shall undertake the personal and regular supervision of the same and of the several demonstrators and other assistants employed therein, and shall be responsible for all the work carried on there.

(e) The Professor of Botany and Rural Economy shall have the charge and supervision of the Botanical Gardens and botanical collections belonging to the university; and it shall be part of his duty to make such gardens and collections accessible to, and available for the instruction of, students attending his lectures.

(f) The Professors of Geology and Mineralogy respectively shall have the charge and supervision of the geological and palaeontological collections and of the mineralogical collection belonging to the university; and it shall be part of their duties to make such collections respectively accessible to, and available for the instruction of, students attending their lectures.

To the class of teachers to be called University Readers some of the duties assigned to the professoriate under the old scheme are now transferred. The "informal instruction" twice a week to all students who may demand it becomes now part of the regular duty of the Reader, and not of the Professor. The following are the most important clauses on University Readers:—

(a) Every appointment of a University Reader shall be made by the Delegates of the Common University Fund, or by persons, not fewer than three in number, nominated for that purpose by the Delegates.

(b) Every University Reader shall hold his office for five years, but shall be re-eligible.

(c) He shall receive from the Common University Fund 300*l.* per annum.

(d) He shall in every year lecture in each of the three University Terms (Easter and Trinity Terms being counted as one). His lectures shall extend over a period not less than seven weeks in each term, nor than twenty-one weeks in the whole, and he shall lecture twice at least in each week. In addition to these lectures he shall, twice at least in every week in which he lectures, receive students desirous of informal instruction and other assistance in the studies with which his readership is connected.

(e) He may require from students receiving the informal instruction and assistance mentioned in the foregoing regulation payment of a fee not exceeding 2*l.* for any university term. With this exception his lectures shall be open to all members of the university without payment of any fee.

5. It shall be the duty of every reader to lecture and give instruction in the subject or branch of study for which he is appointed, and in arranging the subjects and times of his lectures it shall also be his duty to have regard to the arrangements made or proposed to be made by the professors, if any, lecturing in the same department of study.

The most important change in the new scheme is the liberation of the professor and reader from the immediate control of the council or board of his faculty. Under the old scheme each professor and reader was obliged during Easter term to send in to the faculty a schedule of all his lectures and other instruction for the ensuing year, giving the days, hours, and subjects of the lectures. The faculty was to have the power of criticising the schedules and of recommending alterations, and the two following clauses were intended to reduce a refractory professor to submission:—

14. The Council shall not alter any schedule without the consent of the person named in it. But if a recommendation made by the Council as to any schedule be not acceded to, the Council may, if they think fit, exclude the schedule or the part of it affected by such recommendation from the list, unless such schedule was sent in by a Professor or University Reader. In the last-mentioned case the Council shall not exclude the schedule, but may, if they think fit, report the fact to the Vice-Chancellor, who shall lay the report before the Visitatorial Board.

15. If a Professor or University Reader wilfully neglect to send in schedules of his lectures, the Visitatorial Board may, on a report of the Council of the Faculty, and without any charge laid before the board, proceed against him by admonition or otherwise as for a neglect of the duties of his office. Refusal on the part of a Professor or University Reader to accede to any recommendation of the Council of his faculty respecting his lectures may likewise be treated by the board as a neglect of duty, if, on a consideration of the circumstances, the board be satisfied that such refusal was without reasonable justification. Provided that if the recommendation relate to the subjects of the proposed lectures it shall be sufficient for the Professor or University Reader to show that such lectures are in respect of their subject-matter a *bonâ fide* fulfilment of the statutory duties of his office.

The following are the new clauses which regulate the relation between the professoriate and the board in the different faculties of arts, theology, law, and natural science:—

The board of each faculty shall have the following duties and powers:—

It shall be the duty of the board to prepare and send to the Vice-Chancellor for publication—

(a) Before the end of each term a list of the lectures which are to be given in the ensuing term in the subjects of the faculty under the authority of the university or of any college, or of the Delegates of students not attached to any college or hall, and are to be open to persons other than the members of any one college, or (as the case may be) other than the students not attached to any college or hall.

(b) In Easter or Trinity Term annually a general scheme or statement showing, as far as may be, the lectures to be given as aforesaid during the course of the ensuing academical year.

(c) In Michaelmas Term, or at such other time in each year as the university may by statute appoint, a summary statement of the lectures given during the preceding year in the subjects of the faculty by Professors and University Readers, and of all other lectures which have been advertised in the published lists of the faculty and given in conformity therewith. The board shall add to this statement such further information (if any) respecting the studies and instruction of the faculty as the university may by statute require, and may point out any deficiencies in the provision made for instruction, and make recommendations for supplying them.

10. It shall be the duty of every Professor and University Reader to send to the Secretary of the Boards of Faculties timely notice of the lectures he proposes to give in any of the subjects of any faculty to which he belongs, pursuant to the statutes and regulations in force for the time being, and in arranging his lectures to have due and reasonable regard to the recommendations of the board of the faculty; but this duty shall not be deemed to preclude him from the free use of his discretion in selecting for his lectures any subject or part of a subject which he deems most advisable within the province assigned to him by statute.

#### GOLD IN NEWFOUNDLAND

REPORTS having been circulated for some time past that gold had been discovered in quartz veins in the regions near Brigus of Conception Bay, Newfoundland, Mr. Murray has recently made a personal examination of the ground.

In his report to the Governor of the Colony, dated October 8, he states that by the first blast from two to three cubic feet of rock were removed, all of which was carefully broken up, washed, and examined; which operation finally resulted in the display of ten or twelve distinct "sights" of gold. In one fragment about five pounds weight, largely charged with dark green chlorite, the gold shows itself in three places distinctly, while many small specks are perceptible by means of a good lens. The fracture of a fragment of milky white and translucent



quartz, which was broken off the large piece, revealed two patches of gold, both of which together, if removed from the matrix, would probably produce about a dwt. (pennyweight) of the metal; whilst several small masses or nuggets were found adhering to the small broken fragments of quartz at the bottom of the pail in which the rock was washed, the largest of which contained about ten or twelve grains of gold. From some specimens in which no gold was perceptible to the naked eye, and had been selected for analysis, a small nugget weighing three grains was obtained in the dust of the bag in which the specimens were carried. In the specimen from Fox Hill the metal occurs thickly in the minutest specks, scarcely, if at all, perceptible to the naked eye, but readily recognised under the lens, where it chiefly surrounds a small patch of chlorite.

The rock formation intersected by these auriferous quartz veins is of Huronian or Intermediate age, or the group of strata next below the *aspidella* slates of St. John's. The group consists chiefly of greenish fine-grained felsite slates, which, judging by the weathering of the exposed surfaces, are also magnesian and ferruginous. The cleavage is exactly coincident with the bedding, and the slates occasionally split into very fine laminae, but frequently into strong stout slabs, which are used to a considerable extent at Brigus for paving, for hearthstones, and for building foundations and walls.

A rough and hummocky belt of country from three-quarters to one mile wide, which forms the nucleus of the peninsula between Bay-de-Grave and Brigus Harbour, is thickly intersected by reticulating quartz veins varying in thickness from less than an inch to upwards of a foot, which often appear to ramify from a central boss or great mass of quartz, often extending over many square yards, and usually forming low isolated hummocks or hills. The general run of the belt is as nearly as possible north-east and south-west from the true meridian. Although many of the veins, both small and large, may be seen for considerable distances to run exactly parallel with the bedding, the net-work of the whole mass runs obliquely to the strike of the beds, which are also minutely intersected by the smaller veins crossing and reticulating in all directions.

The resemblance in general character of the strata with their included auriferous quartz veins in Newfoundland to those of Nova Scotia is striking, although according to Dr. Dawson the auriferous country of Nova Scotia is probably of Lower Silurian age, while that of Newfoundland is undoubtedly unconformably below the Primordial group, which, with abundant characteristic fossils, skirts the shores of Conception Bay.

That a large area of country in the regions referred to is auriferous there can scarcely be a doubt, although nothing short of actual mining and practical experience can possibly prove what the value of the produce may be, or whether the prospects of obtaining a remunerative return for the necessary outlay are favourable or otherwise. The specimens which have been obtained, although an unquestionable evidence of the presence of the precious metal, cannot by any means be taken as indicative of a certain average yield. An analysis of quartz collected, in which gold is imperceptible to the naked eye, may aid in revealing some evidence of its constancy, and may throw some light upon the possible average of superficial contents over certain areas under similar circumstances; but it may safely be predicted that the irregularities of distribution, so conspicuously displayed by the veins on the surface, will extend beneath it, and that it will be mainly on the stronger and more persistent bands, where intercalated with the strata, that mining will extend to any considerable depth.

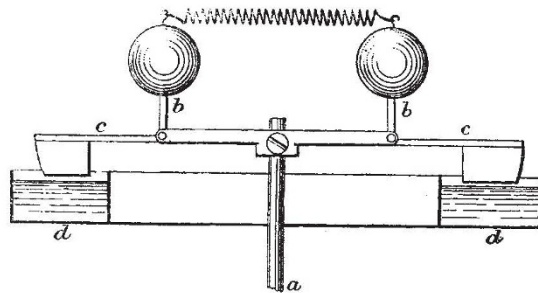
The indications of gold in Newfoundland are certainly sufficiently favourable to merit a fair trial; and there are good reasons to hope and expect that ample capital applied to skilled and judicious labour may be found remunerative to future adventurers, while a new industry will be added to give employment to the labouring population of the island, and possibly bring this despised and but little-known colony into more prominence and consideration abroad than it hitherto has enjoyed.

### A SPEED GOVERNOR FOR CONTINUOUS MOTION

IN NATURE, vol. xxiii. p. 61, a speed governor for a chronograph is described, the invention of the Astronomer-Royal, in which a conical pendulum acts on a paddle moving in a viscous fluid, so as to make it dip more deeply into the fluid when the speed is increased. A similar apparatus, with a spring instead of

a pendulum, has recently been applied by me to a clock driving a recording seismograph whose motion is required to be continuous and fairly uniform. As the apparatus is very simple and easily made, requiring no nice fitting, and has proved itself to be a very effective governor, a description of it may perhaps be useful.

*a* is a vertical spindle driven by the clock, and making about one turn per second. Near the top of it a cross-bar is fixed, whose ends are forked, and in them are jointed two bell-crank levers *b c*, *b c*. At the top of *b b* are two masses, which in my instrument are two smooth-bore musket balls. These are tied together by a spiral spring between two hooks at the top. At the ends of *c c* are two flat paddles, and when the balls fly out from the axis of rotation the paddles dip into glycerine contained in the annular trough *d d*, which is shown in section. The trough rests on the top of the clock frame. By using only one spring, instead of tying each ball to the spindle by a separate spring, I secure that the pull inwards is necessarily the same for both.



As the balls go out a component of their weight comes into action, helping this motion and opposed to the pull of the spring. For small displacements this force increases very nearly in proportion to the displacement, and hence, by choosing a spring of suitable stiffness, a small change of speed can be made to produce a relatively very large displacement, the proper condition for approximate isochronism.

A governor whose actual size is about twice that of the sketch, roughly made in my laboratory, gives only a slight rise in speed when the driving weight is doubled, and works very smoothly. The apparatus can easily be applied to a clock, perhaps most easily by rolling contact between a horizontal disk on *a* and a vertical disk on one of the axles of the clock, and it gives sufficient control for many purposes. If great accuracy were required the resultant effect of change of temperature on the elasticity of the spring and on the viscosity of the fluid might be corrected by making *c* of two metals, so as to bend and raise or lower the paddles. It is well to put stops to prevent the balls from falling inwards beyond the vertical position.

J. A. EWING

The University, Tokio, Japan, January 21

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—The electors to the Radcliffe Travelling Fellowship have, after examination, awarded the Fellowship to Mr. A. J. Anderson, B.A., late Natural Science Demy of Magdalen College.

The examiners for the Burdett-Coutts (Geological) Scholarship have recommended Mr. J. B. Nias, B.A., scholar of Exeter College, for the scholarship.

The Junior Studentships in Natural Science at Christchurch have been awarded to Mr. G. C. Chambres, Commoner of Balliol College, and late of Dulwich School, and to Mr. R. E. Moyle (private tuition). *Proxime accessit*, Mr. C. D. Spencer, of Clifton College. Mr. W. C. Hudson was elected to an Exhibition in Natural Science.

The various lecturers and demonstrators in physics met last week at the instance of Prof. Clifton, and arranged a scheme of lectures for next term, similar to that carried out during the present term. The object of the scheme is to divide the subjects among the independent college and university lecturers, so that students may attend, by going from one lecturer to another, all the lectures required for any particular course of study.

THE annual meeting of the Governors of the City and Guilds of London Institute for the Advancement of Technical Educa-