

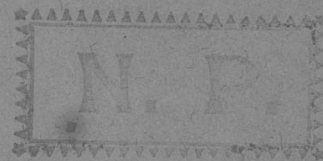
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Educational (1902) Department.

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INDEXED.

ORIGINAL

[Despatch Abstract.]

College of Agriculture

Passing orders on the report of the
Committee appointed to reconsider
and revise the course of instruction
at the —.

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Government [1902] of Madras.

EDUCATIONAL.

G.O., No. 429, 24th July 1902.

Course of Instruction at the College of Agriculture.

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EDUCATIONAL DEPARTMENT.

NOTES CONNECTED WITH G.O., No. 429, EDUCATIONAL, DATED 24TH JULY 1902.

[SUBJECT.—*Course of instruction at the College of Agriculture.*]*From the Director of Public Instruction, dated 4th December 1901, Ref. on C. No. 5432.**From the Board of Revenue (Revenue Settlement, Land Records and Agriculture), Mis. No. 176, dated 9th January 1902.*

The Director of Public Instruction submits, for orders, the report of the committee appointed to reconsider and revise the course of instruction at the College of Agriculture. The principal recommendations of the committee are as follows :—

(1) That the students should have from two-and-a half to three hours outdoor work every morning, then rest till 1, classes from 1 to 4 and recreation in the evening. Class I should perform every description of farm work in turn for four days a week : class II should cultivate given areas, performing all the work required thereon themselves, and class III should do some specific work or supervise work on the farm continuously for a week or so, such as dairy work, record-keeping and other work—paragraphs 2, 3 and 6 of the report—page 3 of the current file.

(2) That the Professor of Agriculture should be placed in direct charge of the college farm and be held responsible for its management in all details—paragraph 4 of the report—page 3 of the current file.

(3) That agricultural chemistry should be entirely separated from the subject of agriculture and treated as a separate subject, but portions of the present agricultural engineering syllabus which deal with irrigation, farm machines and such like things should be incorporated with the practical agriculture syllabus—paragraph 6 of the report—page 3 of current file.

(4) That, before any student is allowed to appear for examination in practical agriculture and agricultural chemistry, he should be required to pass in general chemistry, botany, meteorology and geology and anatomy and physiology and that these subjects and agricultural engineering should be completed during the first two years of the college course—paragraph 7—page 4 of the current file.

2. The committee also submit revised syllabuses for the several subjects prescribed for the agricultural diploma and these will be dealt with below.

3. The present subjects for the diploma in agriculture and the subjects which the committee recommend are as follows :—

Present subjects.	Subjects proposed by the Committee.
Practical Agriculture	Agriculture.
Agricultural Chemistry and Geology	Agricultural Chemistry.
Inorganic Chemistry	} General Chemistry.
Organic Chemistry	
Veterinary Science	} Anatomy and Physiology.
Botany	
Agricultural Engineering	} Veterinary Science and Hygiene.
Surveying and Levelling	
Physiography	Botany.
	} Agricultural Engineering.
	Meteorology and Geology.

4. The present and proposed syllabuses are given in parallel columns in the appended statements. The proposed changes are briefly explained below:—

(1) *Agriculture*.—The syllabus is essentially the same as part (i) of the present one; part (ii) of the present syllabus dealing with agricultural chemistry and geology has been constituted into a separate syllabus, and portions of the present agricultural engineering syllabus dealing with irrigation and farm machines have been incorporated—paragraphs 6 and 9 of the report—pages 3 and 4 of the current file.

(2) *Agricultural Chemistry*.—This is practically part (ii) of the present agricultural syllabus excluding geological references. It has, however, been recast by Dr. Leather—paragraph 9 of the report—page 4 of the current file.

(3) *General Chemistry*.—This has been newly drawn up by Dr. Leather to take the place of the present syllabuses in inorganic and organic chemistry. This, the committee says, follows the more scientific method—paragraph 8 of the report. It is recommended that the time for laboratory work should be four hours at a time and not two hours, which is too short—page 4 of current file—paragraph 8.

(4) *Anatomy and Physiology*.—This is the same as stage (i) of the present veterinary science syllabus—paragraph 8 of the report—page 4 of current file.

(5) *Veterinary Science and Hygiene*.—This is stage (ii) of the present veterinary science syllabus slightly modified—paragraph 9 of the report—page 4 of current file.

(6) *Botany*.—This is the same as the present syllabus.

(7) *Agricultural Engineering*.—This is a combination of the present syllabuses for surveying and levelling and agricultural engineering consolidated and cut down. The committee has omitted portions common to both the syllabuses and such matters as are unnecessary to an agricultural training. This syllabus is only a sketch and has to be referred to an engineer for final revision. In surveying the committee recommends the work should be done in the scales approved in the Revenue Department for village survey records—paragraph 8 of the report—page 4 of current file.

(8) *Meteorology and Geology*.—This is the present physiography syllabus slightly modified. The geological portion in part (ii) of the present agricultural syllabus, which has been excluded from the proposed agricultural chemistry syllabus, has been incorporated here.

5. There is yet another recommendation, and it is—

That some post in Government service on a salary of not less than Rs. 100 should be guaranteed to the best student of each year. This is not embodied in the report, but mentioned in Mr. Benson's covering letter.

6. The Director considers that the recommendation to give more time to out-door work is inconsistent with the further recommendation regarding the course of chemistry which involves much more work than is done at present. He is not convinced that more practical work is needed but only better supervision of the work now done, and this, he says, can be provided on the return of Mr. Thorne from deputation. Mr. Keess, the Principal of the college, considers that the time-table suggested by the committee is impracticable—pages 17 and 18 of the current file—paragraphs 4, 5 and 7.

The Board of Revenue is for accepting the Committee's proposal which, it believes, was made on the consideration that an hour and a-half scarcely allows time to complete satisfactorily any piece of practical work undertaken for purposes of instruction—page 22 of the current file—paragraphs 7 and 8.

7. As regards the proposal to place the Professor of Agriculture in charge of the college farm, the Director offers no remarks, but the Principal states that there is no objection to the Professor having direct control of the farm under the supervision of the Principal. If, however, the committee means that the Professor is not to be under the supervision of the Principal, he should raise serious objections to the proposal as it would introduce the evils of divided authority—page 17 of the current file—paragraph 6 of the Principal's letter. The committee does not apparently mean that the Professor's work in the farm is not to be under the supervision of the Principal.

8. To the proposal to separate agricultural chemistry from agriculture, the Director has no objection (page 2 of the file) and the Principal agrees—page 18 of the file—paragraph 8 of the Principal's letter.

9. To the proposal to exclude from the examination in agriculture all candidates who have not passed in general chemistry, botany and the other subjects mentioned by the committee, Mr. Keess is altogether opposed. The adoption of the proposal would, he thinks, exclude landed proprietors who wish to take the course in practical agriculture only—page 18 of the file—paragraph 7 of Mr. Keess' letter. The Director apparently endorses this remark—page 2 of the file. This, however, does not appear to be an insurmountable difficulty. Such candidates may be treated as casual students

Yes, if it is thought advisable to alter them in this regard.

A. T. PRINGLE—26-2-02.

and allowed to take the course in practical agriculture only. The rules of the college do not at present provide for such casual students, but the rules can easily be altered.

10. Mr. Keess accepts the proposal that general chemistry, botany, meteorology and geology, anatomy and physiology and agricultural engineering should be completed during the first two years of the college course. He notes that the course of studies would naturally arrange itself as suggested by the committee—page 18 of the file—paragraph 11. The Director has no remarks.

11. *Revised Agriculture Syllabus*.—Mr. Keess agrees to the separation of the portion relating to agricultural chemistry but not to the incorporation of matters relating to irrigation and farm machines which now appear in the agricultural engineering syllabus. These matters will have to be taught by the engineering instructor and not by the Professor of Agriculture and no possible advantage, but some trouble, will be the result of the transfer. The revised syllabus will necessitate the addition of a great number of hours to the time now devoted to practical agriculture and this is only possible if the work in the other subjects is reduced—page 18 of the file—paragraphs 8 and 12.

12. *General Chemistry*.—Mr. Keess is opposed to the clubbing together of organic and inorganic chemistry as well as to the syllabus for the organic portion. He thinks that this goes farther than is necessary—pages 18 and 19 of the file—paragraphs 10 and 12. The Director endorses Mr. Keess' remarks—page 2 of the current file.

13. *Agricultural Engineering*.—Mr. Keess considers that the two subjects—agricultural surveying and agricultural engineering—should be distinct and objects to any particular scales for plans. His objection to the transfer of the portion relating to irrigation and farm machines to the agriculture syllabus has already been mentioned.

14. Mr. Keess, the Director and the Board all strongly support the recommendation that a post in Government service on a salary of not less than Rs. 100 a month should be guaranteed to the best student of each year—page 2, paragraph 3 on page 20 and paragraph 9 on page 22. This proposal has, however, to be considered in the Revenue Department.

15. It is clear the Director and the Principal of the college are opposed to most of the recommendations, including the principal one, made by the committee, while the Board is for accepting all of them. In these circumstances, it may be considered advisable to consult experts and, if the Revenue Department has no objection, the opinion of the Hon'ble Mr. Nicholson and Mr. Mollison, the newly-appointed Inspector-General of Agriculture, may be invited before a decision is arrived at.

T. KANAKASUNDARAM PILLAI—26-2-02.

P. T. THARYAN—26-2-02.

We may at this stage simply send the papers to the Revenue Department with this note.

A. T. PRINGLE—26-2-02.

C. J. WEIR—27-2-02.

To the Revenue department.

REVENUE DEPARTMENT.

The Revenue file regarding the expansion of the Agricultural Department and the inefficiency of the instruction given at the Agricultural College, has returned from the Educational and Financial Departments, the draft order and letter having been accepted by these Departments. The drafts will now be circulated to the Honourable Member for whom it has already been marked by the Secretary. It is submitted therefore that the present Educational file, which deals with the revision of the course of instruction at the Agricultural College, may lie over pending the issue of the order and letter on the above file.

A. APPADURAI PILLAI—3-3-02.

Resubmit this as soon as the letter and order about Mr. Barber, etc., go out; these must not be further delayed.

N. E. MARJORIBANKS—3-3-02.

The order upon the expansion of the Agricultural Department has been issued and spare copies were available on Saturday and the file is now resubmitted for consideration.

2. The file deals with the proposals of the committee appointed to reconsider and revise the course of instruction at the Agricultural College, Saidapet. The revised syllabus of the several subjects prescribed for the agricultural diploma and the existing syllabus are compared side by side in the sheets put up separately below.

The Director of Public Instruction and the Principal of the Agricultural College do not accept most of the recommendations made by the committee, but the Board of Revenue after careful consideration "is of opinion that, subject to such minor modifications as may on experience be found necessary, the best means of making the college thoroughly efficient for the purpose it has always been intended to serve is "to accept those proposals." The Educational Department thinks it advisable, therefore, to consult the agricultural experts such as Messrs. Nicholson and Mollison before a decision is arrived at.

A. APPADURAI PILLAI.

Mr. Mollison was a member of the committee whose report is under consideration. If further proof were required of his concurrence in its recommendations, a perusal of his note at pages 13 to 15 of the current file would, I think, supply it. The committee was appointed by the Director of Public Instruction in consequence of the criticisms of the Board of Revenue on the report on the college for 1899-1900 (Board's Proceedings, No. 291, dated 20th June 1900, page 22 *et. seq.* of G.O., No. 513, Educational, dated 18th October 1900). There seems, therefore, no need now to cast about for any more people to consult. It is, I submit, now for Government to decide what they want the Agricultural College to be, and whether the methods and recommendations of the committee or those of Mr. Keess are more likely to secure the desired end.

2. Mr. Keess, in paragraph 1 of his criticisms on the committee's report (page 16 of the current file) and also in paragraph 15 *ibid* (page 20 of current file), is probably right in saying that the college teachers never definitely knew what the passed student was expected to be. Straws show how the wind blows: and I submit that when, with reference to the committee's recommendation that survey work at the college should be done in the scale approved in the Revenue Department for village survey records, Mr. Keess observes that he does not see why the scale adopted by some particular Government Department should be made compulsory, he shows his ignorance of the approved policy which makes the Agricultural College a part of the general scheme

for agricultural improvement in this Presidency (*vide* the sixth of the eight resolutions of the Government of India in G.O., No. 413, Revenue, dated 27th July 1898). He knows nothing about agricultural requirements and necessarily looks at the subject from a tutorial point of view.

G. S. FORBES.

It is doubtful whether the Director of Public Instruction appreciates the position any better—*vide* his letter at pages 1 and 2 of the current file and of his note, portion (b), at page 8 of the notes to G.O., No. 477, Educational, dated 27th August 1901. Both seem to regard the college as a sort of general educational institution, which should impart to its students a ground-work of the science and practice of agriculture giving them the chance of "specialising" in one or more particular subjects; and Mr. Keess is obviously disposed to sneer at the idea that the object of the institution should be to train

The initial mistake was the appointment of Mr. Keess.

G.S.F.

"practical agriculturists" which is clearly the purpose to which the Committee's recommendations are directed.

3. The latest authoritative description of the part to be taken by the Agricultural College in the general scheme for agricultural improvement is, so far as this department is aware, that contained in paragraph 35 of the sixth resolution of the Government of India at page 43 of the pamphlet attached to G.O., No. 413, Revenue, dated 27th July 1898. The college is intended (1) for a large number of candidates for official employment, (2) for a certain number of training-school teachers, and (3) for a material number of land-owners. It is intended to provide a thorough and practical education in agriculture and allied sciences which, it is held, develops the intelligence of students just as well as a literary course. Of course, our college has never been efficient enough to fulfil this ideal and it has suffered just like all the other parts of the agricultural scheme. I don't think it has been used at all for training-school teachers; for the proposal to put training-school students through a practical course of agriculture has not been carried out in this Presidency. But, nevertheless, it seems clear enough that the college is intended to turn out "practical agriculturists". It seems also certain that it has failed to do so and never will do so so long as it continues on its present lines. Nor would any practical good come, it is submitted, of suffering the Committee's recommendations to be emasculated by Mr. Keess.

4. The question indeed arises, I submit, whether it will suffice to adopt the committee's recommendations. Human nature being what it is, it will be strange if Mr. Keess does not render them futile. Besides the Government has recently agreed with the Board's view that the Agricultural College should be brought into closer connection with the Agricultural Department; that it should be better equipped with an expert staff who would teach at the college and also pursue investigation in the field. In accordance with this view, an Agricultural Chemist has been applied for; and it was said that the question would be considered in the present connection whether the services of the present college staff could not be more advantageously and fully employed than at present both in teaching at the College as well as in assisting the Director of Agriculture in the practical investigation of questions connected with general agricultural practice. As regards the teaching, the recommendations of the Committee seem appropriate; they are made by experts and it would be useless to examine them in detail here. As regards practical work in the Agricultural Department, the only officer in the college staff qualified for such work seems to be the Vice-Principal Mr. Thorne, who, under the Committee's scheme, would have his hands full with the management of the farm and the professorship of agriculture. None of the other assistants seem qualified for practical investigation, but Educational will be able to advise as to this. If they are not, the question arises whether other men qualified both to teach and to investigate should not be obtained—at some additional cost, if necessary. Lastly there is Mr. Keess. Can it be expected that the college will be successfully run under him on lines opposed to his views?

Government Order and letter to India, Nos. 292, 293, Revenue, dated 25th March 1902.

5. There remains the question of assigning a post on Rs. 100 in Government service to the best student of the college each year. It is submitted that this should not be done. If the training given is really a useful practical one, the passed students will readily find employment both in Government service and in that of the Court of Wards and of private land-owners. There is no good, it is submitted, trying to bolster up an institution run on wrong lines.

N. E. MARJORIBANKS—18-4-02.

Note on further papers got from the Educational Department.

(2) *The Agricultural College.*—Paragraph 19 of Mr. Hewett's letter in G.O., No. 678, Educational, dated 21st November 1901, and Nos. 55, 56 and 57 of the resolutions of the Simla Educational Conference bear out and confirm the view submitted in the note regarding the Saidapet Agricultural College, namely, that the college is intended to be an institution for affording a *practical* training in agriculture. The letter to India, No. 173, dated 26th March 1902, answers Mr. Hewett's letter only with reference to Primary Agricultural Education. The reorganisation of the College to work it on more practical lines is still for decision.

N. E. MARJORIBANKS—24-4-02.

Dr. Voelcker condemned this college in 1894 and it never seems to have done better since then. (Paragraph 8 of Board's Proceedings at page 12 of G.O., No. 460, Educational, dated 22nd June 1894).

I entirely agree with him.
G. S[TOKEs]—14-6-02.

2. In 1894 the curriculum followed at the college was that prescribed by a committee which sat in 1890—of which I was one—which laid down a course and drew up syllabuses to meet the course.

3. In 1895 a committee was appointed to modify the syllabus in surveying and levelling and agricultural engineering, and their proposals were accepted. (G.O., No. 882, Educational, dated 16th November 1895).

4. The college course has never been regarded as much more than experimental and the aim of the college course has never been really defined. Some times the idea

It should take one line or the other.

G. S[TOKEs]—14-6-02.

was that it should aim at turning out nothing more than men with some practical knowledge of the rudiments of agriculture, at other times the college was attempting apparently to turn out experts in agricultural science and trained Veterinary Surgeons. (G.O., No. 413, Revenue, dated 27th July 1898).

5. Then in 1898 came the Agricultural Resolution of the Government of India, and it was then admitted that the aims of a college of agriculture should be—

- (1) the training of candidates for official employment;
- (2) the training of a certain number of school teachers;
- (3) the training of a material number of land-owners.

It is for the above three purposes that the Agricultural College at Saidapet should now be considered in the main to be meant.

6. Turning to the report of the committee and the more important paper, viz., Dr. Mollison's note, it will be seen that the whole object of the committee is to make the course at the college more practical. (Pages 3—15 of current file).

All the mornings are to be devoted to outdoor work—

Class I—Every description of farm work.

II—Cultivation of given areas.

III—Specific kinds of work (dairying, record-keeping, etc.).

The men of the third year to go on excursions.

The Professor of Agriculture to have charge of the farm—of course under general supervision by the Principal—he is to have two or three farm assistants.

Class work to begin at 1 p.m.

Agricultural chemistry to be taught as a separate subject.

Botany with special reference to plant diseases and insect pests to be taught, if competent teacher available.

Students to be compelled to pass in (i) chemistry, (ii) botany, (iii) meteorology and geology and (iv) anatomy before being allowed to go in for the examination in (1) practical agriculture and (2) agricultural chemistry.

7. The committee recommend certain changes in the syllabuses on chemistry and agricultural engineering and more practical work in chemistry.

The general changes in the course may be shown as below:—

Existing course.	Proposed.
<i>First year.</i>	<i>Practical Agriculture—three years.</i>
Agriculture, advanced, part I.	<i>First two years.</i>
Inorganic Chemistry, intermediate, portion.	Agricultural Botany.
Botany, intermediate (whole).	Meteorology and Geology.
Physiography, intermediate (whole).	General Chemistry.
Surveying and Levelling, intermediate, portion.	Anatomy and Physiology.
Veterinary Science, intermediate, stage I.	Agricultural Engineering.
<i>Second year.</i>	<i>Third year.</i>
Agriculture, advanced, part I.	Agricultural chemistry.
Do. do. part II.	Veterinary Science.
Veterinary Science, intermediate, stage I.	Hygiene.
Inorganic Chemistry, intermediate.	
Organic Chemistry, intermediate.	
Surveying and Levelling, intermediate.	
Agricultural Engineering.	
<i>Third year.</i>	
Agriculture, advanced, part I.	
Do. do. part II.	
Veterinary Science, intermediate, stage II.	
Agricultural Engineering, intermediate.	

It will be seen at once that the proposed course is towards (1) increase of practical work; (2) simplicity in subjects.

The same will be seen from a study of the syllabuses.

As to Dr. Leather's and Dr. Mollison's notes, it will be seen that, as regards chemistry, Dr. Leather is all in favour of a more simple course. (Pages 12—15 of current file).

8. Dr. Mollison makes some remarks on the present state of the college worth noting—

"I was disappointed with the collection of agricultural seeds, and by-products and economic products generally, and with the disorder and general carelessness with which they were kept."

"The seeds were all weevil eaten."

"There are a number of plots adjoining the botanical garden. These when I saw them last were in extremely weedy condition."

"These lifts (of the wells) as I saw them last were mostly out of repair."

"I recommend a complete collection of indigenous agricultural implements and hand tools not only as found in Madras but in other parts of India" (surely Mr. Keess should have seen that these were provided).

"I regret that I cannot recommend the Saidapet farm buildings as in any way suitable for the purposes for which they are intended."

(After all these years, this is somewhat disappointing.)

"A properly-managed dairy herd and dairy would be an excellent addition to the farm. The arrangements as I saw them last are unsatisfactory in every way."

"The flock of sheep which is kept has always appeared to me to be useless for any purpose."

"When I was last at Saidapet, the general cultivation of the farm was far from perfect, the fields were weedy, and there was a generally untidy aspect which, with the supervision and establishment which I recommend, can easily be removed."

9. Dr. Mollison then submits his opinions as to the subordinate staff—

- (1) Assistant Principal—Mr. Thorne.
- * (2) Farm Overseer—presumably a passed Agricultural Inspector.
- * (3) A clerk, Rs. 20—30.
- * (4) A dairy man with two or three men under him.
- * (5) A head stockman, Rs. 15—20.
- * (6) Two or three farmers for arable cultivation, Rs. 15—20 each.

(a) The existing staff of the college below the Principal is as follows:—

Designation.	Pay.	Designation.	Pay.
Vice-Principal ...	Rs. 400—20—500	Fourth Asst. † (also	
First Assistant ...	„ 450	Farm Manager) ...	Rs. 100—5—125 *
Second Asst. (also		Fifth Assistant ...	„ 75
officer in charge		Sixth „ ...	„ 22½
of Veterinary		Head Clerk ...	„ 40—2—60
Hospital) ...	„ 150—5—200	Farm Bailiff † ...	„ 40—2—50 *
Third Assistant ...	„ 125—5—150	Second clerk (also	
		Assistant Bailiff) ...	„ 20—2—40 *

The changes will involve some increased expenditure,—a recurring expenditure of about 700 per annum and an initial expenditure of Rs. 4,500. There will also be some recurring additional expenditure on repairs, etc., which may be put down at about Rs. 1,000 a year. The present cost of the college *plus* the Veterinary Hospital is Rs. 45,500 (page 129 of civil budget estimate for 1902—1903).

10. Lastly we have Mr. Keess' criticisms. (Pages 16—20 of current file). He admits that owing, he says, to there not having been a Vice-Principal at the farm for many years, the farm has turned out students who are neither practical agriculturists nor scientists. This amounts to a confession of absolute failure.

He then quotes his German experience and says he wishes the college to be an institution where students get a ground work of the science and practice of agriculture and makes each a proficient in one or more small branches. This, however, is not what the Government wants. It wishes to turn out practical agriculturists, and this is apparently what Mr. Keess does not want.

He then says it is impossible to teach up to the syllabuses laid down by the committee, and he asks to be allowed to prune them. His pruning will doubtless be to cut out the practical portion to a great extent.

He then objects to the committee having attempted to prescribe the hours for practical and class work. As for instance that out-door work shall be in the mornings and class work begin at 1 P.M. But it is surely very necessary for Government to order that the Principal shall follow the prescribed hours as closely as possible.

Mr. Keess then objects that the committee make Mr. Thorne as Vice-Principal too independent of him. This is of course absurd. He will and is intended to be entirely under Mr. Keess' control.

He then objects in detail to almost everything suggested by the committee, his great objection being that too much time is devoted to outdoor work, and he further objects to Dr. Leather's scheme for the teaching of chemistry. The latter is really a small matter and probably Dr. Leather is quite as capable to giving good advice in this matter as Mr. Keess.

He asks for early orders as to whether the college course should be reorganised on the basis of the recommendation of the committee or not, that the change may be made from next July, when the college reopens.

He also asks for more Government appointments for passed students.

Note (a) Compiled from the Civil Budget Estimates and the Lawrence Ascham Press Almanac.

* The outdoor farm establishment is marked with an asterisk. Dr. Mollison's establishment will cost about Rs. 60 a month more than the existing establishment.

† Those marked with a dagger have free quarters.

11. Mr. Keess lays down the whole want of success in past years to—

- (1) the fact that teachers have not known what was expected of a passed student;
- (2) no sufficient attractions being held out to passed men.

12. The Director, Mr. Stuart, who had the committee appointed, appears now to condemn their proposals and says that what is wanted is not a change of system but "better supervision." This apparently is a condemnation of Mr. Keess' administration, which administration is sufficiently condemned by Dr. Mollison's remarks on inspection.

13. The Board shows that Mr. Keess' proposal is simply to retain the college as it is, as he condemns every important suggestion of the committee. (Pages 21 and 22 of current file).

14. As to the orders to be passed, it is submitted that in the main the Committee's recommendation should be accepted, that much more practical work should be done. It is the old story that, with a native student, unless he is driven to do practical work, he will content himself with his books. Mr. Keess has apparently the same failing. He has apparently never grasped the importance of the out-door work at the college and contents himself by turning out book students—apparently a chemist himself in his tastes, he has never insisted on the practical side of the farm. Hence the unsatisfactory condition of the farm and its buildings referred to by Dr. Mollison.

15. It is to be feared the new scheme will never get justice from Mr. Keess, but it is submitted that he must be distinctly told that Government expect him to adopt it, of course, with such modification as experience in the working of the scheme suggests, and that the Director of Agriculture and the Director of Public Instruction should be told that Government relies on their supervision at the college by occasional visits and enquiry in seeing that the new scheme is worked fairly and properly.

16. It is very probable that the new system will not make the college more popular the Brahmin student will not appreciate being made to try his hand at out-door practical farm work, and the number of students may fall off in consequence. But if this is so, it only shows not that the system is wrong, but that the country is not ready for the change, and thus it will be a question whether the college should not be shut or whether Government should not, by adding scholarship and posts to be filled by passed students, increase the attraction of the college. As it is, under the new scheme under which passed students of the Agricultural College are to be attached to every training school for Primary and Secondary School Teachers and with the increased number of Experimental farms, there will be more openings for passed students of the college than in the past. The Court of Wards also should employ many more of these students, if they are really practical useful men than is the case at present.

17. In any case as far as the training hitherto given in agriculture at the College, it is a question whether this training could not be better given by an agricultural "side" in the Presidency College than at this expensive establishment, which might then be abolished. Hitherto it has done little to justify its existence. It is quite time it was reorganized or abolished.

I quite concur.

G. S. [TOKES]—14-6-02.

18. Another point I have referred to above is, perhaps, worthy of more emphasis, that is, that the College has much lacked outside sympathetic criticism. It would almost seem a good plan to insist on the periodical inspection of the College by the Commissioner of Agriculture and the Director of Public Instruction. Dr. Mollison is an intruder, but his criticism is certainly sound, and if he came once a year and regularly overhauled the college and its methods and condition, no harm would be done. The College has hitherto had plenty of criticism, but most of it has been unsympathetic and not altogether intelligent.

In the connected file the proposal to change the date of examination, which is in record with the proposals in this file, may be approved.

M. HAMMICK—29-5-02.

I have read all these papers and I can only say that this seems to me a hopelessly rotten institution. The idea of Mr. Keess or Mr. Thorne *et hoc genus omne*, teaching the ryot agriculture seems to me too ludicrous for words. If they would learn, they might do some good. If, for example, this institution would turn out men who could and would intelligently treat cattle disease even in its commoner form, in other words, passable veterinarians, or if, as suggested by India, it would turn out men who would make surveyors or classifiers for the Survey and Settlement department, or if it would teach properly dairy farming including (say) the sterilization, etc., of milk, it might do some good. But for the man who is none of these things but a mixture of all with botany, chemistry and anatomy thrown in, there seems to me to be no room in the present scheme of Indian society. I think the recommendations of the committee cannot do any harm to the institution. But regarding it as I do I must unconditionally refuse to assent to any increase of expenditure on it. I am quite of opinion it is time that the institutions were reorganised or abolished. I must also negative the proposal that as a bait to draw men into this institution any appointments in the public service should be assigned to it. We should choose our men for the public service for their qualifications for it and the receptacle of heterogeneous knowledge which this institution must turn out can have none such.

G. S[TOKES]—14-6-02.

We have no option that I can see but to accept the Board's recommendations. In view of the Government of India's endeavours after the improvement of agriculture and of the necessity of agricultural knowledge for the country's development of its main industry, it seems supremely unwise to talk of the abolition of the only means we have yet engineered towards the provision of the knowledge that is required. What must appear strange to every onlooker is that the Agricultural College could have been allowed to persist for so many years to such small advantage. Under Mr. Robertson one heard of it frequently, but mostly I think as endeavouring to teach the ryot what he knew better than the teacher did; under Mr. Keess it appears to have slept. I never heard of any results or saw them except when one of its student products would come to me claiming a clerk's employment because he had passed its examinations.

2. And I cannot understand how a three-year course, with a proper entrance qualification of general education and with fit instructors, should not fit any student of moderate abilities to be and to know everything that my honourable colleague desiderates as special products of the institution. No argument to the contrary can be founded on what is perhaps the fact—that past outturns have been useless: the scheme and matter of the instruction is condemned—except by the Principal.

3. At any rate we cannot have better advice than Mr. Mollison's, and it behoves us to follow it. The additional cost is a bagatelle when the end in view is considered. What we must consider in the first instance is whether Mr. Keess should be continued in the office of Principal. Can he be provided for otherwise in the Educational department? I have no knowledge of him, but he appears to be a scholastic and not a practical man. It is no good making a new departure if his heart is not in it.

4. Learning, agricultural like every other sort, requires inducements, and I would not lightly brush aside the baits of scholarships and public employment. Men who have spent three years of their learning time at an agricultural college will not readily find general employment in public offices; but a man who has studied agriculture as an end in itself will find opportunities as a revenue officer to turn his knowledge to practical purpose which he is more likely to turn to advantage than one ignorant of agricultural science. I do not think that posts of 100 rupees need be specified. B.As. B.Ls. will not scoff nowadays at Rs. 50 per mensem, and as revenue inspectors, deputy tahsildars and (new) survey officers there will be occasions for the employment of as many as Government should find employment for.

J. T[THOMSON]—15-6-02.

I am in full agreement with the Hon'ble Mr. Thomson.

2. As regards a post in the Government service for the best student of the year, I agree with the Hon'ble Mr. Thomson that it is unnecessary to specify Rs. 100 per mensem. An appointment on Rs. 100 per mensem would mean a Deputy Tahsildar's

post, and it might not always be easy to find a vacancy, but an appointment carrying a salary of not less than Rs. 40 (the pay of a first-grade revenue inspector) might be promised. This will do very well as the required "bait", but we shall not obtain much lasting good by turning these trained agriculturists into ordinary official hacks. As remarked by the Board there is scope for the employment of trained agriculturists in the estates under the Court of Wards and that is where we must look for results. The Court of Wards ought to set an example to landholders by conducting agricultural experiments and by employing trained men to cultivate sample lands.

3. Again the men trained at the college should be employed as schoolmasters when they will be more useful than as Government clerks.

4. I think that, if possible, we should get rid of Mr. Keess and find another Principal whose heart will be in the job.

5. For the rest I agree that we can only accept the Board's recommendations and keep a close and watchful eye over the future proceedings of the college.

A[MPHILL]—19-6-02.

EDUCATIONAL DEPARTMENT.

From the Board of Revenue, No. 2492, dated 28th April 1902.

The proposal of the Board to hold the final examination of the College of Agriculture agrees with the suggestion made by the office in 1899—*vide* G.O., No. 87, Educational, dated 16th February 1899. The Board's proposal may be referred to the Revenue department for an expression of opinion in continuation of u.o. reference, No. 59, dated 28th February 1902. The Director also may be asked to state if he has any objection to the Board's proposal.

T. KANAKASUNDARAM PILLAI—13-5-02.

The Board's proposal comes to this. The examinations of the College of Agriculture must be conducted by a special board of examiners as in the case of those of the Engineering and Medical Colleges. There need then be no examination in agriculture and the allied subjects under the Government technical examination scheme, but there is no objection to its being kept on. The Director, in communication with the Board of Revenue, should arrange for the board of examiners, and the Commissioner for Government Examinations should have nothing to do with the matter. The cost will apparently be about the same as under the present arrangements. There appears to be no objection to the adoption of a scheme on these lines, but the Director and the Revenue department may first be consulted.

P. T. THARYAN—14-5-02.

The Educational department is hardly called on to express any opinion at this stage.

2. The current must of course be sent u.o. to the Revenue department in continuation of the previous papers (Board's No. 176, dated 9th January 1902).

A. T. PRINGLE—15-5-02.

To the Revenue department.

REVENUE DEPARTMENT.

Submitted.

The main file was submitted to the Secretary on the 5th instant.

S. ANDISUNDARA ASARI—16-5-02.

The proposal is in accord with the general idea to make the college a practical institution.

N. E. MARJORIBANKS—18-5-02.

See connected file.

M. HAMMICK—29-5-02.

I accept the proposal.

J. T[THOMSON]—15-6-02.

G. S[TOKES]—17-6-02.

A[MPHILL]—19-6-02.

Recirculated to the Hon'ble Mr. Stokes. As regards the Hon'ble Mr. Thomson's and His Excellency's remarks, I am afraid it will be very difficult to find any other post for Mr. Keess. I understood from Mr. G. H. Stuart that he could suggest nothing for him. He is of course on the Indian Educational list No. 8 in the second class and could be made an inspector or put into any other educational appointment, but I am afraid he is fit for nothing in the general line.

M. HAMMICK—20-6-02.

I think, as I have said above, that the proper course would be to reorganize this institution, but as that course is not adopted then it is incumbent to get Mr. Keess employed otherwise and I think the Director should be told he must do so. I would like to see the draft order on this matter.

G. S[TOKES]—22-6-02.

The papers will go back to Educational department with the Honourable Members' notes.

M. HAMMICK—23-6-02.

To the Educational department.

EDUCATIONAL DEPARTMENT.

Even if it is possible to find other employment for Mr. Keess it will take some time to get a successor to him in the Agricultural College. Meanwhile orders are urgently required regarding the curriculum, so please draft on that at once.

H. A. STUART—23-6-02.

A draft is submitted; but as the Hon'ble Mr. Stokes wishes to see it, it cannot issue immediately. In the meantime it would be well to inform the Director that the revised curriculum recommended by the committee is to be introduced immediately. The College reopens in the first week of July. A draft demi-official is placed below for approval.

T. KANAKASUNDARAM PILLAI—30-6-02.

The demi-official should go out to-day.

A. T. PRINGLE—1-7-02.

H. A. STUART—1-7-02.

Demi-official from H. A. STUART, Esq., Acting Secretary to Government, Educational Department, to the Director of Public Instruction, Madras, dated 1st July 1902, No. 79.

Orders on the report of the committee appointed to reconsider and revise the curriculum of the College of Agriculture are under preparation, but may not reach you for some time yet. Meanwhile I am desired to tell you that the Government have accepted the proposals of the Committee and that the revised curriculum should be introduced immediately.

The revised draft below which has been type-written may issue.

T. KANAKASUNDARAM PILLAI—10-7-02.

The Revenue department should be asked to accept the draft.

A. T. PRINGLE—10-7-02.

H. A. STUART—10-7-02.

To the Revenue Department.

REVENUE DEPARTMENT.

Submitted.

P. ETIRAJULU NAYUDU—11-7-02.

The draft decides against Mr. Keess (and the Director of Public Instruction) but gives no reasons. Moreover it leaves him where he is. I submit that no reform will ensue. From an Agricultural department point of view, it would seem necessary to explain the part Government wish the college to take in the general scheme of endeavour after agricultural improvement—and to get rid of Mr. Keess. A successor would not take long to find if we consulted Mr. Nicholson and Mr. Mollison. We have, I submit, tinkered quite long enough.

N. E. MARJORIBANKS—12-7-02.

I think we may pass this draft.

M. HAMMICK—14-7-02.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

With regard to Mr. Keess, I have spoken to the Director, who says that he has no other post for him. He also thinks that Mr. Keess should be given a trial under the new régime before he is condemned. The Director sees no reason at present for thinking that he will deliberately set himself to prove that the new curriculum is unworkable. I beg to suggest that I should tell the Director demi-officially that he should impress on Mr. Keess that he must work loyally and do his best to make the new methods a success. Attention is invited to G.O., No. 734, dated 11th December 1901.

H. A. STUART—16-7-02.

I see nothing else to be done.

J. T[THOMSON]—17-7-02.

I am unable to be a party to this order, but I shall not record a formal dissent.

G. S[TOKES]—19-7-02.

I have initialled the order and I think that Mr. Keess should have a hint from the Director such as the Secretary suggests.

A[MPHILL]—23-7-02.

Demi-official from H. A. STUART, Esq., Acting Secretary to Government, Educational Department, to the Director of Public Instruction, Madras, dated 25th July 1902, No. 87.

Orders are issuing on the report of the committee appointed to reconsider and revise the course of instruction at the College of Agriculture and these will reach you in a few days. I am, however, to ask you personally to impress on Keess that he must work loyally and do his best to make the new methods a success.

[G.O., No. 429, Educational, dated 24th July 1902.]

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

Read—the following paper:—

From the Hon'ble Mr. G. H. STUART, M.A., Director of Public Instruction, Madras, to the Secretary to Government, Educational Department (through the Director of Land Records and Agriculture), dated 4th December 1901, Ref. on Cur. No. 5432.

I have the honour to send herewith the report of the committee appointed to reconsider and revise the course of instruction at the College of Agriculture.

The committee consisted of the following members:—

Mr. C. Benson, Deputy Director of Land Records and Agriculture.
 „ R. S. Thorne, Vice-Principal, College of Agriculture.
 Dr. J. W. Leather, Assistant Agricultural Chemist to the Government of India.
 Mr. J. Mollison, Deputy Director of Agriculture, Bombay.
 M.R.Ry. C. K. Subba Rau, Sub-Assistant Director of Agriculture.

A preliminary meeting was held in December 1900, at which Mr. Benson, Mr. Thorne and Mr. Subba Rau, were present. Mr. Benson went on leave in December and on his way home stopped at Bombay and conferred with Dr. Leather. Mr. Mollison was unable to attend and has therefore sent up a separate memorandum. A report was drafted by Mr. Benson and sent to Mr. Mollison, but was stolen. A second report was therefore drawn up after Mr. Benson's return from leave. Mr. Mollison had, in the meantime, left India, but his memorandum was considered by the remaining members of the committee before sending in their final report. The report has since been referred for remarks to both the Acting Principal and the Principal of the College of Agriculture. It was received back from the latter at the end of August, but I was unable to consider it until my return from Simla.

The essence of the report is the recommendation that more time should be given to out-door work, and the committee recommend that all the mornings should be devoted to this kind of work. This recommendation is, however, followed by the further recommendation that the course of chemistry should be altered, the new course involving, in the opinion of the Principal, much more work than the old. I am afraid these two recommendations are inconsistent with one another.

Moreover, the committee seems to be under some misapprehension as to the amount of out-door work done at present. The two recommendations that each class should from time to time be taken round the farm by the professor, and that the third-year class should make agricultural excursions to different parts of the country are in accordance with what is now done. One and a half hours are given to early morning out-door work at present followed by in-door work from 10 to 1. The afternoons are generally given to out-door work including surveying, dissections, etc. Instead of this the committee propose two and a half to three hours for early morning out-door work followed by a rest till 1, classes from 1 to 4 and recreation in the evening. The Principal considers this arrangement impracticable.

He also considers that it is not necessary to exclude from the examination in agriculture all candidates who have not passed in general chemistry, botany and the other subjects mentioned by the committee. The adoption of the committee's proposal would exclude a certain number of candidates, owners of or connected with

estates, who wish to take the course in practical agriculture only, a class whom it is perhaps desirable to encourage. He further objects to the arrangement of the chemistry syllabus proposed by Dr. Leather. This arrangement is no doubt more philosophic than the ordinary division into organic and inorganic, but the older arrangement is well understood and the change is unnecessary.

In *teaching* surveying he considers it is not necessary to limit the scales to those approved by the Revenue department which are not suited to beginners.

The other recommendations of the committee relate merely to the rearrangement of the syllabuses of the various examinations to which students of the Agricultural College are subjected. The changes proposed in veterinary science and hygiene are in the direction of greater definiteness and precision, and they may be adopted.

I am not convinced that more practical work is needed. What is needed is better supervision of the work that is now done. This can be provided when Mr. Thorne returns from the tours he is now making and is enabled to live on the farm, and until then I suggest that no change need be made in the direction of increasing the number of hours for farm work. The college has never yet been worked with the full authorised staff, because as soon as the Vice-Principal was imported, he had to act as Principal owing to Mr. Keess taking leave. The results of last year were an improvement on those characterized by Government as very unsatisfactory in 1900. If Mr. Thorne on his return reports, after trial of the present system, that he must have more time with the students for their practical out-door work in order to make them efficient, a change can be made; it will, however, have to be at the expense of some of the class work now given.

With one recommendation not contained in the report, but mentioned in Mr. Benson's covering letter, I thoroughly agree, viz., that some post in Government service on a salary of not less than Rs. 100 should be guaranteed to the best student of each year. I believe this would induce competition for entrance among a better class of men than is at present attracted. The effect of a similar rule at the Engineering College has been to raise the standard of Public Works department subordinates and the same result would follow in the case of the Agricultural College.

ENCLOSURES.

From C. BENSON, Esq., M.R.A.C., Deputy Director of Land Records and Agriculture, Madras, to the Director of Public Instruction, dated 21st May 1901, No. 276-A.

I have the honour to submit herewith a report embodying the recommendations of the committee appointed by you to consider how the course of instruction in the College of Agriculture may be improved. In doing so, I would explain that when at Poona in December last I drafted a report in consultation with Dr. Leather (after having obtained the opinions of Messrs. Thorne and Subba Rao), and as Mr. Mollison had been prevented by ill-health from meeting us, I left the draft with Dr. Leather in order that he might submit it to Mr. Mollison and obtain his remarks thereon. The report was sent to Mr. Mollison in January and was stolen from him before he had read it. Nothing further was then done till I returned from privilege leave after which Dr. Leather and Messrs. Thorne, Subba Rao, and myself had further discussions, and we were able to consider a written memorandum prepared in the meanwhile by Mr. Mollison.

2. The result of our deliberations is shown in our recommendations to which, however, it has not been possible to secure Mr. Mollison's agreement as he has left India. I therefore forward a copy of his memorandum. It was written apparently under the impression that I should not be returning to India for some time. On the main points the committee is in agreement with Mr. Mollison, but on several matters of detail it is sufficient to remark here that his conclusions and opinions need not be accepted.

3. In conclusion, I beg to bring to your notice the following remarks recorded by Mr. Thorne and Dr. Leather:—

Mr. Thorne remarks: "If anything could be done to improve the prospects of the students after leaving the college, as for instance, the reserving of one appointment per year for the best student as is done, I believe, in some other Government colleges, it would, I am sure, have a far-reaching effect and improve materially the class of students obtained as well as giving greater impulse to their work whilst here. I should like to see a note added to this effect either in the body of the report or perhaps more fittingly as an addenda."

Dr. Leather adds: "I entirely agree with what Mr Thorne suggests. The North-Western Provinces Government are taking a large proportion of the students who qualify at Cawnpore into the Revenue department and the Central Provinces Government is giving one appointment each year in the Revenue department at pay not less than Rs. 100. We cannot expect good students unless they have a definite chance of after employment, for the market of agriculturally trained men in India is exceptionally circumscribed".

REPORT OF THE AGRICULTURAL COLLEGE COMMITTEE.

The question referred to the committee is how the course of training at the College of Agriculture can be made more efficient.

2. The committee recommends first that, in order to allow of greater attention being paid to practical work, the time-table adopted should be so arranged that all mornings should, as a rule, be free for work out of doors.

3. That in the case of agriculture, practical work should be arranged for the several classes something as follows:—

Class I.—Practical field classes four days a week with the professor or his assistants during which the students should be called on to perform every description of farm work in turn under close supervision. The exact manner of doing this must be worked out by the Professor of Agriculture.

Class II should devote their mornings similarly to the cultivation of given areas, in which they should, under direction, perform all the work required thereon, cattle power alone being furnished where necessary.

Class III should be told off in turn to do specific kinds of work alone, or to supervise portions of the work on the farm continuously for a week or so together, *i.e.*, dairy work, record-keeping, etc.

Each class should also from time to time be taken round the whole farm by the professor or his assistant and have the whole working explained to them, whilst as early as possible in the cultivation season the third-year class should be taken on excursions to study local practice in different parts of the country. If the localities for such excursions be judiciously selected, the instructors would in course of time acquire a wide knowledge of the agricultural conditions and practices of the country. This is a great desideratum.

4. In order to render these proposals feasible and effectual it is necessary that the Professor of Agriculture, who should be a European officer and a practical agriculturist, should be placed in direct charge of the college farm and be held responsible for its management in all details. He can then direct the work thereon so as to illustrate his lecture room teaching. In the management of the farm considerable changes will be necessary, but we refrain from entering on details, as the professor should be given a free hand and have full responsibility in the matter.

Under the professor there will be required two or three assistants who are thoroughly up in all farm work. One may be the farm overseer, and it will probably be advisable that one should be selected for his knowledge and skill in dairy work. For teaching dairy work, a properly equipped dairy will be necessary and the milch herd should be used primarily for educational purposes.

5. We anticipate that the arrangements proposed will give the students work every morning for two and a half to three hours, for besides the farm classes, attendance at the veterinary hospital will be necessary from time to time, and, especially in the third year, students may be told off to work there from day to day for given periods. After their practical work in the morning a considerable recess will be required by the students, and class-room work may be deferred till 1 p.m. It should usually last about three hours and thus the evening will be left free for recreation.

6. We have already said that we consider that the Professor of Agriculture should work the farm with a view to illustrate his lectures. These lectures should be devoted to practical agriculture, and may in some cases, such as in the wide subject of farm crops, be delegated to an assistant. In the subject—agriculture—we consider it desirable that agricultural chemistry should be entirely separated and treated in future as a separate subject. We, however, consider that the portions of the present agricultural engineering syllabus which deal with irrigation and farm machines, etc., may be incorporated under the practical agriculture syllabus.

It would also be desirable, if adequate arrangements could be made for the teaching of the subject by a competent cryptogamic botanist, that the diseases of field and garden crops should be dealt with under botany, whilst similarly, if adequate arrangements could be made, "sericulture" and "the insect pests of crops" and animals should be dealt with by an entomologist and the subject recognised as a separate one. As, however, we can at present suggest no means to secure these ends, we propose no changes in this respect and are content to draw attention to the importance of these subjects. Copies of the revised syllabuses for practical agriculture and agricultural chemistry are appended.

7. Before any student is allowed to appear for examination in these two subjects he should be required to pass in—

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|------------------------|------------------------------|
| (1) General Chemistry. | (3) Meteorology and Geology. |
| (2) Botany. | (4) Anatomy and Physiology. |

We shall deal with these subjects below, but will here add that these subjects as well as agricultural engineering should all be completed in the first two years of the college course. It is not advisable that any student who does not show a competent knowledge of the first four subjects mentioned should be allowed to appear for the examinations, nor can any one without such knowledge make full use of the teaching.

8. *General Chemistry.*—In the place of the present subjects, inorganic and organic chemistry, we propose one under this title. In this we are following the more scientific method and we submit for approval a syllabus drawn up by Dr. Leather, with an explanatory note. In the teaching of chemistry he recommends that arrangements should be made that the time allotted for laboratory work should be concentrated, *e.g.*, instead of two classes each of two hours, one of four hours will be much more useful, and, in fact, two hours is too short a time for such work. We also suggest that it may be possible during the rainy season to devote a number of consecutive mornings to laboratory work when the students can do no good in the field. In this way they would learn practical chemistry more thoroughly than in scattered classes.

Botany.—We suggest no change but draw attention to the remark made above regarding plant diseases.

Meteorology and Geology.—This subject we suggest should replace "Physiography" as a present prescribed and we submit a syllabus from which the nature of the proposed changes can be at once seen.

Anatomy and Physiology.—In this we recommend that the present syllabus for stage I of what is termed veterinary science be adopted as a separate subject.

Agricultural Engineering.—Our recommendation is that the present syllabuses for surveying and agricultural engineering be consolidated and cut down to the extent shown in the revised syllabus which is submitted. We find that there is a good deal of duplication in the two syllabuses and some matter has been imported which is unnecessary to an agricultural training, whilst one small portion we transfer to the subject of practical agriculture. We recommend that our sketch be referred to an engineer for final revision and to frame the scheme for the examination. In surveying, we recommend that the work should be done in the scales approved in the Revenue department for village survey records, and we consider it most desirable that the classes should be taken out for about ten days or a fortnight of continuous survey work over strange ground. In this way the time to be given to the subject may be economised.

9. The subjects referred to in the preceding paragraph should all be dealt with and disposed of during the first two years of the college course; they are essentially preliminaries. In the final year the students' studies must be brought to a head and he should devote his attention in the class room to chemistry as applied to agriculture including such matters as are essential which now find a place in the syllabus for organic chemistry, to veterinary hygiene and the elements of veterinary practice so far as the agriculturist in Southern India should study it, and to practical agriculture. The first subject is practically part II of the present agriculture syllabus, excluding geological references, but the syllabus has been recast by Dr. Leather; and for the second, we have slightly modified stage (II) of the existing intermediate standard in veterinary science. The modifications made are in the direction of simplifying the text, but we regard the amount of teaching indicated as necessary, although it must always be conditioned by the main idea that it is the requirements of the agriculturist and not those of a veterinary practitioner that are held in view. It was suggested to us that the elementary standard would suffice, but it seems inadvisable to introduce any so-called "elementary" syllabus into a diploma examination whilst in one or two particulars the elementary veterinary syllabus is defective, and is far too vague.* For practical agriculture the syllabus is essentially the same as heretofore (but *vide* paragraph 6 *supra*).

10. The course proposed will be something as follows:—

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|---|---|
| Practical agriculture throughout three years. | |
| Agricultural botany, meteorology
and geology, general chemistry,
anatomy and physiology, Agri-
cultural engineering. | During the first two years of the course. |
| Agricultural chemistry, veterinary
science and hygiene. | |
| | During the third year of the course. |

* Dr. Leather is of opinion that a syllabus of about the dimensions of the present elementary one would be sufficient.

FILE OF REVISED SYLLABUSES FOR AGRICULTURE DIPLOMA.

AGRICULTURE.

Diploma Examination.

The history, objects, and scope of agriculture, and the conditions influencing its pursuit.

Division of the Madras Presidency into agricultural areas depending on rainfall, climate, etc.

The classification of soils. The ordinary soils met with in South India. Fertility and barrenness. The effects of rain, sun, air, etc., on the soil. The sub-soil.

The reclamation of waste land and the preparation of it for cultivation. Permanent improvements. Salt lands.

The methods, objects and influence of tillage. The seed-bed. Fallowing. Irrigation from wells, tanks, and rivers. Laying out land for irrigation. Quantity and application of water. Wells and well-sinking. Water-lifts in common use.

The conservation and application of manures.

Cropping, seeds and seed-sowing, weedings and after cultivation.

The field crops of Southern India and their preparation for the market. Pasture and fodder crops.

Fruit and vegetable growing in South India. Sericulture.

The diseases and insect pests of field and garden crops.

The breeding and management of farm-stock. The breeds of Southern India. Dairy—farming and dairy produce.

Farm—capital and labour. Stocking land. Disposal of produce. Conditions influencing the value of land.

The examination shall comprise—

- (1) A written examination.
Two papers each of three hours' duration.
- (2) An oral and practical examination including—
 - (a) The use of implements in common use, and ploughing.
 - (b) The handling and management of live-stock.
 - (c) Arable farming, with reference to—
 - (1) General practice;
 - (2) Agricultural excursions.

The distribution of marks and the minima required for passing shall be as follows:—

	Maximum.	Minimum for passing.	
		First class.	Second class.
Written examination	40	..	..
Oral and practical examination	60	40	30
Total	100	65	45

No candidate shall be admitted to this examination unless he shall have satisfied the examiners as to his knowledge in general chemistry, botany, meteorology and geology, agricultural engineering and anatomy and physiology prescribed for the diploma in agriculture and shall have produced a certificate from competent authority showing that he has during one season taken his full share in the work of cultivating not less than four acres of mixed cropping or managed a farm of ten acres or more for at least one year.

Agricultural Chemistry (for Diploma in Agriculture).

The formation, classification and physical properties of soils. Soil water, its sources, quantity, movements, soil gases, soil temperature, chemical composition of soils, amounts of constituents, state of combination, solubility, drainage, organic matters.

Farmyard manure, farm manures, oil-cakes, saltpetre, bones, coprolites, basic slag, super-phosphate, lime, gypsum; relation of animal foods to manure. The principal lessons on manuring which have been deduced from the Rothamsted experiments.

Germination—Assimilation of foods, composition of plants at different stages of growth, composition of Indian food-grains and fodders. The process of ensilage.

Composition of animals. Digestibility of food-constituents. Methods of investigation.

Formation of flesh and fat, and production of work. Feeding for maintenance, young stock, work, milk.

Composition of milk, cream, butter, ghee. Nature of the changes they suffer.

Quantitative chemical analysis (agricultural).

Manures, moisture, organic matter, phosphoric acid, lime, nitrogen (ammoniacal).

Feeding stuffs.—Moisture, oil, nitrogen, fibre, ash, sand.

Milk.—Total solids, fat, sp. gr.

The examination shall comprise —

- (1) A written examination, one paper (3 hours allowed).
- (2) An oral examination.
- (3) A practical examination (8 hours allowed). The determination of any two constituents included in the syllabus).

The distribution of marks and the minima required for passing shall be as follows:—

	Maximum.	Minimum for passing.	
		First class.	Second class.
Written examination	50	30	..
Oral examination	20	7	..
Practical examination	30	20	15
Total	100	65	50

General Chemistry (For the Diploma in Agriculture).

Introductory.—Simple and compound substances. Laws of chemical combination. Atomic theory; atomic weights, molecular weights. Determination of molecular weight. Metric system of weights and measures. Laws relating to the volume and weight of gases. Valency, Polymerism, isomerism, homology, radicals, formulæ, equations. Chief physical properties of substances, such as melting and boiling point. Specific gravity. Solution and crystallization.

Non-metals.—The occurrence, methods of preparation and chief properties of the following elements: hydrogen, oxygen, chlorine, bromine, iodine, fluorine, sulphur, nitrogen, carbon, phosphorus, arsenic, boron, silicon.

The occurrence, methods of preparation and chief properties of the following compounds:—Hydrochloric and hydrofluoric acids, water, ozone, hydrogen peroxide, sulphuretted hydrogen, sulphurous acid, sulphuric acid, nitrous acid, nitric acid, carbon monoxide, carbon dioxide, phosphorus trioxide and pentoxide, arsenious oxide, arsenic oxide, boracic acid, silicic acid.

Metals.—The occurrence and chief properties of the following metals: Oxides and salts, sodium, potassium, calcium, strontium, barium, magnesium, iron, manganese, aluminium, chromium, zinc, copper, lead, tin, mercury, silver, gold, platinum. The oxides, sulphates, chlorides, carbonates, nitrates, phosphates of the alkalis and alkaline earths, ferrous oxide, ferric oxide, ferrous sulphate, ferrous chloride, ferric sulphate, ferric chloride, ferric phosphate, manganese dioxide, potassium permanganate, potassium bichromate, chromic acid, chromic oxide, zinc oxide and sulphate, copper sulphate, lead oxide (litharge), mercuric chloride, silver nitrate, gold chloride, platinum chloride.

Carbon compounds.

Methane derivatives.

Hydro-carbons, the principal members of the series $C_n H_{2n+2}$, $C_n H_{2n}$, $C_n H_{2n-2}$.

Halogene derivatives, methyl and ethyl chloride, bromide, methylene and ethylene chloride, chloroform, iodoform.

Alcohols.—Methyl, ethyl, amyl alcohols, glycol, glycerin.

Aldehydes.—Formic and acetic aldehydes.

Ketones.—Acetone.

Acids.—Formic, acetic, butyric, palmitic, stearic, oleic, crotonic, lactic, oxalic, luccenic, tartaric, citric and carbonic acids.

Ethers (proper) ethyl ether.

Esters (compound ethers), ethyl sulphuric acid, ethyl sulphates, ethyl acetate, the fats, oils and waxes.

Nitrogen bases.—Methyl and ethyl amines and ammonium bases.

Derivatives of the acids.—Glycocal asparagin, urea, guacindine, caffeine.

Cyanogen and its derivatives, cyanogen; hydrogen, potassium and silver cyanides—potassium ferrocyanide, potassium ferricyanide, cyanic acid, potassium sulphocyanide.

Carbohydrates.—Arabinose, glucose, fructose, cane sugar, milk sugar, malt sugar, cellulose, starch, gums. Fermentation of carbohydrates and the chief technical products.

Benzene and its derivatives.—Benzene, toluene, aniline, nitro-benzene, phenol, pyrogallol benzoic aldehyde, benzoic acid salicylic acid, gallic acid, tannin, indigo, pyredine, nicotine, morphine, quinine, strychnine.

Terpenes and camphors, reseins, glucosides, allumens, allumenoids.

(Suitable Text-book for Inorganic chemistry—"Elements of Chemistry" by Ira Remsen.)

Chemical Laboratory Work—A. Qualitative analysis.—The recognition of the principal, salts or oxides of sodium, potassium, ammonium, calcium, barium, iron (ferrous and ferric), aluminium, chromium, zinc, silver, mercury, lead and arsenic. The salts should include sulphates, carbonates, phosphates, chlorides and nitrates. Also the recognition of the principal carbohydrates and the detection of mineral and vegetable oils.

B. Quantitative analysis.—The gravi metric determination of iron, aluminium, calcium, potassium, sulphuric acid, phosphoric acid, chlorine.

C. Quantitative analysis of Agricultural Materials, Manures.—moisture, organic matter phosphoric acid, lime, nitrogen (ammoniacal).

Feeding stuffs.—Moisture, oil, nitrogen, fibre, ash, sand, milk, total solids, fat, sp. gr.

The examination shall comprise—

(1) A written examination—one paper of three hours' duration.

(2) An oral examination.

(3) A practical examination (eight hours allowed). The recognition of two substances and the quantitative determination of one base or acid.

The distribution of the marks and the minima required for passing shall be as follows :—

	Maximum.	Minimum for passing.
Written examination	60	..
Oral examination	15	..
Practical examination	35	17
	100	50

VETERINARY SCIENCE AND HYGIENE.

(Special for the Agriculture Diploma.)

Note.—The standard of knowledge shall be strictly limited to such as would be required by a practical agriculturist in India in dealing with cattle and sheep.

The chief medicinal agents easily procurable in India; their important preparations, their actions, uses and doses. Compounding and modes of administering medicine. Treatment of wounds, tumours, fractures and dislocations.

Castration and its after-treatment. General signs of disease, nursing and management of sick animals.

The nature of contagious and infectious diseases; modes in which they spread; their prevention; measures to be adopted during an outbreak.

The chief contagious and infectious diseases.

The common diseases of the digestive, respiratory, and urinary organs.

The common parasitic and non-parasitic diseases of the skin.

The common diseases of the foot.

Signs of pregnancy and approaching parturition, treatment of animals during and after parturition, relief of difficult cases. Inflammation of the udder.

The common diseases of the young. Ventilation, drainage, and water supply. Cattle poisoning in India.

The examination in this stage shall comprise—

(1) A written examination.

One paper of three hours' duration.

(2) An oral and practical examination regarding the diagnosis and treatment of the diseases mentioned; the performance of simple operations; and pharmacy.

The distribution of marks and the minima required for passing shall be as follows :—

	Maximum.	Minimum for passing.	
		First class.	Second class.
Written examination	50	..	..
Oral and practical examination	50	30	20
Total ..	100	60	40

ANATOMY AND PHYSIOLOGY.

(Special for the Agriculture Diploma.)

The standard of knowledge shall be such as would be required by a practical agriculturist in India, and the examination shall refer only to the ox and sheep.

(i) *Anatomy*—

The general characters of animal tissues as seen in the dissecting room.

The names and position of the bones of the skeleton.

The nature and character of joints.

The heart and large vessels.

The respiratory system.

The digestive system.

The lymphatic system.

The blood-elaborating glands.

The urinary system.

The reproductive organs.

The eye.

The foot.

(ii) *The elements of physiology*. (All structural details will be omitted.)

The rudiments of animal chemistry (carbon, hydrogen, nitrogen, oxygen, air, water, carbonic acid, carbonic oxide, ammonia, protied substances, fat, starch, sugar, urea); combustion.

The nature of waste. The need of oxygen. Compensation of waste.

The characters of foods.

The blood as a medium of communication.

The nature and use of secretory glands.

The physiological properties of muscular tissue. The modes in which muscles give rise to movements.

The physiological properties of nervous tissue. The nature of sensory organs. The relation of the nervous system to muscles and to sensory organs.

The general structure and functions of the brain and spinal cord.

A general account of the circulatory, respiratory, urinary, and alimentary systems. The functions of the liver.

The structure and functions of the sweat glands. The regulation of the temperature of the body.

The functions of the male and female generative organs.

The examination in this stage shall comprise—

(1) A written examination.

One paper of three hours' duration.

(2) An oral and practical examination on the syllabus, including the recognition of any portion of the body mentioned in the syllabus.

The distribution of marks and the minima required for passing shall be as follows:—

	Maximum.	Minimum for passing.	
		First class.	Second class.
Written examination	50	..	..
Oral and practical examination	50	30	20
Total ..	100	60	40

METEOROLOGY AND GEOLOGY.

(Special for Agricultural Diploma.)

1. *The Earth*.—Its shape and measurement; distribution of land and water; gravitation; causes of day and night; alternation of seasons; movements of the earth.

2. *Air*: its composition; the effects of heat; wind; water-vapour; clouds; rain; hail; snow; dew; fog; the monsoons; the trade-winds; storms; cyclones; the use of the barometer, thermometer, and rain-gauge.

3. *Rainfall* and its distribution in Southern India.

4. *Continents*; islands; mountains; volcanoes; rivers; river-deltas; water-sheds; lakes; oceans; physical action of rivers; glacier-action; erosion of valleys; floods; coast sands and their formation; backwaters; earthquakes; coral formations.

5. *Igneous rocks* and aqueous rocks; stratification; volcanic rocks; metamorphic rocks; decomposition; denudation; elevation and depression; soils. The principal rock forming minerals met with in Southern India. The general characteristics and distribution of rocks formed from them. The soils produced from these rocks.

6. *Effects of temperature*; the tropics; effects of rainfall; other causes of variation of climate; conditions influencing the distribution of plants and animals.

The examination shall comprise—

(1) A written examination.

One paper of three hours' duration.

(2) An oral examination.

The distribution of marks and the minima required for passing shall be as follows:—

	Maximum.	Minimum for passing.	
		1st class.	2nd class.
Written examination	80	..	..
Oral examination	20	..	..
Total ..	100	60	40

BOTANY.

(Special for the Diploma in Agriculture and Veterinary Science.)

Vegetable chemistry (air, water, carbonic acid, ammonia, starch, cellulose, sugar, albuminoids, ash of plants).

Nature of the cell and its contents. Chlorophyll corpuscles, chlorophyll, starch, sugar, cellulose.

The tissues. Epidermis, parenchymatous tissue, prosenchymatous tissue. The fibro-vascular system. Primary and secondary meristem. Apical growth.

A general account of the morphology of plants:—the members of a plant, the leaf and stem, the arrangement of leaves, the form of the mature leaf, axes, branch systems, roots, hairs, the thallus.

Morphology of the angiospermous flowering plant.

The food of plants. How they obtain it. Assimilation. Mode of transference of assimilated food from one part of the plant to another. Respiration.

Fertilisation. Adaptation for cross-fertilisation. Germination.

Special attention should be paid to the following:—

Mustard, cotton, flax, lime, mango, indigo, the grams, ground-nut, tamarind, Inga dulcis, guava, pumpkin (the common gourds), coriander, safflower, niger, brinjal, tobacco, chillies, sweet-potato, gingeli, jack-fruit, hemp, castor-oil, tapioca, pepper, betel, ginger, turmeric, arrowroot, plantain, aloe, onion, palmyra, cocoanut, areca-nut, paddy, maize, panicums, cumboo, sugar-cane, cholum, harialli, ragi, wheat, bamboo, fern.

The examination shall comprise—

(1) A written examination.

One paper of three hours' duration.

(2) An oral examination.

The distribution of marks and the minima required for passing shall be as follows:—

	Max.	Min. for passing.
Written examination	70	..
Oral examination	30	10
Total ..	100	40

AGRICULTURAL ENGINEERING.

(Special.)

I. PLAN DRAWING AND ESTIMATING—

Use of simple drawing instruments. Natural scales. Connection between plan, elevation and sections. Pencil drawings of the works enumerated in II and IV. Estimates of quantities and cost of these works.

II. BUILDING CONSTRUCTION—

Materials.—Stone, country bricks and tiles. Lime mortar, mud mortar. Concrete. White-wash. Junglewood, palmyra, bamboo.

Buildings.—Setting out. Excavation. Foundations. Masonry in rubble, stone or country bricks. Door and window openings. Couple roofs for tiles or thatch. Construction of bamboo and leaf sheds.

III. SURVEYING AND LEVELLING—(vide syllabus attached).

IV. ROAD-MAKING—

Marking centre line. Setting out cross sections for a third-class road. Allowance for shrinkage of banks. Execution of earthwork. Disposal of cross drainage by road-dams or small culverts. Side drains. Surfacing of sand, gravel, or metal. Repairs.

V. MACHINES—

Parallelogram of forces by graphic method. Moments. The mechanical powers. Work, unit of work. Efficiency of simple agricultural machines such as water lifts.

The pencil drawings and estimates referred to in paragraph I, authenticated by competent authority, shall be submitted to the Examiners before the date of the examination.

The examination in this subject shall be devised to test the candidates' capacity of understanding the ordinary machines, and of carrying out such constructions and works as might be undertaken by agriculturists (including subordinates in the Land Revenue Department, in Southern India.

It shall comprise—

- (1) A written examination—
One paper of three hours' duration.
- (2) An oral examination on the matters referred to in the syllabus, with the aid of actual structures, models, materials, &c.
- (3) A practical examination including—
(a) One or both of the following :—
(i) Preparation of pencil drawings to scale from notes and specification of such works as are mentioned in the syllabus.
(ii) Preparation of an estimate of quantities from a given plan for similar works.
For this portion of the examination two hours shall be allowed.
(b) Setting out on the ground a small building, or other work mentioned in the syllabus.

The distribution of marks and the minima required for passing shall be as follows :—

—	Maximum.	Minimum for passing.	
		First class.	Second class.
Written examination	40	..	..
Oral examination	20	40	30
Practical examination { (a) 20 (b) 20 }	40		
Total ..	100	65	45

SURVEYING AND LEVELLING—INTERMEDIATE EXAMINATION.

(Special for diploma in Agriculture.)

1. *Surveying*.—Running a chain line; modes of passing obstacles, measuring offsets, use of cross staff. Survey of areas with the chain only. Well-conditioned triangles, keeping the field book, testing the chain. Survey of areas with the plane table and chain. Plotting and calculation of areas.

2. *Levelling*.—Use of dumpy level. Adjustments. Running lines of levels, keeping the field book, bench marks, check levels, longitudinal and cross sections. Plotting.

The examination shall comprise—

An oral and practical examination on—

- (1) *Field work*.—One or more of the following :—

- (a) Chaining lines between given points and taking offsets.
- (b) Making a site plan of a building.
- (c) Running a portion of a traverse with the plane table.
- (d) Running a portion of a traverse with the compass.
- (e) Running a short line of levels.
- (f) Setting out side widths.

- (2) *Office work*.—One or more of the following (Time, three hours) :—

- (g) Plotting a chain survey from field book.
- (h) Plotting a compass survey from field book.
- (i) Estimation of area of a given plan.

Questions will be put orally to candidates during the progress of the practical work.

Note.—Candidates must, at the time of application for the examination, submit the following finished surveys of moderately open country with a few buildings, with field books, certified to be their own work :—

- (1) Chain survey of not less than 10 acres. Scale = 1 inch to 2 Gunter's chains.
- (2) Plane table survey of not less than 20 acres. Scale = 1 inch to 5 Gunter's chains.
- (3) Line of levels not less than 1 mile in length with cross sections. Scales : horizontal, 1 inch to 2 Gunter's chains. Vertical, 1 inch to 20 feet.

The distribution of marks and the minima required for passing shall be as follows :—

—	Maximum.	Minimum for passing	
		First class.	Second class.
Oral and practical examination—			
(1) Field work	50	35	25
(2) Office work	50	35	25
Total ..	100	70	50

Dr. J. Leather's note on the Revised General Chemistry, dated 13th April 1901.

In drawing up this syllabus of chemistry, I have kept two points in view. The first is that it is useless to expect students, whose principal subject is agriculture, to be able to spend very much time on any one of the sciences which form adjuncts to the proper understanding of agriculture, and the second is that their studies should be directed to the chemistry of those materials which are distinctly connected with agriculture. At present they spend far too much time (under inorganic chemistry) in the study of matters with which agriculture has no very intimate concern, and this remark applies to the class-room as also the laboratory work. I have endeavoured to restrict it. In the laboratory I consider that an undue amount of time is spent on "qualitative analysis". I consider that an agricultural student should be able to recognise by chemical tests the principal substances met with in relation to agriculture, but he has not time to learn to make analysis of mixtures. I consider it preferable that he should spend time rather on quantitative analysis. This work, if properly taught, compels a student to try to be accurate in dealing with small quantities of material; it forms a useful lesson in precision in addition to the study of the properties of the substances which it entails.

The examination in general chemistry and sections A and B of chemical analysis should be passed at the close of the second year, but I may mention that there should be no difficulty with one lecture and one laboratory practice of four hours per week in completing both the class-room and laboratory work for this in one and a half year, so that the chemistry of agriculture may be commenced in the second year if desired.

Note by Dr. J. Mollison, Dy. Director of Agriculture, Bombay, on the reorganization of the Agricultural classes at the Saidapet College of Agriculture, Madras.

Dr. Leather has taught at the college for some years. He is no doubt fairly acquainted with the capabilities of the teachers of the subjects allied to agriculture. I leave it to him to say whether he considers the efficiency of teaching staff or of general equipment of these departments requires any particular improvement. He will perhaps offer remarks on the laboratories, library museums. When I was last at the college I was disappointed with the collection of agricultural seeds, and by-products and economic products generally, and with the disorder and general carelessness with which they were kept. The seeds were all weevil eaten. It is easy to keep such sound in plain thick glass tubes of test tube pattern by mixing a little free mercury with each sample of seed or grain. The cork which closes the open end should be sealed with wax. A label gummed on the glass tube should give the English, botanical and vernacular names of each sample. The museum should contain samples of seeds or fruits of all known Indian cereals, pulses, oil-seeds, fibre, dye and drug plants and also of important market garden crops. There should be samples of all economic products of agricultural importance. Such samples should be so arranged that they can be handled and inspected by students and then put back into their proper places.

2. I will only deal generally with the agricultural and practical side of the teaching. The syllabus as regards class-room and theoretical work may require considerable modification. The syllabus as worked out in detail for the Bombay University degree in agriculture may be a good guide, but, generally in India, there is too much class-room work in all subjects and too little practical work in the field.

3. During each session, and excluding holidays, I would recommend that students have three mornings per week at practical agriculture and the other three mornings at practical chemistry, botany and physiology. One evening per week would be necessary for practical

mensuration in the first year and for surveying, levelling, etc., for more advanced students. Students should attend at the veterinary hospital so that they see the continuous treatment of each case.

4. The teaching of the students in agriculture, both as regards class-room and field work, should be directed and controlled entirely by the Assistant Principal who, I understand, is a trained agriculturist. He should also be entirely responsible for the management of the farm. I will endeavour to indicate what subordinate staff he will require to carry out routine duties on the farm and to help him to give the students thorough practical instruction in agriculture, but in the first instance it is as well to discuss how the farm should be managed in order to afford the best practical instruction which is possible. The land is much better suited for work-a-day methods than for experiment. It is unsuitable for the latter purpose. I should separate that portion which is now more or less a botanical garden from the farm proper and would put the botanical garden under the charge of the teacher of botany on the clear understanding that as such it is to be made as complete as possible so that students can become practically acquainted with important natural orders and with the more useful indigenous agricultural and economic plants. There is a lot of room for extensions of the botanical garden in the surroundings of the college and other buildings. There are a number of plots adjoining the botanical garden. These when I saw them last were in extremely weedy condition. I should add a portion of this area to the botanical garden and having cleaned the other part of the area would apportionate it into plots of $\frac{1}{4}$ or $\frac{1}{2}$ acre and give to each senior student a plot to be cultivated by himself. Work cattle and implements to be given but no other assistance of any kind. The Cawnpore students show excellent work on their plots and I see no reason why the Saidapet men should not be equally well trained in practical work.

5. The main portion of the farm should be cultivated in thoroughly workmanlike manner. Such crops as suit the land should be grown in regular rotation. The land is unsuited for comparative experiments, but such manures as are within the reach and means of average cultivators should be used in the ordinary economical way that a good cultivator would use them. Some of the land is quite suited for growing dry land as well as irrigated crops in great variety. The Professor of Agriculture will therefore be easily able to illustrate in the fields his class-room teaching. There are a sufficient number of wells for demonstrating the effectiveness at work of various waterlifts. These lifts as I saw them last were mostly out of repair. I should put them in repair, and keep them in repair, and also at regular work, but I should remove such as cannot be economically used by ordinary cultivators.

The Professor of Agriculture will no doubt endeavour to show the value of leguminous plants as a substitute for manure, either alone in rotation, or subordinate to other crops, or as green manure. He will have opportunities of trying methods of cultivation which differ from local methods when there is presumptive evidence that local methods are imperfect. He will have opportunities of improving varieties by cross fertilization, by selection of seed continued from year to year and by other means.

6. A portion of the farm is suitable for rice and has been levelled and improved for the purpose.

On this land there will be scope for trials—

- (a) With methods of cultivation.
- (b) With varieties.
- (c) With second crops after rice.
- (d) With manures.
- (e) With seed selected by various means.

I do not mean that these should be comparative experiments but simple practical trials which the students can appreciate.

7. I have personally no particular belief in the utility of English ploughs, harrows, cultivators and other expensive tillage, etc., implements for the general conditions of Indian agriculture. The best indigenous implements do excellent work if properly used. I recommend a complete collection of indigenous agricultural implements and hand tools, not only as found in Madras but in other parts of India. These should be kept in a building protected from weather, and always in repair and working order. The students should be familiarized with their use and should be taught how to adjust and use each implement at work.

8. I regret that I cannot recommend the Saidapet farm buildings as in any way suitable for the purposes for which they are intended. I do not believe in cattle standing on an accumulation of manure and litter in this country.

A byre for milk-cattle should have a paved floor with gutter to drain urine and washings into a deep square pit with masonry sides in which all dung and litter should be stored during accumulation. The byre should be airy and well ventilated, a plan suitable for India can be supplied from my office if required. The existing buildings could be utilized for work cattle, implements, etc., but I should fill up these underground pits for manure on which the cattle stand with as little delay as possible.

9. A properly managed dairy herd and dairy would be an excellent addition to the farm. The arrangements as I saw them last are unsatisfactory in every way. I should strongly recommend the construction of a proper byre and manure pit; also in a clear open space a clean bright, airy dairy, with wash room at some little distance apart. The dairy should have water laid on with a pasteur filter working under sufficient water pressure, and be fully equipped with all modern implements for cream-separating, butter-making, etc. The existing herd of milk-cattle should be weeded out, the best cows of the Nellore breed retained and some more first-class Nellore cows and a really good bull got. I would also recommend the importation of say 10 first-class cows and a bull from Aden. There should be a clear understanding that the Nellore cattle and the Aden cattle are each to be bred pure. Extra grass land, if possible, should be obtained within a reasonable distance of the farm buildings.

10. The flock of the sheep which is kept has always appeared to me to be useless for any purpose. The farm is not suitable for sheep-breeding and the maintenance of an unhealthy flock can only result in loss. It would be much better to take students during the annual excursions to a good sheep-breeding district and bring the conditions favourable for sheep-breeding pointedly to notice there and then. As regards the points of particular breeds, the Professor of Agriculture would find opportunities of bringing these to the notice of students from time to time. I should get rid of the sheep. This would leave a little more room for the expansion of a really useful dairy herd.

11. The Assistant Principal as Professor of Agriculture and General Superintendent of the Farm should submit an annual report for *verbatim* introduction into the College General Report. He should describe the work during the year in general explicit terms without giving unnecessary details.

12. The Assistant Principal should have directly under his control an Assistant who should be called the Farm Overseer. This man should have a thoroughly practical knowledge of farm stock and farm crops and be able to direct field work in a reliable way. Under the overseer there should be—

- (i) A clerk.
- (ii) A dairyman.
- (iii) A head stockman or head gaoli.
- (iv) Two or three foremen for arable cultivation.

13. The duties of the Farm Overseer should be the general direction of field and other work, in accordance with instructions given by the Professor of Agriculture; the overseer would, whilst attending to his regular duties, take the students of Farm classes; the Professor of Agriculture having previously instructed him regarding what he is to show or describe to the students. The Professor of Agriculture will himself be able on many occasions to have farm classes but the real practical instruction of the students should mostly be accomplished by sending from time to time small batches of students three times a week to participate in the work of—

- | | |
|-------------------|-----------------------|
| (1) The clerk. | (3) The herdsman. |
| (2) The dairyman. | (4) The farm foreman. |

14. The clerk's work will consist of keeping a day book and ledger of all intromissions, muster rolls and cultivation sheets and such other records as are necessary on Government farms. All the forms which are necessary are kept on the Bombay Government farms and can be obtained on application. The clerk's pay should probably be Rs. 25 to 30 per mensem. The students should be made quite familiar with all records kept.

15. The dairyman will require one or two men under him for separating, butter-making, cleaning vessels, &c. His pay should be Rs. 20—30 per mensem. Students sent to be taught by the dairyman must do each and every operation with their own hands until quite proficient.

16. The head herdsman, pay Rs. 15 to Rs. 20, will control the milkmen and attendants, be responsible for regularly feeding, milking, &c., for the cleanliness of milk vessels, stalls and milkmen and cattle at time of milking, for correct weighments of rations and of milk yield as entered in the milk register. Students when sent to him for instruction will participate in each item of work until proficient.

The farm foremen, pay each Rs. 15 to Rs. 20, will be responsible for field work and lead the field workers at work. Each must be absolutely expert in the handling of farm tools and implements and in all field work of a particular class. One should be specially knowledgeable in garden and other irrigated crops, the second in ordinary dry crops. For the benefit of the students I suggest a third foreman specially clever in adjusting and handling all farm tools and implements. I would send the students in small batches to each of these foremen in turn for special instruction in practical work.

17. When I was last at Saidapet the general cultivation of the farm was far from perfect, the fields were weedy and there was a generally untidy aspect which with the supervision and establishment which I recommend can easily be removed.

18. I see no reason why the Saidapet College should not be made particularly useful in training men in a thoroughly practical way. If the syllabus is made complete, if the training staff in all departments is as sufficient as that which I recommend on the agricultural side, and if there are no divided responsibilities, I believe real good work can be done at Saidapet.

19. The Principal must of course be head, he should confine his attention to administrative direction of affairs, control discipline, attend to general correspondence, take up the teaching of, say one subject in which he is specially proficient, but he should give each professor in his own department a free hand so long as each professor is considered capable for his post. If any particular man is found inefficient, let him be removed at once and a better man found.

From R. S. THORNE, Esq., Acting Principal, College of Agriculture, Madras, to the Director of Public Instruction, dated Saidapet, 9th July 1901, No. 437.

With reference to yours of the 6th June, I have the honour to submit the following remarks. I concur with the recommendations of the committee with one or two trivial exceptions which I think unnecessary to mention here as they only affect details which can easily be altered in practice if found desirable.

In paragraph 4 of the report, the Vice-Principal is to be made responsible for the instruction in agriculture and to be assisted by "two or three assistants one of whom may be the farm overseer. Mr. Mollison in his letter to the committee has treated this part of the subject with more detail. He appears to be of opinion that the Vice-Principal will be able to deliver all the lectures in Agriculture to all three classes, as well as to instruct and supervise their work in the field. This I think is expecting rather too much at least for the present. He puts the number of assistants required as follows:—

A farm overseer or bailiff.	A head stockman.
A clerk.	Two or three foremen for arable cultivation.
A dairyman.	

The work of the farm and botanical garden is at present done (under the instruction of the Principal) by a farm manager, a bailiff, an assistant bailiff (also second clerk at the college) and four maistries. The farm manager also lectures on part of the agricultural syllabus, viz., live-stock, crops and manuring; the present Acting Vice-Principal lecturing on soils, implements and tillage. The acting fifth assistant also superintends the work of the students in the field.

The arrangements which I would propose to make are:—

- A farm manager and assistant lecturer.
- A clerk.
- A bailiff or overseer.
- A dairyman.
- Two student demonstrators in agriculture who shall act as assistant bailiffs.

The alterations proposed in the staff are the appointment of a clerk to keep farm accounts and records and of two student demonstrators in agriculture. A dairyman will be necessary to carry on the work of the dairy which it is proposed to start. The student demonstrators should be passed students of the college stopping on for another year for practical work, and if sufficient inducement is offered the best students of each year will be led to remain for another year which should tend to give them an agricultural bias and they would also be of much assistance on the farm in alternately superintending the different operations.

Maistries.—This question need not be discussed, as the number required are already in employment on the farm and botanical garden.

If these proposals are sanctioned, it will incur an increased expenditure of about Rs. 60 per mensem as may be seen by comparing the following lists:—

Present staff.	Pay.		Average.	Proposed staff.	Pay.		Average.
	Min.	Max.			Min.	Max.	
	RS.		RS.		RS.		RS.
A farm manager and lecturer	100—	5—125	116½	A farm manager and lecturer	100—	5—125	116½
A bailiff or overseer	40—	2—50	46½	A bailiff or overseer	40—	2—50	46½
An assistant bailiff (also second clerk at the college).	20—	2—40	32½	A clerk	20—	2—30	26½
				A dairyman	20—	2—30	26½
				Two students as demonstrators at Rs. 20 each per mensem	40	40	40
Total ..			195½	Total ..			256½

The appointment of a clerk at the farm office would greatly reduce the work of the college office, as besides the farm accounts and records most of the inquiries relating to agricultural matters which now take a good deal of time would be disposed of at the farm office. I am of opinion that one clerk would then be able to do all the work of the college office.

Dairy cattle.—Mr. Mollison recommends the purchase of ten first-class Aden cows and a bull. These animals are much better milkers than any of the country animals that have been tested and their importation has passed the experimental stage. At the same time I should like to suggest that some of the country breeds which have never been tested and which are known to be good milkers might first be tried. I would propose that I might be allowed to tour in the districts where they are procurable and to select and purchase some good specimens of each breed. If these prove good milkers they may be bred from and improved, and if not Adens may be imported. The cost of importation would probably be about Rs. 150 per head.

Finance.—The farm budget has for several years been exceeded and as it stands is inadequate to ordinary demands, besides which almost all the implements, apparatus and fittings are out of date and repair, and require replacing down even to the farm office table. The farm buildings are not what they should be and require additions and alterations. These matters need not all be dealt with at once, but can gradually be taken in hand. Some of the farm lands also are admittedly of the worst possible description and nothing can be grown on them without a liberal supply of manure much of which will have to be purchased. The area also has recently been increased by the taking over of the cemetery ground. A great deal of foods will also have to be purchased for the dairy cattle. Some of the items mentioned above are likely to yield almost immediate return for the expenditure, but in many of the items no immediate monetary advantage is likely to accrue but are necessary for carrying on the work of the institution. I would recommend that an additional Rs. 2,000 should be provided under "Farm annexe." Under "Petty works of construction and repairs" a provision of Rs. 1,000 will be necessary to meet the requirements of alterations and repairs. Under the head "Apparatus (furniture, apparatus) and livestock," Rs. 1,500 will be necessary.

The total increased expenditure proposed for the present is—

	RS.
Staff and demonstrators (as per <i>supra</i>) about	720
Farm annexe, an additional	2,000
Apparatus (furniture, apparatus) and livestock (separate allotment for the farm)	1,500
Petty works of construction and repairs (separate allotment for the farm)	1,000
Total ..	5,220

From W. KEESS, Esq., M.A., M.R.A.C., Principal, Madras College of Agriculture, to the Director of Public Instruction, dated Saidapet, 14th August 1901, No. 618.

Referring to your Ref. on C. No. 5432, dated 19th July 1901, I have the honour to submit the following remarks:—

1. The difficulty of suggesting an appropriate course of studies for the College of Agriculture would be materially decreased if it were definitely settled what the trained product of the institution was supposed to be like. At present he is expected to resemble the farm overseers in his knowledge of agriculture as carried on at Saidapet, the ryots of certain selected areas in his familiarity with the agricultural conditions of these areas, and scientists of different kinds in his acquaintance with such of the so-called "allied subjects" as can conveniently be included in a three years' course. Owing chiefly to the Vice-Principal's post being left vacant for about twelve years, the product of the college during this period failed to show as much resemblance to Farm overseers and ryots as was thought desirable, while owing to other reasons, too numerous to mention here, his knowledge of some of the prescribed allied sciences was considered deficient. Hence the latest committee to suggest a reorganisation of the college curriculum. The suggestions of the committee, if given effect to with sundry modifications, will no doubt remedy this state of affairs, and I shall criticise them in detail afterwards. I should, however, like to very briefly record my ideas on the subject of agricultural education, though I am aware they will not commend themselves to at least two members of the committee.

2. It is generally acknowledged in Germany that the landed interests of the country have derived immense benefit from the existence of institutions devoted to higher agricultural education, and this in face of the fact that a large proportion of the passed students of these institutions do not engage in farming or managing land—a condition of affairs which obtains in India. It seems reasonable, therefore, that in this country the agricultural college should endeavour to turn out a product similar to that of a corresponding German institution rather than to strive after

making its passed students what the committee would have them (viz.), persons with the accomplishments of farm overseers and ryots and possessing a knowledge of elementary science-bearing on agriculture. The German passed student is furnished with a general knowledge of the sciences which bear on agriculture, his acquaintance with practical agriculture enables him to appreciate the application of these sciences, and during his course he takes up one or more branches of special work. For instance, one student takes up selection of seed as a special subject, another, fermentation, a third, manuring of fruit trees, and so on. No doubt most of these men discontinue their special work on leaving college, but they retain an intimate acquaintance with it and the information they spread in a manner, well recognised by all persons connected with technical education, is acknowledged to result in benefit to the country, while those few, who continue their special work, eventually develop into "specialists." Of course, I don't say that the students who have been trained at Saidapet in the past and who may be trained under the committee's proposed organization in the future will have nothing to spread, but their knowledge may be described as too general and cannot include any one branch which could be designated a speciality. To sum up my idea of an agricultural college—it should be an institution which imparts to its students a groundwork of the science and practice of agriculture and makes each man a proficient so far as time allows in one or more small branches. If Government accepts this view the committee's recommendations must of course be put aside and a new committee with full instructions called. If, however, Government accepts the view that the College of Agriculture should turn out students in accordance with the suggestions of others, I trust it will assume that I shall loyally endeavour to carry out its wishes.

3. It is evident that the committee desires that the Saidapet students should undergo what is known as a thorough course in practical agriculture. I recognise the difficulty of explaining exactly what this means, but all the more experienced members of the present staff understand full well what is implied, and if Government wishes such a course of instruction there will be no difficulty in the matter. A thorough course of instruction in practical agriculture however is only possible if the course of studies in the allied subjects is kept down to very small limits and it is in this respect that I consider the committee's recommendations require considerable modification. If given effect to they would entail a very large increase in the time devoted to practical agriculture without a corresponding decrease in that devoted to other subjects. At present the students have full work and no addition to their hours is possible. The committee has no doubt endeavoured to decrease the work in connection with subjects other than practical agriculture by cutting out portions from certain syllabuses, but the saving of time thus effected is compensated for by the additional hours which will be required if Dr. Leather's syllabuses in chemistry and agricultural chemistry are introduced. The committee has clubbed certain syllabuses together and has materially shortened one syllabus by a transfer in an abridged form of some of its subject-matter to another syllabus. These devices, however desirable from an examination point of view, cannot reduce the hours of study. If, therefore, Government is inclined to accept the committee's recommendations it will, I beg, do so only after allowing me to apply the pruning knife to some of the proposed syllabuses. Otherwise, the staff and the students will have an impossible task before them.

4. I beg also to point out that the committee has submitted proposals concerning administrative details which are usually left to the college authorities to settle. For instance, the committee wishes to prescribe the number of mornings class I should work and class II should cultivate their plots, recommends that in-door work should commence at 1 P.M., and so on. I assume Government will not tie down the Principal and staff with respect to such details. I shall therefore not discuss them, feeling sure Government will content itself with laying down a general scheme of work for the college and will rely on the Principal and staff to arrange details with a view to obtaining the best possible results.

5. I shall now deal with the committee's report, assuming of course that Government accepts the committee's idea of what a trained agricultural student would be like.

Paragraph 2 of the report.—This paragraph deals with a detail which should be left to the staff to arrange. As a matter of fact, most mornings are devoted to out-of-door work, but every morning in the session cannot be so devoted.

Paragraph 3 of the report.—As regards classes I and II the details should be arranged by the Principal and staff who should not be bound down by the rigid rules the committee suggests. As regards class III, I think the suggestions may be accepted.

6. *Paragraph 4 of the report.*—The new Vice-Principal who is here indicated should be, as he is at present, on the same footing as an European Professor at the Presidency College, and I fail to see there is anything about the nature of his teaching work which necessitates his being placed on any other footing. In this case he will of course be held responsible for the efficient teaching, both in and out of doors, of the subject entrusted to him and will supervise the work of his assistant or assistants; he will also submit an annual report to the Principal to be incorporated in the annual report of the college. There would be no objection to the Vice-Principal having direct control of the farm under the supervision of the Principal, but if he is not to be under the supervision of the Principal, I should raise serious objections to the proposal, for it

would be impossible to avoid introducing the well-recognised evils of divided authority. The farm and its working are so intimately connected with the college, and its work that a complete separation of the two institutions would benefit neither, would introduce a number of difficulties and would largely increase the cost to Government—*vide* Mr. Thorne's letter No. 487, dated 9th July 1901, which accompanies the committee's report. As matters now stand the Vice-Principal will have two officers to assist him (viz., the agricultural assistant and farm bailiff) and will have the services of the assistant bailiff (who is also a second clerk) for half the day. Any further help the Vice-Principal requires can be arranged for when he gets more experience than he at present possesses.

7. *Paragraph 5 of the report.*—This paragraph deals with an administrative detail. I can at once say that the committee's recommendations are not practicable.

8. *Paragraph 6 of the report.*—I concur in the recommendation regarding working of the farm, also in that regarding separation of agricultural chemistry from practical agriculture; but I do not concur in the recommendation regarding the removal of certain matter from the engineering syllabus to the agricultural syllabus. The matter referred to should be dealt with in class by the engineering instructor and no possible advantage can accrue, so far as I can see, from the transfer. In fact some difficulty will ensue, for the engineering instructor will have to lecture on a small portion of the agricultural syllabus. As regards the concluding portion regarding cryptogamic botany, etc., the committee's suggestions are very indefinite and you will therefore not, I presume, require me to express an opinion on them. I may say now, however, that if the college is to train practical agriculturists in future, the study of cryptogamic botany and economic entomology must be relegated to a very subordinate position.

9. *Paragraph 7 of the report.*—I am altogether opposed to the suggestion here made. Some of the students are landed proprietors and wish to appear for agriculture alone. There is nothing in the agricultural syllabus which a reasonably intelligent man cannot understand without passing in the subjects mentioned by the committee.

10. *Paragraph 8 of the report.*—No doubt the clubbing together of inorganic and organic chemistries is in strict accord with scientific ideas, but I am opposed to the plan for the following reasons:—

During my recent furlough I inquired into the matter and found that in Germany the two were either taught separately, or when they were clubbed together were often taken by different professors, which of course made them practically two distinct subjects. I myself in 1899-1900 attended a chemistry course at the Polytechnicum at Stuttgart and there the inorganic and organic chemistries were taught separately. The professor, a most distinguished chemist, told me himself that there were too many difficulties in teaching the two chemistries as one combined subject. A glance at Dr. Leather's syllabus too will show that the organic portion is simply tacked on to the inorganic one and in practice would be treated separately. I trust Government will not introduce any system of chemical teaching at Saidapet, which German high class institutions have found too difficult to adopt.

I raise very strong objection to Dr. Leather's syllabus but shall deal with this matter later on. As regards the recommendations regarding other subjects, I shall submit the views of the assistant lecturers with my remarks.

11. *Paragraphs 9 and 10 of the report.*—The general principles in these paragraphs may be accepted. The course of studies would naturally arrange itself as suggested by the committee.

12. *Regarding the syllabuses.*—If the college is to train "practical agriculturists" with an elementary knowledge of the allied sciences, the syllabus in agriculture can stand, except that one portion of it, which has been transferred from the agricultural engineering syllabus, should be removed for reasons stated. It is obvious, however, that the teaching of the subject as evidently required by the syllabus will necessitate the addition of a great number of hours to the time now devoted to practical agriculture. This is only possible if the work in the other subjects is reduced and it is in this light that the remaining syllabuses should be reviewed.

Syllabus in Agricultural Chemistry.—This can stand except as regards practical work. The quantitative analyses of manures will add enormously to the work and I don't see what corresponding advantage can be obtained. The analysis of feeding stuffs and milk, as laid down in the syllabus, will give the men a sufficient insight into the methods of agricultural analysis to enable them to go on with the subject in after life if they ever get opportunities of doing so. I would recommend that the portion regarding analysis of manures be removed from the syllabus. The marks required for a pass are unduly high. If 45 per cent. is thought a sufficient minimum in agriculture and 40 per cent. in some other subjects, I don't see why 50 per cent. should be prescribed for agricultural chemistry. I would recommend the substitution of "45" for 50 as the minimum for a pass.

Syllabus for General Chemistry.—I have stated my views regarding the clubbing together of inorganic and organic chemistries. As regards the syllabus itself the inorganic portion seems well adapted for the requirements of the college. As for the organic portion the amount included

is largely in excess of what is wanted for agricultural purposes such as they are evidently understood by the committee. As for the practical work suggested, the inorganic portion is sufficient, but the organic portion is *enormously* in excess of requirements. It is absolutely impossible, if students in their second year are to do in practical agriculture what the committee recommends, that they can spare the time for quantitative analysis. The inclusion here of *quantitative analysis* of agricultural materials which is the same as in the agricultural chemistry syllabus, is, I presume, an error, and this portion therefore need not be considered, but seven quantitative determination should never be demanded of students who have to undergo the course of studies suggested by the committee. I note too that the quantitative analysis of sugar by the polariscope is omitted.

My recommendations regarding chemistry are as follows:—

First, there should be an inorganic chemistry syllabus to include all the matter (both theoretical and practical) mentioned in Dr. Leather's syllabus.

Second, that the *present* organic chemistry syllabus should stand with only one or two slight modifications. It was drawn up by the late committee on technical education and has stood the test of practice for many years. I don't think there can be any better recommendation than this. I know it is very difficult to get teachers of science to agree upon how a particular science should be taught and how much of it should be included in a syllabus drawn up for a particular purpose. I quite recognise Dr. Leather's position in the extremely small chemico-agricultural world which exists in India, but I think my long experience of Saidapet students dating back to July 1886, their capabilities and requirements, coupled with fact that I have recently had opportunities of getting an insight into the internal economy of German agricultural colleges and also into the methods of chemical instruction in one of the leading London schools, will cause my opinion, even if opposed to that of Dr. Leather, to be considered of some value. As regards the other syllabuses I append the opinions of the members of the staff, most of whom are experienced teachers and whose opinions are therefore entitled to consideration.

Opinion of M.R.Ry. G. Krishna Prabhu, First Assistant, on the proposed syllabus in Physiology.—"I approve of the changes proposed by the committee."

Opinion of Mr. S. L. D'Silva, Second Assistant, on the proposed syllabus on Veterinary Science and Hygiene.—"The proposed syllabus—veterinary science and hygiene—is an improvement on the present one. Veterinary science, intermediate, stage II, while it covers the whole ground of surgery and medicine as regards cattle and sheep as it ought to, it is to a great extent free from the vagueness which characterises the existing syllabus and it defines more clearly the veterinary requirements of an agriculturist."

Opinion of M.R.Ry. R. V. Subrahmanya Aiyar, Third Assistant, on the proposed syllabus on Agricultural Engineering.—"In view of the requirements of agricultural students, I have no remarks to offer as regards the curtailment of the syllabuses in surveying and engineering. I would, however, suggest that the proposed syllabus be split into agricultural surveying and agricultural engineering to be finished in the first year and second year respectively. For final revision and for the framing of the scheme for examination, the sketch may be referred to Mr. Ashpitel who has been our examiner in the subjects for the past two years."

I would like to add the following remarks:—

(1) I agree with the opinion expressed that there should be two distinct subjects—agricultural surveying and agricultural engineering—to be done during the first and second years respectively.

(2) I have called attention (*vide* paragraph 8 *supra*) to the undesirability of transferring a certain portion, viz., irrigation, etc., from the present engineering syllabus to the new agricultural syllabus.

(3) The scales for plans should not be prescribed. For many years I have drawn attention in my annual reports to the smallness of the prescribed scales, but nothing has so far been done to remedy the matter. I do not see why the scales adopted by some particular Government department should be made compulsory on all students of the College of Agriculture. I am in favour of allowing the college authorities to choose their own scales.

(4) I agree with Mr. Subrahmanya Aiyar that an engineer should be consulted before the syllabuses are sanctioned.

Opinion of M.R.Ry. C. Krishna Menon, Fourth Assistant, on the proposed syllabus in Agriculture.—"The syllabus, as prescribed by the committee, is the same as the old syllabus for agriculture, advanced, except in one or two points. A portion from the agricultural engineering has been transferred to the agricultural syllabus. No doubt the construction of wells, water-lifts and their efficiency under varying conditions of soil, climate and crops falls within the sphere of an agricultural lecturer. But this was hitherto taken by an engineer who is quite competent to deal with it, and I fail to see the necessity for an alteration. As to tanks and sluices, the engineer must take up the subject as before, as he is every way well equipped on these subjects. As agricultural chemistry has been made separate, one would find it difficult to lecture on manures. We do not know where manures and manuring from an agriculturist's point of view begin, and where end. All that is mentioned in the syllabus is 'the conservation and application of

manures'. This, I beg to submit, is not very clear in the face of a separate series of lectures by the Agricultural Chemist. All that I beg to point out is that I have been lecturing on manures these ten years to the senior students, and I found it impossible to enter into the subject without touching something on the chemistry of manures.

"I beg to suggest that 'Sericulture' may be altogether taken away. An elaborate experiment was made in 1883 during Mr. Robertson's time, but ended in failure. Again attempts were made to cultivate the worm, do the reeling; again there was failure. The difficulty was in supplying food to the worms. Without actually rearing the silk worm in the farm there is absolutely very little good in lecturing from text-books which the students might as well read for themselves.

"I beg to suggest a separate heading in agriculture 'Rural Economy.' The stocking of the farm, etc., mentioned in the revised syllabus come under this great heading; but I would include some broad elementary principles of political economy, such as the relationship of land, capital and labour, rent, profit and wages, production, distribution exchange, etc. I would also suggest the study of vital statistics in relation to the occupancy holding of a ryot; in fact all about the village economy. A study of land tenure of Southern India is very essential; for agriculture more than any other question, is much more an *economic* one than a *scientific* one and the third year student must have a fair acquaintance with the various tenures prevalent in this Presidency. The nature and extent of the holding under these tenures, etc. The defect in the old syllabus was its extreme vagueness and latitude. The altered one is just like the old one. Some definiteness is needed.

"I speak these matters out as I had the major portion of the syllabus to finish these many years and I invariably found that by a good system of lecturing, combined with a certain amount of dictation, the syllabus was found too much. Now that agriculture has been given so much importance as it ought to, the suggestion of the Committee that no body should go for the examination in agriculture before getting a qualified certificate from the examiners in general chemistry, etc., is to my mind not in harmony with the existing state of affairs and may not be with regard to the future. Of late we are having many landed proprietors, and young men from noble families attending the college mainly to go through a course in agriculture both practical and theoretical. They care very much for a pass in agriculture. Even the stipendiary students will only be asked the first question when they go to their stations, whether they have passed in *agriculture*. I therefore beg to suggest that every facility may be given as heretofore for students for appearing in agriculture advanced irrespective of the fact whether they have passed in the collateral subjects."

13. It is obvious the reorganization of the College can effect but little good if no steps are taken to attract students, sufficiently well educated to benefit by the instruction imparted. The three years course is at present an arduous one and it will become more so, if the Committee's recommendations are accepted. The privilege conferred on diplomats, who are qualified for Government service, of appearing for certain special tests does not seem a sufficient inducement. Of the two departments, the Agricultural and the Civil Veterinary, to which successful students would naturally look for employment, the former has apparently stopped all local recruitment while the latter is in practice closed to students of this college. Under these circumstances I trust Government will be pleased to confer such privileges on successful students as will attract the right class of men to the institution.

14. I beg to be allowed to say a few words as to the time when the reorganisation should be introduced. It can easily be understood that students hold aloof from an institution which is on the eve of reorganisation for no one likes to begin a long course of studies without knowing how it will end. The small number of students in the present class I is to a great extent traceable to the impending changes in the curriculum and conditions of study at this institution. I venture to hope therefore that orders will be issued at such a date as will enable the next session to open free from the uncertainties which have beset the commencement of the current term. The new curriculum will, I venture to hope in the interests of students now undergoing training, be introduced at the opening of next session; and I presume I may take it for granted that every consideration will be given to those men who have commenced their course of studies with one set of syllabuses and will have to finish it with another set. The examinations in April next should, I think, in any case be held according to the syllabuses *now* in use.

15. I have been connected with the College of Agriculture for over 15 years and have seen the institution reorganised on more than one occasion. The reasons for the non-success of the institution under its varied organisations may be summed up as follows:—

(1) Teachers and examiners never definitely knew what was expected of the passed student.

(2) Sufficient inducements were not held out to tempt men of good educational attainments to enter upon a three years' course.

If the college emerges from the impending re-organisation unhampered by the above difficulties, the Committee's labours will not have been in vain. Otherwise I fear the reorganised institution will be but a reflection of its present self.

Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), Mis. No. 176, dated 9th January 1902.

Read—letter from the Director of Public Instruction, Madras, to the Secretary to Government, Educational Department, Ref. on C. No. 5432, dated 4th December 1901.

Resolution—Mis. No. 176, dated 9th January 1902.

Submitted for the orders of Government with reference to G.O., No. 513, Educational, dated 18th October 1900.

2. The results attained by the College of Agriculture had for some time been unfavourable, and in its Resolution No. 291, dated 20th June 1900, the Board remarked "that the system of practical training in the college demands early and close investigation and thorough reform." In his Proceedings No. 9213 of 1900, the Director of Public Instruction concurred in the Board's opinion and expressed his intention of appointing a committee "to consider the matter and revise the syllabuses on the subjects concerned." In its order quoted above, Government while condemning the working of the college as "very unsatisfactory" decided to await the Director's proposals after consideration of the report of the Committee.

3. The Committee which consisted of the following members—

Mr. C. Benson, Deputy Director, Land Records and Agriculture,
Mr. R. S. Thorne, Vice-Principal, College of Agriculture,
Dr. J. W. Leather, Assistant Agricultural Chemist to the Government of India,
Mr. J. Mollison, Deputy Director of Agriculture, Bombay,
M.R.Ry. C. K. Subba Rao, Sub-Assistant Director of Agriculture,

submitted its report to the Director of Public Instruction on 21st May 1901, and the Director has forwarded it along with the remarks of the late Acting Principal and those of the Principal of the College, through the Board, for the orders of Government.

4. The principal recommendation of the Committee is, as stated by the Director, that more time should be given to out-door work; and at the same time certain alterations are proposed in the various syllabuses, the most material of which is in regard to the chemistry course and which would entail some increase in the time devoted to that subject.

5. The Principal of the College in the first few paragraphs of his report avows his disbelief in the present system of training in the Saidapet College, and advocates the adoption of a more or less German type of instruction aiming at a general grounding in the sciences that bear on agriculture, while leaving the students individually to specialise in any branch they please. Should it be decided to adopt this line of agricultural instruction, it would be better to abolish the Saidapet College altogether, the Presidency College being much better equipped for the object in view. Proceeding to a criticism of the Committee's report, the Principal after admitting that "owing chiefly to the Vice-Principal's post being left vacant for about 12 years" and "owing to other reasons too numerous to mention," the product of the College has failed to attain the standard expected, remarks that "the suggestions of the Committee, if given effect to with sundry modifications, will no doubt remedy this state of affairs." The extent of the modifications proposed by the Principal may be gauged by the fact that while the Committee's suggestions are contained in a report of ten paragraphs, the most important, indeed the only material, alterations proposed in the present College course being stated in the first eight of these, the Principal condemns either the whole or the greater part of each of these eight recommendations, accepting only the general principles embodied in paragraphs 9 and 10 of the Committee's report.

6. The Director of Public Instruction draws attention to the apparent impracticability of devoting more time to out-door work seeing that the changes recommended in the chemistry course will entail longer hours of class work at that subject. He

also points out that according to the present curriculum, a certain time is devoted to out-door work every day. The Director is not convinced that more practical work is needed but "better supervision of the work that is now done."

7. The Board believes that the Committee was led to make the recommendation it did for a change in the hours of out-door work by the consideration that one and a half hour scarcely allows time to complete satisfactorily any piece of practical work undertaken for purpose of instruction: while the students could not without loss of time and with advantage to themselves, pass direct from the field to the class room as required under the existing time table. As to the proposed changes in the chemistry course, if these be found impracticable as a whole, it would be easy to make such modifications as would meet the Director of Public Instruction's objections.

8. The poor results of the Saidapet College during recent years and the unsatisfactory condition of the Farm as described in Mr. Mollison's note, which forms enclosure 4 to the Committee's report, indicate clearly that either the system of training or the supervision or both are at fault. But while a Committee nominated by the Director of Public Instruction and containing the best ability and experience available has made certain proposals to remedy this state of affairs, the recommendation of the Principal of the college endorsed apparently by the Director of Public Instruction is that the Committee's proposals should be modified to such an extent as practically to leave matters as they are. The Board does not understand what is meant by the Director's remark that what is needed is "better supervision." If the reference be to the fact emphasised by Mr. Kees, viz., the lack during several years of a Vice-Principal, the Board would remark that this circumstance alone does not account for the paucity of practical agriculturists turned out by the college.

Better supervision of the Farm, the Museum, Laboratories and of the students' work, whether in the class room or out of doors, is certainly not incompatible with the full acceptance of the Committee's proposals, and after careful consideration the Board is of opinion that, subject to such minor modifications as may on experience be found necessary the best means of making the College thoroughly efficient for the purpose it has always been intended to serve, is to accept those proposals.

9. The Board strongly supports the recommendation of the Director of Public Instruction in the last paragraph of his letter that a post in Government service on a salary of not less than Rs. 100 a month should be guaranteed to the best student of each year. This no doubt will prove a useful bait to attract young men to the college though it will not directly or to any great extent assist the dissemination of practical agricultural knowledge throughout the country. The latter object can only be attained if or when the trained students are able to find openings for employment in agriculture or in occupations connected therewith. Of such openings Government service provides very few, and it is to the landed proprietors and especially to the great zamindars of the country that the students of the Agricultural College must look for employment. In this respect a great responsibility and a great opportunity rests upon the Court of Wards to prove practically not only that it is alive to its position as representative of immense landed interests and therefore under an obligation to do all in its power for the development and improvement of the agricultural resources of estates in its charge, but also that it has faith in the advantages of agricultural education and training as given in the Saidapet College and therefore is prepared to offer employment to the students who pass out therefrom. The Acting Commissioner entertains the hope that the Court of Wards will adopt this policy, and that in time most of the great landed proprietors may be led to recognise its expediency and that thus not only will the opportunities of agricultural employment be very largely multiplied, but that the beneficial results of the Saidapet training may be gradually be disseminated throughout the country.

(True Extract.)

R. V. SRINIVASAR,
Acting Secretary.

To the Secretary to Government, Educational Department,
with papers in original.

Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), Mis. No. 2492, dated 28th April 1902.

Read—again Board's Proceedings, No. 216, dated 21st September 1901.

Read—also the following paper:—

From the Hon'ble Mr. G. H. STUART, M.A., Director of Public Instruction, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated 10th April 1902, No. 2891.

With reference to paragraph 2 of Board's Proceedings, No. 216, dated 21st September last, I have the honour to enclose copies of two letters from the Secretary to the Commissioner for Government Examinations and the Principal, College of Agriculture, which explain why the Government technical examinations in agriculture and allied subjects cannot conveniently be held in March.

ENCLOSURES.

From the Acting Principal, College of Agriculture, to the Director of Public Instruction, dated 21st July 1896, No. 438.

Referring to your official memorandum No. 7665 of the 18th July 1896, I have the honour to state that the Government technical examinations in agriculture and kindred subjects cannot conveniently be held in March instead of April as at present. I beg to submit my reasons for expressing this opinion.

2. The proper time for the College of Agriculture to open a new session is on or about the 1st July, for in an ordinary year, the south-west monsoon commences about that date. Out-of-door practical work depends for a great part on the rainfall and it is in every way convenient for the college session to open about the time the south-west monsoon usually commences. The matter was fully enquired into by the late committee on agricultural education and it was decided that the college session should commence on or about 1st July. The college vacation is limited to two months, and consequently the institution is now closed during May and June. The natural time therefore for the examinations is the second half of April.

3. Were the examinations held at the end of March, the long vacation would have to be taken during April and May. The college would be at work during June, which is one of the two hottest months of the year at Saidapet. In this case one of the chief objects of granting the long vacation would be defeated. All Madras education institutions are closed during June, except the Medical College, which is kept open for very special reasons, and I don't think this college should be treated without very strong cause in a different manner as regards vacations to other colleges.

From the Secretary to the Commissioner for Government Examinations, Madras, to the Director of Public Instruction, dated 29th July 1896, No. 95/4D.

Referring to your letter of the 18th instant, No. 7669, I have the honour by direction to inform you that it would not be convenient to this office to hold the technical examinations in March instead of in April. The special tests are held in October, the technical examinations in over thirty subjects in November and the lower secondary examination, the upper secondary examination, the hand-writing test for under-graduates and the Salt and Abkari department competitive examination are all held in December. In the months of January, February and March, the office is engaged in tabulating and publishing the results of the above-mentioned examinations. The work is of a most troublesome nature and, finding employment as it does for all the office hands, it would leave little time for arrangements to be made for the technical examinations which are of a more complicated character than those that are to be made for any of the other examinations under the control of the Commissioner.

Resolution—Mis. No. 2492, dated 28th April 1902.

In continuation of its Proceedings, No. 176, dated 9th January 1902, and with reference to paragraph 2 of G.O., No. 292, Revenue, dated 25th March 1902, the Board begs to draw the attention of Government to a matter of very considerable importance in connection with the College of Agriculture, namely, the time of year when the candidates for the agricultural diploma should be examined. As the course is at present a three-year course, this question also includes the date for admission to the college. The Board is not satisfied that the arrangements at present in force are the most suitable, and is desirous that the question may be decided by Government.

2. It will be admitted by all that it is essential that the final examinations of the students in agriculture should be thorough and practical, and to secure this end, the greater part of the examination should be conducted in the field, when the crops are on the land, and field operations are in progress. This cannot be the case in April, when the examinations are now held, for then nearly all the crops have been harvested and field work has almost come to a stand-still, whilst climatic conditions would otherwise render a thorough practical examination much too arduous to expect that either the examiners or examinees would do full justice to the work in hand.

The objections to imposing a long course of written examination on students in April are also considerable, and they are those which have led to the concentration of nearly all university examinations around the Christmas holidays.

3. This being the case, the Board, in its Proceedings, No. 216, dated 21st September 1901, made particular enquiries of the Director of Public Instruction why it is considered inadvisable to hold the examinations in March and pointed out that the earlier in the year the examinations are held, the better. To the former suggestion the Director of Public Instruction replies that to hold the examinations in March would be inconvenient to the Commissioner for Government Examinations, and that it does not fall in with the accepted terms of the College of Agriculture. To the first objection, the Board would remark that it must give way to a desirable reform and that if the Commissioner for Government Examinations finds that he cannot, with reference to other calls on his staff, undertake these examinations, separate arrangements can easily be made for carrying them out. The second objection does not appear to the Board of serious weight, for the college terms comprise two sessions—one from about 1st July to 31st December, one from January to April, and the academic year may be made to terminate either in April or December. If the latter date were selected, the final examinations could be held in January every year instead of in April as at present. At that time every facility would present itself for making the examinations in agriculture thoroughly practical and searching.

The only objection which the Board can conceive to the adoption of this course would be that classes formed in January would commence work near the end of the agricultural year. The objection is however not a very serious one, especially as in the first session a new class will only be gradually got together and there will be much that they can usefully learn before the cultivation season opens in June when they should reassemble.

4. After full consideration, the Board therefore recommends that when the Government passes orders on the report submitted with its Proceedings, No. 176, dated 9th January 1902, it may be pleased to direct that the final examinations of the College of Agriculture should be held about Christmas and admissions regulated accordingly.

(True Copies and Extract.)

C. BENSON, Dy. Director
for Secretary.

To the Secretary to Government, Educational department.
„ Director of Public Instruction, Madras.

ORDER—No. 429, Educational, dated 24th July 1902.

The Government have given attentive consideration to the report of the committee appointed to reconsider and revise the course of instruction at the College of Agriculture. The Board of Revenue are in favour of adopting the suggestions contained in the report with such modifications as experience may show to be necessary, while the Director of Public Instruction and the Principal of the college are opposed to the majority of the recommendations which have been made. The Governor in Council entirely agrees with the Board of Revenue in holding that, if the college is to be made thoroughly efficient for the purpose it has from the first been intended to serve, radical changes in the system are imperatively called for, and he accordingly directs the immediate introduction of the curriculum which the committee recommend for adoption.

2. The salient features of the revised curriculum will be—

- (1) that all the mornings will be devoted to out-door work—every description of farm work in the first year, cultivation of given areas in the second year, and specific kinds of work such as dairying, record-keeping, supervision of work on the farm and the like in the third year; while theoretical instruction will be given for three hours in the afternoon;
- (2) that agricultural chemistry will be taught as a separate subject; and
- (3) that students will be required to pass in general chemistry, botany, meteorology, geology, anatomy and physiology, before being allowed to appear for the examination in practical agriculture and agricultural chemistry.

3. As recommended by the committee, the Vice-Principal and Professor of Agriculture will be placed in direct charge of the college farm and held responsible for its management. The apprehension that this will introduce the evils of divided authority has no foundation as it is not intended that the Vice-Principal should cease to be directly subordinate to the Principal.

4. The exclusion from the examination in agriculture of all candidates who have not passed in general chemistry and the other subjects mentioned by the committee need not prevent the admission into the college of landed proprietors who wish to appear for agriculture alone. Such candidates may be treated exceptionally and allowed to take a special course in that subject.

5. The Government agree with the Board that it is desirable to hold the final examination about Christmas, and the course should be arranged accordingly. If the Commissioner for Government Examinations cannot undertake the control of an examination held in December, the work should be entrusted to a special board as in the case of the Medical and Engineering Colleges.

6. The Government accept the recommendation that a post in the public service should be given to the best student of the year, but it is impossible to set apart for this purpose an appointment on Rs. 100. The Governor in Council considers that the reservation of a post carrying Rs. 40 per mensem will be sufficient, and further orders on this subject will issue in the Revenue department.

7. As remarked by the Board of Revenue there is scope for the employment of passed students of the college in the estates under the Court of Wards, and the Court will no doubt set an example to landholders by inaugurating agricultural experiments and by employing trained agriculturists to supervise them. Suitable employment for successful students will also be found in the Educational department and in aided schools and training institutions.

8. The proposition statement for the additional establishment proposed by the committee should be submitted at once and a revised draft of the rules of the college should follow as soon as possible. It is desirable that the changes in the curriculum and the college terms should be notified without delay. The syllabus in agricultural engineering prepared by the committee should be revised by an engineer, as recommended by them: the Director should arrange for this.

9. The Government trust that the reforms which they have now ordered will effect the object they have in view, which is to make the college a school of practical agriculture adapted to the circumstances and needs of Southern India. In the past there have been hesitation and perhaps neglect, but with a definite programme before them the staff now know what is required and His Excellency in Council relies upon their loyal and energetic co-operation in carrying out his wishes. The college requires sympathetic supervision and it should be visited frequently by the Director of Agriculture and the Director of Public Instruction, who, while seeing that work is proceeding on the lines now laid down, should assist the Principal in dealing with any difficulties that may arise.

(True Extract.)

H. A. STUART,
Ag. Secretary to Government.

To the Director of Public Instruction.
" Revenue department.

Educational (190/) Department.

(Thro' the Director of Land Records & Agriculture)

CURRENT No.

From

8327 99

[Name] The Honourable Mr. G. I. Stuart, M.A.,

[Designation] Director of Public Instruction,

[Station] Madras.

m4

for orders

I have nothing to suggest
has been a part of the
5/12 report of the CommitteeCN
4.12.07

Ref. No. 5432 of 1901.

Dated 4th December 1901.

Received 4/12 1901.

Enclosures one file of papers in original.

Registered 5/12 1901.

SUBJECT.

Submitting with remarks the report of the Committee appointed to reconsider and revise the course of instruction at the College of Agriculture, Saidapet.

BACK PAPERS.

FURTHER PAPERS.

Quills 6/12/76.

B

To

The Secretary to Government,

Educational Department.

(Thro' the Director of Land Records & Agriculture)

Sir,

I have the honour to send herewith the report of the Committee appointed to reconsider and revise the course of instruction at the College of Agriculture.

The Committee consisted of the following members:-

Mr. C. Benson, Deputy Director of Land Records and Agriculture,

,, R. S. Thorne, Vice-Principal, College of Agriculture.

Dr. J. W. Leather, Assistant Agricultural Chemist to the Government of India.

Mr. J. Mollison, Deputy Director of Agriculture, Bombay.

M. R. Ry. C. K. Subba Rau, Sub-Assistant Director of Agriculture.

A preliminary meeting was held in December 1900 at which Mr. Benson, Mr. Thorne and Mr. Subba Rau were present. Mr. Benson went on leave in December and on his way home stopped at Bombay and conferred with Dr. Leather. Mr. Mollison was unable to attend and has therefore sent up a separate memorandum. A report was drafted by Mr. Benson and sent to Mr. Mollison, but was stolen. A second report was, therefore, drawn up after Mr. Benson's return from leave. Mr. Mollison had in the meantime, left India, but his memorandum was considered by the remaining members of the Committee before sending in their final report. The report has since been referred for remarks to both the acting Principal and the Principal of the College of Agriculture. It was received back from the latter at the end of August, but I was unable to consider it until my return from Simla.

The essence of the report is the recommendation that more time should be given to outdoor work and the Committee recommend that all the mornings should be devoted to this kind of work.

Educational

Revenue (1902) Department.

CURRENT No.

731

From

The Board of Revenue, Revenue Settlement,

Land Records and Agriculture,

Madras.

No. 2492 Misc.

Dated 28-4-1902.

Enclosures

Received at Madras 7-5-1902

Registered 7-5-1902

SUBJECT.

College of Agriculture:- Recommending that the final examinations of the College of Agriculture be held about Christmas instead of in April as at present.

BACK PAPERS.

B.P. 176-9-1-02

SO 292 Rev 25-3-02

B.P. 216-21-9-01

725 R-13-11-01

FURTHER PAPERS.



Proceedings of the Board of Revenue

(Revenue Settlement, Land Records and Agriculture),

Dated 28th April 1902

No. 2492 Misc.

The Hon. Mr. F. A. Nicholson.

Read again B.P. 216 dated 21.9.1901.

Read also the following letter from the Hon. r. G. H. Stuart, A.,
Director of Public Instruction, No. 2891 dated 10th April
1902:--

With reference to para 2 of B.P. No. 216 dated
21st September last, I have the honor to enclose copies of
two letters from the Secretary to the Commissioner for ---
Government Examinations and the Principal, College of Agri-
culture, which explain why the Government Technical Exami-
nations in Agriculture and allied subjects cannot convenient-
ly be held in March.

Copy of letter from the Ag. Principal, College of Agri-
culture, to the Director of Public Instruction No. 438 dated
21st July 1896:--

Referring to your official memo No. 7665 of the
18th July 1896, I have the honor to state that the Govern-
ment Technical Examinations in Agriculture and kindred
subjects cannot conveniently be held in March instead of
April as at present. I beg to submit my reasons for ex-
pressing this opinion.

Educational (1902) Department.

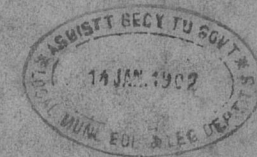
CURRENT No. 76

From

The Board of Revenue, Revenue Settlement,

Land Records and Agriculture,

M A D R A S.



No. 176 Misc.

Dated 9th January 1902.

Enclosures (2 file)

Received 190 .

Registered 15-1-1902.

SUBJECT.

Submitting for the orders of Government with remarks with reference to
G.O. 513 Educational dated 18.10.1900 report of the Committee appointed
to reconsider and revise the course of instruction at the College of
Agriculture, Saidapet.

BACK PAPERS.

Ans. 992, 566 Lodged.

Ans. 159

G.O. 513 G.O. 493
G.O. 541 G.O. 573

FURTHER PAPERS.

G.O. 366

(Revenue Settlement, Land Records and Agriculture),

Dated 9th January. 1902.

No. 176 Misc.

The Hon'ble Mr. J. N. Atkinson.

READ.....Letter from the Hon. Mr.G.H.Stuart, M.A., Director of ---
Public Instruction, Madras, to the Secretary to Government,
Educational Department, Ref.on C.No. 5432 dated 4th December
1901.-

R e s o l u t i o n . -

Submitted for the ---

orders of Government with reference to G.O. 513 Educational
dated 18.10.1900.

2. The results attained by the College of Agriculture had for some time been unfavourable, and ⁱⁿ its Resolution 291 dated 20th June 1900, the Board remarked " that the system of practical training in the College demands --- early and close investigation and thorough reform". In his

READ AGAIN G.O., No. _____, dated _____, 190

190

READ ALSO:—

C. No. 76, From the *O.P.I.* *P.C.* No. 5432, dated 4th December 1901.

" " 731 " " Bol. of Rev. " " 2492 " " 28th April 1902

[illegible]

ORDER

No. 429, dated 24-7- 1902

The Government have given attentive consideration to the report of the committee appointed to reconsider and revise the course of instruction at the College of Agriculture. The Board of Revenue are in favour of adopting the suggestions contained in the report with such modifications as experience may show to be necessary, while the Director of Public Instruction and the Principal of the college are opposed to the majority of the recommendations which have been made. The Governor in Council entirely agrees with the Board of Revenue in holding that, if the college is to be made thoroughly efficient for the purpose it has from the first been intended to serve, radical changes in the system are

are imperatively called for, and ^{he} accordingly directs the immediate introduction of the curriculum which the committee recommended for adoption.

2. The salient features of the revised curriculum will be:-

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- (2) that agricultural chemistry will be taught as a separate subject, and
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Revenue

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W
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energetic co-operation in carrying out his wishes. The college requires sympathetic supervision and it should be visited frequently by the Director of Agriculture and the Director of Public Instruction, who while seeing that work is proceeding on the lines now laid down, should assist the Principal in dealing with any difficulties that may arise.

H.A.S.
10-7-02.

13 $\frac{12}{2}$

u 17.7.02

To the S.P.I. ✓ $\frac{14}{8}$
Rev. dept. ✓ $\frac{15}{8}$

First copy sent to Press.

Returned for signature.

Despatched in print.

READ AGAIN G.O., No.
190 .

DATED

CURRENT No.

ENCLOSURES TO G.O.

ORDER OF GOVERNMENT.

LETTER OF GOVERNMENT.

STATEMENT WITH DUTTO.

PAPER NOT FILED UP, BEING MEANT FOR DEBATER
IN ORIGINAL.

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- P = Print abstract only.
- Q = Print heading only.

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proof
27/10/10*

Sketches on 5/11/10