MS. SERIES.

G. O. No. 1661. Edn.

DATED. 2. 6. 50.

(35)

Sub —

OVERSEAS SCHOLARSHIPS 1946.

SRI. VENKATA SUBRAMANIAN. PAPERS. RECOR

BY AIR MAIL.

No. F. 7-8/S.42/46.O.D.IV.
Government of India.
Ministry of Education.

New Delhi 3, the 1/8th April, 1948.

ASST. SECRETARY TO GOVERNMENT
EDUCATION AND PUBLIC HEALTH DEPT.
12 APR 1948

From

Dr. Tara Chand, M.A., D.Phil.,
Secretary to the Government of India.

To

The Secretary to the Government of Madras,
Education and Public Health Department,
Madras.

Subject:- OVERSEAS SCHOLARSHIPS 1946-47- MADRAS GOVERNMENT SCHEME - MR. V.VENKATASUBRA MANIAN.

.....

26458

Sir,

I am directed to forward herewith a copy of letter No. G.160/46, dated 12th March, 1948 from the Indian Embassy in the United States of America to this Ministry regarding the above scholar. The Provincial Government may kindly intimate this Ministry urgently whether they approve of the Educational Liaison Officer's efforts to arrange for the scholar's practical training with the Bureau of Reclamation, Denver.

I have the honour to be,
Sir,
Your most obedient servant,

Dkhunjorao
for Secretary.

....

ARS.

Copy of letter No. G. 160/46, dated March, 12th 1948, from the Education Department, Embassy of India, Washington, D.C., to the Ministry of Education Government of India, New Delhi.

....

Our Reference G. 160/46.

Please refer to your letter No. F. 9-3/47.O.D.IV, dated 5th February, 1948 regarding V. Venkatasubramanian, a 1946 Madras Scholar. The relevant information asked for is given in the enclosure to my letter.

I am taking necessary steps to arrange practical training for the student with the United States ~~Bure~~ Bureau of Reclamation in their Soils Laboratory.

I presume the Madras Government will have no objection.

....

V.Venkatasubramanian,
1052 16th Ave. S.E.,
Minneapolis, 14

March 7th,1948

Dear Dr. Rozario,

With reference to your letter dated 27th February,1948, I am glad to furnish the following information: I was working for my Masters degree in Civil Engineering with Soil mechanics as major and Hydraulics as minor. My thesis had been filed and approved. In fact, I have completed all the requirements including the final oral examination for the Master's Degree. Teh two remaining course I have mentioned, I shall be completing this week.

Finally I hope that arrangements for my assignment to Denver, in accordance with my Professor's recommendation dated January 30,1948, are being made and I can expect intimation by the last week of this month.

Very truly yours,

V.Venkatasubramanian.

4

COPY

9/214

P.W.D(M)

MEMO No. 1566-17/48-S dated 20.4.48

Sub: OVERSEAS SCHOLARSHIPS - 1946-47 - Mr.V.Venkata-subramaniam - Programme of studies.

Ref: From the Govt. of India (Ministry of Education) No. F.7-8/S.42/46 O.D.IV dated 10-4-48.

******

A copy of the Government of India letter cited above together with its enclosuresis forwarded to the C.E(I). Mr. V.Venkatasubramaniam is a candidate undergoing advanced studies in the United States of America in 'Soil Mechanics of the earthern and composite dams'. He is intended for absorption in the Public Works Department after the completion of his overseas studies. The C.E(I) is requested to state, particularly from the view point of utilisation of the Scholar's services on return to India, whether the practical training proposed to be arranged for the scholar may be accepted.

2. The C.E(I) is requested to treat the reference as SPECIALLY URGENT.

20.4.48

C.E(I) with a
of pp.1-4 c.f.

From
Sri Rao Bahadur
A.R.Ven ata Acharya, B.E., I.S.,E.,
Chief Engineer for Irrigation,
Chepauk, Madras.

To
The Secretary to Government,
Public Works Department,
Madras.

No. 4352/46-M-97 d/. 11-5-48.

Sir,

Sub: Overseas scholarships - 1946-47 - Mr.R.Venkatasubramaniyam - Programme of studies.

Ref: Govt. Memo. No.1310 M/48-1 d/.5--4--48.
,, 1556 M/48-1 d/.20-4-48.

The practical training proposed to be arranged for the scholarship scholar in Government of India, Ministry of Education letter No.F.7-8/S.42/46 O.D.IV dated 10-4-48, communicated in Government P.W.D. Memo. No.1556 M/48-1 dated 20-4-48 may be accepted.

FOR CHIEF ENGINEER (IRRIGATION)

TPS·11/5

8

EP

Letter / Ref 2645·8/46·2 C₂ - Edn dt 24·4·48
to ✓ The Secy to the Govt of
Ministry of Edn
New Delhi · 3. 15/5/48

Ref. your no F. 7-8/S.42/46.E.3.(1)
dt 10.2.48 re Mr. V. Venkatasubramanian - 1946-7 scholar

I am directed to state that the Govt approve of the Educational Liaison officer's efforts to arrange for the scholar's practical training with the Bureau of Reclamation, Denver.

Yours
for Secy
N
20/5

OM
23/5/48

yours

BY AIR MAIL.

No. F.7-3/S-42/46-O.D.IV.
GOVERNMENT OF INDIA.
MINISTRY OF EDUCATION.

NEW DELHI 3, the 19th July, 1948.

ASST. SECRETARY TO THE GOVERNMENT OF INDIA
EDUCATION DEPT.
From 54300
21 JUL 1948
To

Dr. Tara Chand, M.A., D.Phil.,
Secretary to the Government of India.

The Secretary to the Government of Madras,
Education and Public Health Department, MADRAS.

SUBJECT: ADVANCED STUDIES OVERSEAS IN RESPECT OF MR. V. VENKATASUBRAMANIAN - MADRAS GOVERNMENT 1946-47 SPNSORED SCHOLAR.

Sir,

I am directed to refer to your letter No. 26453/43-2c2 Education dated the 24th May 1943 regarding the above scholar, and to say that the Indian Embassy at Washington has since informed this Ministry that a year's practical training for Mr. Venkatasubramanian has been arranged with the Bureau of Reclamation Denver, United States of America and that he has commenced the same from the 24th May 1948.

This would involve an extension in the period of his scholarship which normally ends on the 26th February 1949. This question will be taken up on receipt of his application for extension in the proper form which he has been asked to forward.

Yours faithfully,

(K.P. LUKOSE)
for Secretary

No. F.7-8/S.42/46 S.II.
GOVERNMENT OF INDIA
MINISTRY OF EDUCATION
NEW DELHI 3, DATED THE 8th AUGUST 1948.

From

Dr. Tara Chand, M.A., D.Phil.,
SECRETARY TO THE GOVERNMENT OF INDIA.

To

The Secretary to the Government of Madras,
Education and Public Health Departments,
Madras.



Subject:- ADVANCED STUDIES OVERSEAS IN RESPECT OF MR. V. VENKATASUBRAMANIAN MADRAS GOVERNMENT 1946-47 SPONSORED SCHOLAR.

.....

In continuation of this Ministry letter No.F.7-8/S.42/46 O.D.IV dated 19.7.1948 on the above subject, I am directed to forward herewith a copy of an application for extension in the period of his scholarship from Mr. V.Venkatasubramanian, received from the Indian Embassy at Washington in this Ministry.

2. The Provincial Government will observe that the scholar has asked for extension upto 24.5.1949 to complete one year's practical training with the Bureau of Reclamation,Dewerer.

3. In view of the good opinion expressed by the scholar's supervisor regarding his work so far as also B.I.R's requirement for completing full one year's training and since the Indian Embassy has also recommended the scholar's case, the Government of India are inclined to agree to extend Mr. Venkasubramanian's scholarship upto 24.5.1949.

4. The Provincial Government may kindly consider the matter and communicate to this Ministry their decision in the matter at a very early date.

Yours faithfully,

Harishchandra
(HARIH CHANDRA)
FOR SECRETARY.

22

COPY.

23

Granby Dam, Colorado-Big Thompson Project, Colo.

Six million dollar project. The principal features involved are: the construction of Granby Dam an earthen dam across the River Colorado, an out-let works through the left abutment of the dam, and an open channel supillway at the left abutment of the dam. The dam is approximately 885 feet longat the crest and will have a maximum height of 232 feet above the bed of the river. The main body of the dam will consist of a moistened and rolled embankment of clay, sand, and gravel. The upsetream slope of the embankment above elevation 8122 will be covered with a layer (3feet thick) of rock rip-rap . The downstream slope of embankment will be cover-ed with a rock fill. Two concerte out-off walls with footings existending into bed rock will be constructed in a wide. cut off trench extending the full length of foundation of the dam. The spillway at the left abutment of the dam will be an open channel in rock with a concrete gate structure at the crest of the dam.The discharge through the spillway will be controlled by two 21 by 20 feet radial gates. The outlet works will consist of a temporary diversion tunnel extending upstream from the end of the permanent outlet tunnel, a vertical shaft 7 feet in diameter at the upsetream end of the outlet tunnel, at the top of which will be a trashrack structure of the permanent outlet works; the concrete lined outlet tunnel 11Ft 6in in diameter; a gate chamber located near the axis of the dam in the outlet tunnel; andan elevator shaft from the gate chamber to a reinforced concrete elevator house at the crest of the dam. The elevator shaft will be 7Ft 6in by 5Ft lin in inside dimension. After diversion of the river through the temporary diversion tunnel has been discontinued, the tunnel will be closed with a concrete plug which will form th connection between the inlet shaft and outlet tunnel. The discharge through the outlet works will be controlled by a 30 in. ring follower emergency gate and a 30 in. hollow jet valve for large discharges, and a 14 in. cone valve and a 14 in. hollow jet valve for smaller discharges. The elevator house at the crest of the dam will be approximately 14Ft 6 in. squate and 24Ft high and will house the elevator and the gate-opeerating mechanisms. Four earth fill dykes with upstream slopes protected by rip-rap and downstream portions consisting of rock or gravel fills are built in low places in the rim of the reservair.

The borrow area for the main embankment is within 5000Ft. of the fill; also no pre-irrigation is considered necessary as the original moisture content is sufficient. However, a water-truc is always kept ready in the fill, to make good any lose in moisture by evaporation. The borrow material, as excavated by the power showels contains considerable rock and boulder, 6in to 9in.diameter and as such have to be screened befor being placed in the fill. The rock is dumped in the pervious outer zone.

The material used for zone I is well graded containing not more than 10 to 12%clay .Henve actually pore pressure considerations in plscement moisture will be unnecessary. A moisture content 1.5 to 3.0% on the dry side of the optimum will be sufficient to take care of the pore pressure. Howecer as a part of a general study, piezometer tips are located at pecified points to study pore pressure developed after the dam is completed. There are 52 tips of which three are in foundation in the unexcavated portion.

The soil is packed in layers of 6in. thicknees, and the number of roller passed, using the sheeps-foot roller is 12. Movement of the roller from one end to the other is taken as one pass. In the fill, there is one fell -ow just doing the standard Proctor test on the material umped for rolling The needle reading thus obtained gives the Inspector the placement moisture and enables him to decide whether to add any water or not.

Laboratory control of Field Moisture.

It is the function of the field laboratory to take periodic field density tests and therebycheck whether the rolling had been done to give the required densit and the moisture content, and to suggest the remedies if they are not within the permissib -le limits. This is carried out in the standard way prescribed by the Bureau. The site chosen for such field density tests are rather arbitrary but in general they are distributed over the entire area and at those places where the Inspector feels compaction might not be enough. For every 30,000 yards or approximately for every 15 field density tests, one test is run completely. That is the sample secured from the field density test is subjected to gradation, sp.gravity, permeability tests, apart from the usual compaction tests. Also samples from the field density tests at all piezometer tip points, and every cross-arm(settlement) installation points, are subjected to the above tests. Also from those sites, 15/ of representative sample, is even dried and sent to the Federal Laboratory at Denver for shear and other precise tests.

Enders Dam, Nebraska.

An earth dam across the Frenchman Creek, a tributory of the Republican River in the Missouri Basin Project. The main features of the dam are: earth dam across the Frenchman Creek, an outlet works, and a spillway at the right abutment of the mam. The dam will be approximately 2570 feet long at the crest and will have a maximum height of about 100 feet above the bed of the creek. The outlet work consists of a trashrack structure, a vertical shaft, a circular conduit 7feet in dimater extending from the shaft to the gate chambet, an 11ft 6in. diamater horse- shoeconduit between the gate chamber and the valve house, and a concrete stilling basin. A 6ft by 7. 5ft high pressure hydraulically operated emergency gate will be installed in the gate chamber from which an 84in. plate steel outlet pipe installed in the horse-shoe conduitwill lead to two 60in hollow jet valves located in the valve house. The spillwa will be an open channel with a concrete gate structure at the crest of the dam, a concrete channel, and a concretestilling basin. An uncontrolled outlet in the center pier of the spillway will be constructed to provide for small discharges and the flood discharges will be controlled by 6, 50ft by 30ft radial gates. A dyke will be constructed approximately 6420 feet long at the crest and with a maximum height of about 26 feet.

The average bed level of the creek is /- 3035 and that of the water table /-3040. The soil below the river bed can be classified in a general way as SF Silty. It is singularly free from hard sound rock. As such coarse material for concrete and riprap has to be hauled from about 60 miles away. The material that appears as white hard rock in the ctut off trench was not really very hard and could be shattered under the roller. It was nerely hardened fine silt. The core material and for the main embankment is SF Silty soil for the zonel, the percentage of clay being 6to10%. Owing to the fineness and uniformity of the material the maxm. field dry density rarely exceeded 120 /c.ft and the optimum moisture 15%. The borrow area is about 3000ftupstream of the main fill. No water is added in the borrow area but pre-irrigated. However some of the new sites are not pre-irrigated. Watering in the field is accomplished by two sprinklers. As there is practically no-4 material in the soil from the borrow area, no screening in necessary. The field moisture control is by the same method as employed in granby Dam which is the standard Bureau method.

The chief problem in this project, that presents some difficulty is the de-watering the foundation of the stilling basin of the spillway. The material excavated is highly pervious and the soft white rick of the Ogallala formation, is very poor with a low sp; gravity of about 2.3. The dewatering is accomplished by the well-known multiple stage well-point system method, and by Sump pumps. The well point pipes are of 11/2 internal diameter and the header pipes 6in internal diameter. Jetting was done using water pressure of about 100bs per sq. in.

Medicine Creek Dam, Nebraska.

This is also a rolled earth filled dam, about 4000ft long at the crest, across the Medicine Creek, near cambridge. Fortunately there is no foundation problem here and hard compact shale is found at a maximum depth of 50ft. below original bed level. Care of the Creek during the construction is the chief difficulty. Since there is not much vegetation in the water shed, the run off of even a slight precipitation directly finds its way into the Creek causing considerable damage. The maximum run off is however in May and June.

causing considerable damage. The maximum run off is however in May and June. The soil is saturated with the spring thawing and any additional showers cause the Creek rise in flood. Hence the main program of work is as as follows. The Creek is diverted through a channel between the outlet work and the main dam. When the embankment has risen above the high water level, the creek is diverted through another channel near the spillway side of the dam. Meanwhile excavation for the outlet works and the spillway, in hard shale is to go on; the core trench for the main embankment is to be continued upto the outlet works andthe earth fill carried on upto an elev. of 2375 for the embankment before and during the plugging is insisted since in the case of a heavy and unexpected flood, which is not uncommon in the creek, only the plugging portion will be washed away and the spillway with its crest at 2366 will be washed away and the spillway with its crest at 2366 will save the embankment from being washed away . By this method the outlet work is used sparingly for disposing of the flood during construction.

Owing to srarcity of structural steel, the plans have been altered and the radial gated in the spillway have been dispensed with, and the crest of the uncontrolled spillway has been raised to 2386.2, the same as the top of the gates. This excees storage has necessitated an increase in earth work for the increase in freeboard.

Dewatering the core-trench in the main embankment is carried out in three staged bby the well point method. 1 1/2 in pipes spaced at 6ft c center to center are attached to 6in header and the discharge varied from 12000 gals. per min. The pipes, which are self jetting, are jetted with waterpressure forcing them down at 150 Ibs. per sq. in.

Horsetooth Reservoir. Colorado- Big Thompson Project.

This is an off-stream reserv oir formed by the construction of the Horesetooth dam, and Satanka dyke at the north end of the basin, and by the construction of the Soldier Canyon, Dizon Canyon, and Spring Canyon Dams across the three channels eroded through the east rim of the basin. To provide a low water outlet to the main reservoir outlet works at Horsetooth dam, three channels will be excavated through the high portions of the reservoir bottom.

The Horsetooth dam and Satanka dyke: The Horsetooth dam across the north end of the basin will have a crest length of approximately 1600 feet and and a maximum height of about 125 feet. The sam will consist of a moistened and rolled embankment of clay, sand, and gravel with a layer of rock riprap 3 feet thick on the upstream slope and gravel fill increasing in thickness from the crest to the toe, on the downstream slope. A concrete cut-off wall extending the full length of the dam, with the fotting extending into the bed rock, will be constructed in open cut about 1100 feet in length and will be provided with a treashrack and inlet structure, a gate chamber, under the embankment, and a valve house and outlet stilling basin at the downstream toe of the dam. The portion of the outlet conduit upstream from the gate chamber will have an 8-1/2 foot diameter circular section about 400 feet in length. The portion of the outlet conduit downstream from the gate chamber will have a 10-foot diameter twin horseshoe section containing two 72-inch diameter steel outlet pipes discharging through two 72.inch hollow jet valves at the valve house. Two 5. by 5-foot high pressure slide gates will be installed in the gate chamber. Satanka dyke, located in the saddle just northwest of Horsetooth Dam, will be about 285 feet in length and about 15 feet in maximum height, with a rolled fill embankment proteeted by rock riprap. The Soldier Canyon Dam will have a crest length of approximately 1400 feet and maximum height of about 205 feet, the Dizon Canyon Dam 1200 feet long and 220 feet high, and the Spring Canyon Dam 1110 feet long, and 205 feet high. All are rolled earth filled dams.

There is practically no difference in the construction methods adopted here from that of Granby Dam, which is referred at the beginning. The chief difference is the absence of huge bolders of 2 and 3 feet in diameter, in the Horsetooth borrow area for zone 1. So no screening is necessary and the very few rocks present (maximum sixe 12 in.) removed by hand. Also here the pervious zone 3 material is sluiced place.

Instrument Installations.

In none of the four dams mentioned above. the installation of piezometer tipe and piezometer wells are necessary since the clay content is very small and the amount of pore pressure developed will lbe well within safe limits. However as a general study, piezometer tips and wells are installed in all earth dams and these are laid out by the Bureau personnel according to the standard methods of the Bureau. Cross-arms are also installed according to Bureau specifications. This is to determine the consolidation of the main embankment during and after construction and check how laboratory results correslate with the actual field data.

SS/9/11/

30

No.F.7-8/S-42/46-S.2.
GOVERNMENT OF INDIA,
MINISTRY OF EDUCATION,
NEW DELHI 3, dated the 10th May 1949.

31

ASST. SECRETARY TO GOVERNMENT EDUCATION AND PUBLIC HEALTH DEPT. 12 MAY 1949

From

The Secretary to the Government of India.

To

The Secretary to the Government of Madras,
Education and Public Health Department,
M A D R A S.

2634?

SUBJECT:-Advanced Studies Overseas in respect of Mr.V. Venkatasubramanian, Madras Government 1946-47 sponsored scholar.- Return passage to India.

Sir,

I am directed to refer to this Ministry letter of even number dated 6.4.'49 regarding the above scholar and to state that it is understood from the American Express Company, New York that Mr. Venkatasubramanian has accepted a passage on the S.S. ROTTI due to sail by about 28.5.'49 from New York to Bombay.

EPH(E2)

Filed.

13/5/49 16/5/49

14.5.49

Yours faithfully,
Vikram Singh 9/5
(VIKRAM SINGH)
FOR SECRETARY.

'HSS'

'HPS'

No. F.7-8/S-42/46-S.II.
GOVERNMENT OF INDIA.
MINISTRY OF EDUCATION.

NEW DELHI 3, the 16th June, 1949.

From

The Secretary to the Government of India.

To

The Secretary to the Government of Madras,
Department of Education, Public Health, MADRAS.

ASST. SECRETARY TO GOVERNMENT OF INDIA
EDUCATION AND PUBLIC
46795

SUBJECT: SCHOLARSHIPS FOR ADVANCED STUDIES OVERSEAS TOUR REPORT IN RESPECT OF PROVINCIAL GOVERNMENTS SPONSORED SCHOLARS IN UNITED STATES OF AMERICA.

Sir,

I am directed to forward herewith for the information of the Provincial Government, a copy of a tour report in respect of Mr. V. Venkatasubramanian, a Madras Government 1946-47 sponsored scholar.

Yours faithfully

(VIKRAM SINGH)
for SECRETARY

(KARTAR) 15/6.

35

21

Report of the Study tour undertaken in
April 23-May 22, 1949.

V.Venkatasubramanian.
(Ref:File No:C.160/46.)

Report of the Study Tour made during April-May 1949.

22

T.V.A.

Of the Tennesse system of multiple-purpose dams and reservoirs, the Watauga and South Holsten projects are the two main quarry run rock filled dam projects. The former is almost complete and the latter is still in progress. The foundation is of Cambrian age and of Unicoi formation. Grouting had to be carried out extensively to strengthen the foundation, and to make it safe against underseepage. Usually grouting is carried out at 30 lbs per sq. in. using a mixture of 1:3 or 1:1. It is interesting to note that unlike the U.S.Bureau of Reclamation, which depends largely on deep cut off trench to prevent underseepage in its many earth dams- the T.V.A. owing to the special nature of foundations encountered, has to carry out grouting on an extensive scale. The Watauga dam was designed with the following data: earth fill, saturated weight: 125 lbs per c.Ft.; ∅:30°; C:none. Rock fill: Unitweight: 120 lbs per c.Ft.; C:none ∅=45° Factor of Safety against failure for maximum section: 1.7 . The clay content of the earth fill varied from 30% to 50%. The design appears to be a rather conservative one. In contrast to the U.S.Bureau of Reclamation practice of keeping the moisture content of the core material slightly on the dry side of the optimum, the T.V.A. prefers to keep it on the wetter side of the optimum consistent with the convenience of operation of the compacting equipment.

South Holsten Dam, now under construction, is located on the south fork of the Holsten river in the N.E. Tennesse and S.W. Virginia states. Draining an area of about 700 sq. miles, it has an average flow of 1030 c.f.s. The dam is a quarry run rock fill dam with an impervious earth fill core which is protected by a crushed rock filter blanket. The dam has a maximum height of about 285 ft, and length of 1120 ft, and a maximum width of 1120ft. The cut-off consists of a trench 25 ft wide and 4 ft deep with a secondary trench in the center for a concrete core wall and connecting grout curtain. The alluvial flood plains consist of cobbles, gravel, sand and clay in various mixes and concentrations, and 8 to 15 ft in thickness. Underneath this is a thin blanket of disintegrated sandstone and shale. Weathering extends from 10 to 80 ft below rock surface. Foundation is predominantly sandstone with a few thin shale beds ranging from a fraction of an inch to about 4 ft thick. The sandstone consists of fine grains mostly quartz, cemented with calcium carbonate which comprises about 25% volume. Hence it is obvious that the immense precautions taken are quite essential to take care of underseepage.

LABORATORIES.

The soil mechanics Laboratory at Northwestern University, Evanston, Ill., is a compact and well equipped one with facilities for both undergraduate and graduate studies. Most of the routine soil tests are done in the undergraduate courses. In the graduate field some very interesting work is in progress. The effect of specimen thickness on consolidation test results, consolidation charateristics involving cyclic loading of soils- are the two graduate studies in progress. The formerr study is just complete and gives a set of curves to correct for the disturbance of a test of a specimen of any thickness. The latter project is a very time consuming one and the preliminary studies furnish the following result that depending on the plastic properties of the soil, the repeated loading produces no special effect (same as the case of static loading), or a very definite pumping or squeezing action occurs after a few thousand cycles of loading and unloading. Another study that is in progress is the use of different types of waxes for coating soil samples to keep their moisture contents constants. The object is to find out that type of wax which does not be become brittle and crack with the passage of time, and thus keep the soil inside completely air tight.

The soil laboratories at Harvard, M.I.T., and Columbia are quite similar in their general set up. There is not much difference in the facilites for undergraduate studies. In all the above laboratories, in the consolidation test of soils, the consolidometers are provided with a counter weight arrangement, so that the test can be started with no load. The M.I.T. device for producing constant strain by means of a gear reduction system, is seen also at the Columbia University. It is a very small electric motor of about 1/2 H.P., and by means of a set of gears the speed at the working end is reduced to the required a ount at which strain is to be applied. A proving ring with a dial interposed measures the calibrated stress. M.I.T. uses the same constant strain arrangement even for ordinary direct compression tests.

A novel test for consolidation set up by Prof. Burmister at Columbia University makes use of bellows. The cylindrical soil specimen is placed on the top of copper bellows about 4 1/2 in. diameter. A circular disc is attached to the bottom of a rigid rectangular frame. This is for the soil to press against. Pressure is applied to the bellows, with a gauge recording the pressure, which slowly expands and presses the soil against the rigid upper disc and produces consolidation. The advantage in this method is the elimination of shock which is inevitable in the ordinary manual application of load.

Another interesting feature at the Columbia University Laboratory is the device for the application of lateral pressure upto the atmospheric pressure in triacial tests on sand. The test specimen is enclosed in a thin rubber tube and rests on a thin plate with a porous stone interposed. A connection through the base permits the evacuation of air from the specimen into a pressure cylinder. This induces the required lateral pressure on the specimen. The vacuum is held constant during the test (within 2 to 3 mm of mercury) by means of a mercury manostat which operates a vacuum pump through an electronic relay.

In conclusion it should be stated that most of these laboratories have attached to them a well equiped and small workshop and that enables to maintain continued progress in devising ingenious equipments.

No:F.7-8/S-42/46-S.II.
Government of India,
Ministry of Education,

New Delhi 3, the 29th June, 1949,

From

The Secretary to the Government of India,

To

The Secretary to the Government of Madras,
Education and Public Health Department,
Madras.

INSTT. SECRETARY TO GOVERNMENT
EDUCATION AND PUBLIC
50181

SUBJECT: RETURN TO INDIA FROM THE UNITED STATES OF AMERICA OF MR.V.VENKATASUBRAMANIAN, MADRAS GOVERNMENT 1946-47 SPONSORED SCHOLAR.

Sir,

I am directed to invite a reference to this Ministry letter of even number dated 10th May, 1949, regarding the above scholar and to state that the American Express Company, New York, has since informed this Ministry that Mr.Venkatasubramaniam sailed from New York for Bombay by S.S.Rotti on 4th June, 1949, and that the approximate date of his arrival in India would be 24th July, 1949. I am therefore to request you to inform this Ministry of the exact date of his arrival in India and also of the details of the post to which he may be employed by the Provincial Government in due course.

Yours faithfully,

(Vikram Singh)
for Secretary.

R.K.28/6/49

44
E2

V. Venkatasubramanian, c/o
V. Venkataramana Iyer,
Chataram Street,
Sivakasi.

Ramnad dt

The Secretary,
Education & Public Health Dept.,
Fort. St. George,
Madras.

ASSISTANT SECRETARY TO GOVERNMENT
65-215
25 AUG 1949
EDUCATION AND PUBLIC HEALTH DEPARTMENT

Dear Sir:

I am glad to inform you that I have returned from the U.S.A after completing my training there. As I have already received the official notification regarding my employment - Vide G.O. No. 2077 dated June 6, 1949 of the P.W.D., - I shall be reporting myself to duty shortly.

Yours Truly,

V. Venkatasubramanian.

Asst Engineer.
PWD

Sivakasi
August 24, 1949.

45/

Letter/Req 26/7/56 Ed/48-6 Edn Dy 29.8.49

To

The Secy to the Govt of
Madras Edn,
New Delhi. 3

Sir,

Overseas Scholarships 1946-7.
Sri V. Venkataramanan. Ref your
letter no P.T.S/S.42/46 S2 dt 29.6.49

I am directed to state
that Sri V. Venkataramanan has
reported his arrival in India on 24.6.49.
His address is:

c/o Sri V. Venkatarama Iyer
Chatram St.
Sivakasi (Ramnad Dt).

Yours
26/6/49 Cwa 29.8.49

Y.f.

Copy to the CE, PWD
Govt PWD.

31/30/8

G.160/46/A

Washington, D.C.
May 23, 1949.

From: Education Secretary,
Embassy of India in the U.S.A.

To: Secretary to the Government of India,
Ministry of Education,
New Delhi, India.

Sir:

I am directed to enclose herewith an Individual Financial Statement in triplicate for Mr. V. Venkatasubramanian, 1946 scholar, sponsored by the Government of Madras.

Yours faithfully,

for Education Secretary.

Copy forwarded to the Secretary to the Government of Madras, Madras.

for Education Secretary.

E2 42

L9393

OVERSEAS SCHOLARSHIPS SCHEME

Individual Financial Statement

9 = SEP 1949

1.	Name of Scholar:	V. Venkatasubramanian
2.	Central, Provincial (State here whether sponsored or deputationist) or State scholar, If Provincial or State scholar, give the name of Province or Indian State concerned:	Madras sponsores scholar
3.	Year of Selection:	1946
4.	Date of embarkation after completion of studies abroad:	June 4, 1949.
5.	Date up to and for which stipend or leave salary has been paid and the rate of stipend or leave salary:	Stipend paid from Feb. 27, 1947 to May 28th, 1949, at rate of $160.00 per month.
6.	Amount paid as journey allowance:	$20.00
7.	Amount paid towards railway journey in India; In case an authority to the travel agents for providing a railway ticket for journey in India has been issued, it should be mentioned here.	Nil
8.	Any other advances, advance payments, overpayments or disputable payments made to the scholar or outstanding against him, which require recovery or regularization in India:	Nil
9.	Amounts, if any, due to the scholar but not paid to him:	Nil

Signature of returning scholar: V. Venkatasubramanian

Date: May 23, 1949

Signature of competent authority: .....
Accounts Officer.

Date : May 23, 1949

BY AIR MAIL.

No.F.7-8/S.42/46 S.2
Government of India.
Ministry of Education.
New Delhi, the 14th September, 1949.

From

The Secretary to the Government of India.

To

The First Secretary,
Education Department, Indian Embassy,
2111 Massachusetts Avenue N.W., Washington.D.C.

SUBJECT:- INDIVIDUAL FINANCIAL STATEMENT OF MR. V. VENKATASUBRAMANIAN madras GOVERNMENT 1946-47 SPONSORED SCHOLAR.

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Sir,

I am directed to refer to the Individual Financial Statement forwarded to this Ministry under your letter No.G.160/46/A dated the 23rd May, 1949, and to state that it has been observed therefrom that the scholar was paid scholarship only upto 28th May, 1949 whereas he sailed for India on 4th June, 1949. I am therefore, to request you kindly to clarify this discrepancy.

Yours faithfully,

(Vikram Singh)
for Secretary.

Copy to the Secretary to the Government of Madras, Education and Public Health Department, Madras with reference to endorsement No.G.160/46/A dated the 23rd May, 1949, from the Indian Embassy, addressed to the Provincial Government.

Copy with a copy of the Individual Financial Statement forwarded to the Accountant General, Central Revenues, New Delhi, for information.

By order,

(Vikram Singh)
for Secretary.

10060/45-3-49

G 160/46/A

Washington, D.C.
22nd September, 1949.

31

ASST. SECRETARY TO GOVERNMENT
28 OCT 1949
EDUCATION AND PUBLIC HEALTH DEPT.

Ministry of Education
No.
15 OCT 1949
Diary No.

From: Education Secretary,
Embassy of India in the U.S.A.

To: Secretary to the Government of India,
Ministry of Education,
New Delhi, India.

8220

Sir:

I am directed to refer to your letter No. F.7-8/S.42/46 S.2 dated 14th September, 1949, and to enclose herewith corrected copy of Individual Financial Statement for Mr. V. Venkatasubramanian, 1946 scholar, sponsored by the Government of Madras.

Yours faithfully,

for Education Secretary.

S2

Copy forwarded to the Secretary to the Government of Madras.

for Education Secretary.

Ministry of Education
No. D. 10060/48-S II dt-
Forwarded to the Madras Govt. for disposal as it is intended for them, which has been received in this Ministry in error.
19/10/49
E.O(W)/Singh)

Secretary to the Govt of Madras Edn Dept

50

32

OVERSEAS SCHOLARSHIPS SCHEME

Individual Financial Statement

1. Name of Scholar: **Mr. V. Venkatasbramanian**

2. Central, Provincial (State here whether sponsored or deputationist) or State scholar. If Provincial or State scholar, give the name of Province or Indian State concerned: **Madras sponsored scholar**

3. *Year of Selection:* **1946**

4. Date of embarkation after completion of studies abroad: **June 4, 1949.**

5. Date up to and for which stipend or leave salary has been paid and the rate of stipend or leave salary: **Stipend paid from Feb. 27/47 to June 4/49 at rate of $160.00 per month.**

6. Amount paid as journey allowance: **$20.00**

7. Amount paid towards railway journey in India: In case an authority to the travel agents for providing a railway ticket for journey in India has been issued, it should be mentioned here. **NIL**

8. Any other advances, advance payments, overpayments or disputable payments made to the scholar or outstanding against him, which require recovery or regularization in India: **NIL**

9. Amounts, if any, due to the scholar but not paid to him: **NIL**

Signature of returning scholar
not obtainable as scholar has returned to India.
.....
Date: **Sept. 22/49**

Signature of competent authority
.....**Accounts Officer...**
Date: **Sept. 22/49**

E 3rd(a)

Overseas Scholarships – 1946-47 – Mr V. Venkatasubramanian – programme of studies

From the C.E.I., No. F.78/S.G./46-D (W.S.) 10-4-48

33

Pl. see the letter from the C.E.I. and its enclosures on pp 1-4 c.f. Mr V. Venkatasubramanian is a Scholar selected by this Govt. in 1946-47 for advanced studies in "Soil Mechanics of the earthern and Composite dams" and is intended after completion of studies, for absorption in the P.W.D. P.W.D may therefore be requested to state in consultation with the C.E., Gl if neg, whether they approve of the practical training proposed to be arranged for the Scholar, especially from the point of view of his future employment.

ES 19/4/48

Edn.vo 2645 & Cr.Loc.-1 19-4-48

17/4/48

P.W.D(M)

To A.D.S.

Please see the Govt. of India letter at p. 1 c.f. and the E & P.H. Deptt.'s note above. As suggested at 'A' above, the C.E(I) may be consulted. A draft memo is submitted.

20.4.48 20.4.48 20.4.48

20/4/48

1554 479

Issued as Memo No. 1556 M/48-1 dated 20-4-48:
From the C.E(I) No. 4352/46-M-97 dated 11-5-48.

P.W.D.(M)

To A.D.S.

Please see the Government of India letter at p. 1 c.f., the memo to the C.E(I) at p. 5 c.f. and his reply at p. 7 c.f. The C.E. states that the practical training proposed to be arranged by the Government of India for Sri. V. Venkatasubramaniam in their letter at p. 1 c.f. may be accepted. This Deptt. may agree with the C.E.

The file may be returned to the E & P.H. Deptt.

dlr 14548

Please see the notes above. A draft letter to the Govt of I is submitted for approval.

dsm 23/5/48

[letter Rc No. 26458/48. kidn dt 24.5.48] p8 c.f.
C.No 59735/48. from the Govt. Nominating of kidn
No. F.7.8/S.42/46 S.II dt 9.8.48. p11 c.f.

The Govt have forwarded the applicatin form for extension of scholarship in respect of the 1946 Scholar Sri V. Venkatasubramaniam. p13 c.f.

The extension applied for is for about 3 months and is stated to be necessary under the terms of agreement with the Bureau of Reclamation. p13 c.f.

This Govt have agreed to the scholars practical training with the Bureau. The Govt agree to the extension for the reasons stated in para 3 of p8 c.f.

11 C.f. Hence this

Expected to meet half the expenditure during the extension.

A draft letter agreeing to the extension is submitted for approval. P.W.D and Fin may see before circulation.

dsm 14/8/48

lidn no 26458/48-3 dt 16.8.48

P.W.D(M)

M 3777

To A.D.S.

The Govt of India letter at p. 11 c.f. and the E & P.H. Deptt note from bottom of p. 2 ante may be perused. The draft letter below may be accepted and the file passed on to Finance.

dlr 17.8.48

(Please see the notes from middle of p. 2 above.)

The draft letter may be accepted and the case returned to E.P.H.

V3/S. E-P11

The notes from the bottom of p 2 ante may be perused. The case may be circulated for approval of the draft letter to the Govt. The general question regarding extensions has been recently examined and orders have been obtained in Circulation that extensions may continue to be granted according

existing practice on the merits of each case].

ORM
26/8/48

TSA
4.9.48

It is the date of closing of examination.

BG.9
6.9

Education Dept.

SECRETARY, EDN. AND P. H. DEPT.
10 SEP
GOVERNMENT OF MADRAS

The scholar had already returned to India and was employed as Asst. Engineer (P.W.D.), Madras. No action is called for in this file. The papers may be recorded.

RSSr
31/5/50

1/6/50

G.O. (Ms) No. 1661 Edn., dt. 2.6.50

Overseas Scholarships - 1946-47.
Sri V. Venkataswaramanian -
Thirty papers - Recorded.