A BRIEF HISTORY OF SOIL CONSERVATION IN VICTORIA - 1834-1961

G.T. THOMPSON, O.B.E.

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FOREWORD

I was delighted when George Thompson invited me to write this contribution to his history of soil conservation in Victoria. There are several reasons for this.

First, there are few, if any, more qualified than Mr. Thompson to record the facts and circumstances which have culminated in Victoria today having one of the nation's, indeed one of the world's, most progressive and well established soil conservation programs. He not only played a leading role in assessing the seriousness of the erosion problem facing Victoria. He was also one of the most active participants in the campaign to have the problem recognised at government levels. Finally, when it was recognised, he willingly took over positions of leadership in the resulting program of correction. His award of the O.B.E., made after his retirement for Services to Conservation, was richly deserved.

Second, there has been a real possibility that the progress of events, present and future, would result in a serious loss of perspective in the total picture of Victorian soil conservation if an authoritative record of this nature were not available. It is important that present and future citizens of the State should have a permanent record of just how perilously close to disaster were the land resources of Victoria. This history should not only help them to appreciate the value of well managed land resources – as they may see them in their own times – it will also help them to appreciate the urgency of ensuring that such disastrous circumstances must not be allowed to recur.

Third, Mr. Thompson's narrative sets out the development of a soil conservation philosophy which has become acknowledged, over recent years, as being worthy of international recognition. As a result of his own dedication and that of others, Victoria is now not only borrowing land management and soil conservation ideas from overseas, as it was

forced to do in the earlier days – Victoria is now contributing solidly to the growing world fund of knowledge and technology in these relatively new scientific disciplines. It is well that this should be known and due credit be given to Mr. Thompson's part in making this possible.

Fourth, in these nineteen-seventies, many citizens still regard natural resources conservation, in all its forms, as a relatively new development of the past decade or so. They fail to give credence to the real fact that Victoria, with its original 1940 soil conservation legislation, took a huge forward step in practical conservation and, as a result, has had a commensurate lead in its total outlook on conservation. The later 1949 soil conservation legislation further consolidated the State's overall outlook. It is too little recognised, in our present day enthusiasms, that Victoria, in fact, is much further ahead in its programs of land management and soil conservation than are most other national and international soil and land conservation programs.

My pleasure is based on the fact that this foreword offers an opportunity for these points to be made. And finally, I have been privileged to know Mr. Thompson for just on twenty-five years, both in his office as Authority Chairman and in his retirement. I can assure readers of his work that it only gives a faint reflection of the real value of his own services to soil conservation. His modesty has refused to let him develop this factor.

Out of all that he tells us, one thing emerges supreme. Over barely 100 years of early settlement, the land resources of Victoria were allowed to deteriorate to a condition such that the total well being of the State and its people was at peril.

Although there is much still to be done, the rescue operation has been sufficiently successful to give assurance for the future. But it must never be allowed to happen again because, next time, we will almost certainly be denied a second chance. Nature herself is not tolerant of those who treat her with disregard.

Alex Mitchell
Chairman
Soil Conservation Authority
May 1979

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PREFACE

My early experience at Red Cliffs and elsewhere in the northern Mallee, during the years 1921–1923, and the subsequent river surveys and works undertaken by me throughout Victoria during the later 1920s and the 1930s, convinced me that the establishment of a soil conservation service was essential to the well being of Victoria. There is no doubt that my attention to the seriousness of both wind and water erosion had been prompted by discussions with and advice by A. S. Kenyon, a senior Engineer in the State Rivers and Water Supply Commission.

Hence my participation, during the later 1930s, in promoting a public and political interest in soil conservation through the Victorian Institute of Surveyors, by first presenting a paper entitled, "The Surveyor's Part in Combatting Soil Erosion". This was followed by active participation, with C. T. Clark, President of that Institute, in the organisation and running of the 1939 Symposium on Soil Conservation, with its resultant Joint Memorandum to the Premier, seeking the appointment of an official body with power to act.

Later my appointment to the Soil Conservation Board, first as part-time Member and Deputy Chairman, then my transfer to the Board as full-time Executive Officer and finally, my subsequent appointment, in 1950, as Chairman of the newly established Soil Conservation Authority, all presented challenges I was pleased to accept.

To some readers, there may seem to be an undue emphasis in this narrative on recording details regarding people who, because of lesser rank or status, do not usually have a place in an historical record of this type. I make no apology for their places in my history because I consider that the State of Victoria owes a debt of gratitude to them all for their dedication to their duties. When a job of the magnitude

which was presented by Victoria's erosion problem in the 1930s has to be tackled, the quality of staff attitudes, not just that of the leaders, can be the deciding factor between success and failure. Those early staff members succeeded in establishing a base of contributory co-operation which is still a major feature of Authority performance.

Finally, it has to be made clear that any opinions expressed in this book are my own, unless otherwise credited. These are based solely on personal observations and experience.

The preparation of this history has given me great pleasure. Today, it is also my pleasure to see the progress and extent of the practise of soil conservation in Victoria and the influence the Soil Conservation Authority is having on the care and management of land resources throughout the State.

G. T. Thompson
July, 1979

ACKNOWLEDGEMENTS

Despite my intimate involvement, since the nineteen-twenties, with the developments narrated in this book, time and memory have naturally combined to dim much of the detail which is so essential to historical accuracy. There are numerous friends who have helped to overcome this handicap.

My sincere thanks go to Alex Mitchell, currently Chairman of the Soil Conservation Authority, for his continuing help and practical support in my efforts. I am equally indebted to Aivars Stilve, until recent times Staff Officer of the Authority, for many searches through early records; to Alan Beasley, Publications and Information Officer, for many editorial hours applied to my original manuscripts.

Several other officers still in service with the Authority, and who are referred to in the narrative, also gave valuable support to my efforts – Deane Runge, now Regional Conservation Officer for the North-Eastern Region, and Ian Leslie, who is still responsible for the greatly expanded Authority soils laboratory services, are but two of these long-standing friends in need.

And finally, too numerous to me to recall by name, without risking offence by omission, are those typists who struggled through my very involved writings and the other Authority officers of all ranks who contributed towards a more reliable presentation of over thirty-five years of historical data.

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MONEY AND MEASUREMENTS

Throughout this book, the amounts of money quoted in pounds (£'s) have not been converted into dollars, because such an exercise would be meaningless to the reader. It is true that in 1966 £1 equalled $2; but it is not true that £1800 spent in 1840 is the equivalent in 1979 of $3600. Sums of money are therefore given in the actual amounts involved, and in the currency of the time.

For similar reasons, no attempt has been made to metricate measurements and quantities.

PART 1

DEVELOPMENT OF SOIL EROSION

The First Signs

Early settlers and governmental surveyors were impressed with the quality of the land which was developed as the Port Phillip District. Yet within twenty years of the first settlement, unmistakable signs of the onset of soil erosion were becoming apparent in some parts of the new District. Almost 100 years were to pass, however, before any positive action was organised to combat and control this destructive loss of soil and its fertility.

In 1831, John G. Robertson arrived in Van Diemen's Land with two-and-sixpence in his pocket. He worked in the Campbelltown district as an overseer and by 1840 had saved £3,000. He then followed the Henty brothers to Portland, having purchased 1,000 ewes, six working bullocks, two cows and a horse for £1,800, and settled in the "Wannon country".

In 1853, he addressed a lengthy letter to the Governor of Victoria, Charles Joseph Latrobe, in which he described his experiences. This letter appears in the book, "Letters from Victorian Pioneers", by J. S. Boade. In it, he refers to the thick forest land between Portland and the edge of the Wannon country, where he had originally found splendid country with " . . . lovely dark green pasture – all eatable, nothing had trodden the grass before – thirty-seven grasses formed the pasture of his run. There was no silk grass which had been destroying the V.D.L. pastures". His sheep did well and were clean of 'scab'.

Surveyor Charles J. Tyers, who mapped the country between Portland and Wannon River, reported in 1843 that he had found " . . . fine open forests well grassed". Another staff surveyor, named Urquhart, of the same era, recorded fine open plains, with belts of box and casuarina,

along the course of the Loddon River. Surveyor John Stark was engaged on surveys around the Charlton area and recorded on a map of the West Charlton run of 89,000 acres, " . . . good soil, lightly timbered with gum and sheoak, well grassed".

Early settlers in the Port Phillip District came from Sydney-side and Van Diemen's Land. They found grass in abundance and, in 1836, Major Mitchell, Surveyor-General, suggested to Governor Sir Richard Bourke that the district should be named Australia Felix, because of its fine pastures, fertile soil and its beautiful park-like appearance.

As early as 1844, a change was becoming noticeable. John Robertson had occupied 11,810 acres and was grazing 10,000 sheep. The 1841–43 seasons had been bad ones, causing many of the early settlers to fail and leave the district. Bushfires occurred every year, no doubt lit by the settlers. A severe frost occurred on 11th November, 1844. This killed nearly all the beautiful blackwood trees and led to " . . . the gradual disappearance of herbaceous plants from his pastures and the appearance of silk grass".

In his 1853 letter to the Governor, he describes the situation in the district as he then saw it. "The long deep-rooted grasses that held our strong clay hills together have died out, the ground is exposed to the sun, and it has cracked in all directions. The clay hills are slipping in all directions, also the sides of precipitous creeks, long slips, taking trees and all with them. All the creeks and little watercourses were covered with a large tussocky grass, with other grasses and plants to the middle of every watercourse".

He further described how the soil was being trodden down hard with stock, springs of salt water were bursting out in every hollow or watercourse, and the strong tussocky grasses were dying out. The clay was left bare in the summer, cracks developed in winter and rain washed out the clay. Every little gully became a deep rut and, when rain fell, it ran off the hard, bare surfaces, rushed down these ruts into drainage lines and the larger creeks, carrying earth, trees and all before it. The Wannon country became difficult to ride over, as the ruts became as much as seven, eight and ten feet deep, and just as wide. They extended for miles over land on which, only a few years before, the natural drainage depressions had been covered with tossocky grass as a natural protection. These ruts became known as "gullies" – a form of erosion to become common throughout the State.

This letter by J. G. Roberson appears to be the first recorded evidence

of man-caused erosion in Victoria. For many years after that, however, soil erosion appears to have aroused little public interest.

In 1943, almost 100 years later, C. T. Clark, Deputy Surveyor-General and member of the Soil Conservation Board, wrote a series of articles entitled, "The Story of the Soil". In it, he presented a picture of the age-long processes of soil formation, of the menace of soil erosion and of the attempts so far made to combat this rapidly growing menace. He wrote, "A widespread appreciation of the slow processes of soil formation, of the increased demands made on the soil by civilized man, and of his derangement of Nature's balanced plan of life, is fundamental to a realisation of the necessity for adopting methods of land use that will enable us to make the soil a permanent and improving asset rather than a wasting one.

"The warnings in the fate of earlier civilizations that have been overwhelmed by soil erosion, and in a waste increasingly apparent in the land of the new world, are a challenge to the intelligence and ingenuity of our present civilization."

There were several major causes of this devastating situation. The early settlers in Victoria naturally applied the systems of agriculture that were being practised in England and their other countries of origin. They made heavy demands upon the soil by introducing large flocks and herds of hard-hoofed sheep and cattle to graze on the native grasses where formerly a much smaller native population, of soft-footed marsupials and other animals, had grazed without disturbing the natural balance of the land.

Sheep prefer short, sweet pastures and the squatters soon found that, by burning off the tall dry grass, succulent picking for the sheep would follow the next rain. Fires lit for this purpose often got out of control and burnt large tracts of forest, killing delicate ground vegetation and leaving the thin film of topsoil vulnerable to erosion when the next rains occurred. In one day of heavy rain the soil, which had taken thousands of years to form, could be washed away. Even if it did not rain, the soil was exposed to wind action and could be blown away.

Rabbits were introduced and spread rapidly throughout the country, adding to destruction of the native pastures.

The discoveries of gold in many places resulted in vast areas of uncontrolled land disturbance, often along the natural watercourses. The heavy demand from the surrounding country, for mining and

construction purposes, led to destruction of valuable protective forest cover. As the gold cut out, the despoiled areas were abandoned to the destructive forces of uncontrolled surface water flows.

As settlement developed, and the cumulative effects of these disruptive methods of land use over some years began to be felt, the occurrence of soil erosion in its various forms increased, although it does not seem to have aroused much concern. There can be no doubt however, that most of the severe gully erosion which, by the 1920s, had become so extensive in all the hill country across central Victoria and in many other good rainfall areas, had commenced well before 1900.

Mallee Wind Erosion

In 1967, Sir Ronald East, Kt., C.B.E., a former Chairman of State Rivers and Water Supply Commission, presented a paper to the Historical Society of Victoria entitled, "Water in the Mallee". In this paper he described early Mallee conditions and some of the problems faced by the settlers in that territory. He quoted from earlier writings by A. S. Kenyon, who had been closely associated with the early development of water supply in the Mallee. Two quotations on the subject of the development of wind erosion on Mallee lands are appropriate:

"Settlers had occupied the whole frontage of the Murray by 1844 and, by 1845, the wave of pastoral settlement had just about reached the Mallee. By 1849, all lands with good, bad or indifferent water supplies in the Mallee had been taken up by squatters. However, this left by far the greater part of the Mallee unoccupied. It was regarded as worthless".

The second quotation reads:

"In 1879, the Secretary (Martin) of a Royal Commission on Crown Lands wrote of the Mallee ' . . . some native water wells, a lagoon or two and a few muddy waterholes are to be met with, scattered far apart over an area extending over some thousands of square miles, but they are more frequently found dried up than otherwise. All through this parched country there is no grass.'"

By 1891, this evaluation of the Mallee has changed, for the then Minister for Water Supply, the Hon. George Graham, is reported to have said, "This large tract of country which, until a few years ago, was looked upon as almost uninhabitable waste, has in these latter days proved splendid wheat growing country. As a consequence,

it is becoming settled by an agricultural population whose permanent occupation or otherwise will depend upon a sufficient water supply."

Investigations showed the feasibility of directing water into the Mallee from Lake Lonsdale. By 1898, temporary works at the lake and along the Yarriambiack and other creeks enabled water to be channelled to Warracknabeal and the adjacent Mallee country. This Wimmera-Mallee stock and domestic water supply system was gradually extended northward as far as Underbool, Ouyen and Annuello. Later still, supplies were pumped from the Murray River into the Carwarp-Nowingi country and from Lake Cullulleraine to the Millewa. Artestian bores met the needs of the Underbool-Murrayville farmlands.

Thus it became possible to settle all Mallee country considered to be suitable for wheat growing and sheep grazing. It was not foreseen however, that as soon as this light, sandy soil was cleared of its protective natural vegetation, wind erosion would result. There is little doubt that, in earlier times, the Mallee was more or less devoid of natural cover and that the east-west sand ridges, which are general throughout the northern Mallee, were formed by wind activity. However, by the time white settlers arrived, this country had become well protected against erosion by an effective holding association of natural mallee scrub, which gave the area its name. As soon as the settlers removed this cover and cultivated the land, the soil started to 'blow'.

By 1920, wind erosion had become a serious problem, particularly in drought years. Carried by the wind, Mallee soils caused storms of red rain to become common over Melbourne. The red dust went even further afield, so that red snow fell on the southern Australian Alps and even across the Tasman, in New Zealand. The costs of clearing sand from the Mallee water channels, to enable them to supply farms during the winter months, increased year by year.

The tops of the sand ridges were denuded, to expose vast areas of limestone boulders or heavier subsoil. Weirdly contorted mallee stumps, left in the ground when clearing took place, perched on their root systems many feet above the new soil surfaces. Some of the soil so moved was caught in any surviving uncleared areas, particularly along road reserves, which in turn became impassable because of this accumulation of sand. Traffic then had to move over into adjoining paddocks and travel on the cleared land adjacent to the road reserve.

Early in 1921, I was appointed by the State Rivers and Water Supply Commission to the position of Surveyor-in-Charge of surveys for the Red Cliffs soldier settlement project.

The natural vegetation at Red Cliffs consisted of pine-belar-mallee associations, with an understorey of many shrubs and grasses, which together protected the sandy soils of the area. Except for some areas of ridge land above the level of the channels, all natural vegetation was cleared and much of it was burnt on the ground. This exposed the soil to wind erosion. The soil immediately began to move with the wind and dust storms were frequent, particularly during the summer months.

I recall how the survey camp was located to the west of the railway line, and took the full blast of northerly and westerly winds carrying heavy loads of dust. I soon realised that the only way to avoid large accumulations of dust in the tent was to open the flaps to the front and rear, and allow the dust to blow straight through. There were similar problems in the galvanised iron shed which served as my office. Papers and plans often became coated with red Mallee soil during the hot summer months. Fortunately for Red Cliffs, it was irrigated and planted to vines and citrus before the wind erosion could assume disastrous proportions.

The situation was quite different with the dry-farming areas to the south and west of Red Cliffs. The Yatpool, Carwarp and Nowingi districts were subdivided and made available for dry wheat farming and sheep grazing at about the same period as Red Cliffs was developed. The Millewa country to the west of Red Cliffs, extending through to the border of South Australia, was subdivided for the growing of wheat and other cereals and came into production a few years later. Water for stock and domestic requirements was delivered by channel during the winter months, but not for irrigation.

Severe wind erosion soon became a serious problem over all this low rainfall area in the northern Mallee. Wheat varieties had been bred to suit the climate and soils but the popular belief was that, to enable a buildup of sufficient moisture in the soil for satisfactory crop growth, a year of bare fallow prior to sowing was required. The normal rotation practised thus became – one year of bare fallow, a year to grow and produce the wheat followed by a year of grazing on the stubble (with an occasional burn) then again into fallow. This system of farming continued through the 1930s with disastrous results.

Gully and Sheet Erosion

The Great Dividing Range forms an east-west watershed between the north-flowing streams leading to the Murray River and those flowing southerly, directly to the sea. The soils of this extensive band of country vary according to their geological origin and local climatic conditions. Some, however, such as the sedimentary soils of the Silurian and Ordovician ages, are much more susceptible to soil erosion than those of volcanic origin. Gully and sheet erosion, landslips and salting developed to an alarming extent on these sedimentary soils after the natural forest cover was cleared for grazing, thus exposing the soil to the erosive action of heavy rainfall.

The most extensive belt of sheet eroded country and gullying lies on the northern slopes of the Great Dividing Range, where the rainfall varies between 350 and 900 millimetres, mostly in the form of torrential summer and autumn storms. This belt of country extends from the Dimboola–Ararat–St. Arnaud territory in the west through Maryborough, Benalla and Beechworth to as far as Corryong, in the far north-east of the State.

South of the Great Dividing Range, severe gullying and landslips were extensive, with sheet erosion apparent in some areas. The Coleraine–Casterton, Sunbury–Whittlesea, Parwan Valley and Omeo districts were probably the worst affected areas.

A unique form of erosion, not previously recorded anywhere else in the world, developed in this same belt of country. Because of its nature, it was called tunnel erosion or tunnelling. Early examples were found north-east of Stawell, south of the Broken River near Gowangardie and in the Parwan Valley near Bacchus Marsh. It was caused by runoff water passing into a small surface crack or down an old tree root or rabbit burrow, to burst out some distance down-slope, taking the sub-soil with it and then depositing it on the surface. These "tunnels" enlarged and ultimately the roofs collapsed, so that they became gullies. No international reference was available on this form of erosion and subsequently it was found to be unique to the sedimentary soils of Victoria.

Degradation of Streams

About 1885, public concern had been aroused about the siltation of some Victorian streams, caused by the alluvial mining operations then in full swing. These were particularly active along the tributary creeks

and gullies leading to the Loddon River. The Ovens River and the Bendigo, Yarrawee, Deep and Campbells Creeks, and many other rivers and creeks, were also badly affected.

In 1939, W. Baragwanath, Director of Geological Survey, addressed a symposium, his subject being, "Soil Erosion and Mining". In a review of the gold mining industry, he stated, "Gold was found chiefly on the quartz-strewn hills or in the adjacent valleys . . . the miners sank their shafts in the valleys and on the hillsides . . . the gold bearing 'wash-dirt' was puddled on the adjacent water courses. The accumulated debris blocked the streams and was eventually washed away by flood waters. However, the area of scattered goldfields was less than 3,000 square miles, of which less than 300 square miles was systematically mined, from which gold to the value of 300 million pounds was won. Ground sluicing and hydraulic sluicing became popular but there was no legislation to control the working of the sluicers. The overflowing of sludge channels and siltation of river flats attracted public attention and concern and, in 1887, an official Board was appointed to enquire into the sludge question and a report was produced".

Extracts from that report state:

"In those early days (1850s), wherever gold was discovered in the colony, the diggers plied their avocation regardless of future consequences, and thus it became that, from the earliest times, the creeks and rivers were looked upon as a natural outlet for the debris from the mines, no thought being given to the ultimate effect of filling up the watercourses."

"The injuries already inflicted and which, unfortunately, in many cases, cannot be cured, consist of the filling up of the large clear watercourses in the creeks and rivers, the silting up of the river beds causing sludge to overflow on the adjacent lands, to the destruction of vegetation and fruit trees; the liability of horses and cattle going to the water in the creeks being bogged in the sludge and perishing there, or contracting disease by drinking the muddy and often mineralised water . . . these, and the destruction of roads and bridges, are some of the evils arising from the absence of foresight on the part of the legislature in years gone by, and the want of care on the part of the miners."

No immediate legislation for the control of these operations resulted from this report but some of the larger mining companies, which were working the deep alluvials and operating crushing batteries, were persuaded to, and in fact did, construct a series of sludge dams which were reasonably effective.

Severe floods in the 1890s accentuated erosion of the banks of many Victorian rivers and streams. This probably led to the extensive plantings of willows along the river banks, a remedy which later, in some cases, proved to be disastrous.

It was not until 1904 that the Mines Act was amended to provide for some control over the quantity of sludge, from mining operations, that would be permitted to enter any natural watercourse. The Sludge Abatement Board was established in 1905, under the provisions of this legislation. This two-member board was given the responsibility of controlling the amount of sludge permitted as effluent into streams and other bodies of water from mining operations, particularly the sluicing and dredging for gold. William Baragwanath and A. S. Kenyon, of State Rivers and Water Supply Commission, were the two members during the nineteen-twenties and thirties.

Perhaps the fact that the original 14,000 acre feet capacity of Laanecoorie Reservoir, constructed about 1890 on the Loddon River, had been reduced by siltation to half this capacity, demonstrated the obvious need for control.

Whilst the reduction of the quantity of sludge from mining operations may not have been intended to be a measure for the planned control of soil erosion, the appointment of the Sludge Abatement Board was undoubtedly the first positive action taken in Victoria towards the control of soil loss.

PART II

THE CAMPAIGN FOR SOIL CONSERVATION

Early Investigations, Committees and Conferences

In 1917, an inter-departmental committee, the Erosion Enquiry Committee, took steps to collect information on the incidence of erosion in Victoria. This committee was formed by the Minister of Public Works " . . . to consider schemes that, on scientific and practical lines will provide a speedy and equitable means of meeting the serious problem of erosion in Victorian streams and valleys". No definite action resulted.

About 1921, erosion in water supply catchments and consequent siltation of reservoirs became a live matter. In 1925, the River Murray Commission requested that action be taken to prevent destruction of forests on Crown lands in the Hume catchment. In 1927, a conference of the heads of interested departments was held. It recommended the appointment of a Board to review the position in catchment areas.

Meanwhile, the increase in Mallee farm development, in the 1920s, and a succession of dry years, had aggravated the troubles caused by wind erosion and drifting sand.

The droughts of 1929–30 and 1930–31 intensified this wind erosion right throughout the Mallee, and many miles of the stock and domestic water supply channels were filled with blown sand. The cost of channel clearing in 1929–30, to allow the run of water, was £163 000, as against a normal annual cost of about £60 000. During the summer of 1931–32, several badly sand-drifted channels were abandoned.

A growing public realisation of the importance of soil erosion, in relation to the national economy, led to agitation by various public organisations, government departments and Members of Parliament, that steps be taken towards its control.

The Sand-Drift Committee (1933) was appointed to investigate and report on the problem of wind erosion in the Mallee.

The members of this committee were:

Chairman: R.F. McNab, Engineer-in-Charge of the Wimmera-Mallee water supply.
Members: P. Campbell, Surveyor General
J. Brake, Senior Inspector, Department of Agriculture
A. Louis Bussau, M.P., representing Mallee electorate
J.K. Glen, North-Western Shires Association
Secretary: L.N. Welch, State Rivers and Water Supply Commission.

In its report dated 17th March, 1935, this committee recommended:

(1) The appointment of a board of three members, to consist of two departmental officers, with the third member to represent farming interests.

(2) That full powers be given for dealing with the sand-drift problem in the Victorian Mallee.

The report also recommended limitations on the clearing of natural timber and tree cover, particularly from sandy ridges on land under Selection Purchase Leases; prevention of burning of stubble or other herbage closer then five chains to a channel or other works; the prevention of fallowing within three chains of a channel or other works.

Despite the time and effort devoted by the committee to its task, however, the board never eventuated.

In August, 1936, soil erosion was one of the subjects discussed by a conference of Commonwealth and State Ministers at Adelaide. The conference decided that all State Governments should be asked to form soil erosion committees.

Following this, in 1937, the Victorian Government appointed a committee to enquire into the incidence of soil erosion in Victoria.

The members of this Erosion Investigation Committee were:
Chairman: W. McIlroy, Secretary for Lands
Members: J. Brake, Superintendent of Agriculture
H.G. Strom, Divisional Engineer, State Rivers and Water Supply Commission

W.J. Lakeland, M.B.E., Engineer, Forests Commission
Secretary: J.D. O'Carroll, Lands Department.

Comprehensive inspections of soil erosion of all kinds throughout the State were made and the various measures that were being used by the landowners and departments, in their endeavours to arrest the loss of soil and to prevent siltation, were noted.

The committee's report, submitted to the Government in February, 1938, was well illustrated. It depicted startling evidence of gully, sheet, and river erosion, and emphasised the fact that these forms of erosion were extending. However, the report maintained, if positive action were taken, further extension could be arrested and some of the damage caused could be remedied.

Extracts from the report read:

"The real cause of most erosion can be attributed to the mistreatment by man of the soil and other natural resources in his endeavour to collect the greatest return in the shortest time . . . We can learn much from experience in other countries of the general principles of erosion control but we must work out our methods of practical application . . . The question resolves itself into the correct type of utilization of each acre of land by methods suited to its natural characteristics so that the greatest production may be maintained with the least possible damage and loss."

The committee recommended to the Government:

(1) The control of erosion in catchment areas, and on State-owned land, by a Soil Conservation Committee consisting of a technical officer from each of five departments.

(2) Appointment of an executive staff of three officers to initiate and conduct educational projects; form local erosion control committees and supply appropriate advice to landholders; record information; arrange experiments and carry out control measures recommended by the Soil Conservation Committee.

(3) Extension of the experimental work of the Mallee Research Station.

(4) An increase in the available money for the Rivers and Streams Fund, which had been established in 1931 to provide funds for the

reducing of stream erosion and to undertake minor flood protection works.

(5) Legislation for the formation of River Improvement Trusts and for the ultimate formation of Catchment Boards.

Again, as with the earlier Sand-Drift Committee's recommendations, no action was taken by the Government. However, there is little doubt that the 1933 and 1937 enquiries, with Jack Brake, Superintendent of Agriculture, as a member of both Committees, led, in the first place, to the establishment of the Mallee Research Station at Walpeup in 1935, and its later development.

This made possible a concentration on experimental work, aimed at improving methods of farming Mallee lands, with the intention of reducing the severity of wind erosion. The first manager was H. L. (Les) Hore, later to become Chief Agronomist, Department of Agriculture, and representative of the Department on the Soil Conservation Board.

As this experimental work developed, the results were demonstrated, on the Station, to Mallee farmers. In later years, they were of considerable assistance to the Soil Conservation Board and its officers, in their early endeavours to persuade farmers to practise more stable methods of farming the light Mallee soils.

The lack of action on the report by the Erosion Investigation Committee had not passed unnoticed by the press. As a result, one of the lighter sides of political history was born. The Hon. A. A. Dunstan, Premier, visited the Mallee about this time and, when questioned on his return, regarding the Mallee situation, he was reported to have said, "I saw no erosion there". The press promptly labelled him, "Albert the Ostrich" and for the rest of his political career, he was likely to be caricatured as an ostrich with its head buried in the ground whenever his decisions were criticised in the press.

In 1938, legislation made provision for the State Rivers and Water Supply Commission to prohibit cultivation within one chain of its channels in the Mallee. In 1942, this was increased to three chains. This, too, was the outcome of a long history of investigation and effort.

Control of Stream Erosion and Flooding

Shortly after the investigation by the 1917 inter-departmental committee, a small group was established in the State Rivers and Water

Supply Commission. It was known as the Rivers and Streams Branch. The branch was responsible for making investigations into erosion and flooding problems along streams throughout the State and advised shire councils and landowners on remedial measures. It was the predecessor to the Commission's Rivers and Reclamation Division.

Until 1931, when the Rivers and Streams Fund was established, there were no funds available from which assistance to other authorities and landowners could be given. Initially, the money in this fund came from river frontage rentals collected by the Lands Department and the fund was administered by Treasury. A committee, consisting of C. Kermode, Chief Engineer of the Public Works Department and A. S. Kenyon, of State Rivers and Water Supply Commission, considered applications for financial assistance from constituted authorities, mainly municipal councils, and recommended grants towards the cost of desirable correction or preventive works. The new branch ensured that correct attention was given to the assessment of these problem areas.

At that time, A. S. Kenyon was active in the various fields of erosion control. As L. R. (later Sir Ronald) East, was then an Assistant Engineer and I was a surveyor, and later River Engineer, in Kenyon's Branch of the Commission, it is obvious how Kenyon's influence on us both was responsible for our growing understanding of the problems of soil erosion, both by wind and water.

My own experience during 1921–23, in the Northern Mallee, led me to enquire into the cause and effects of wind erosion. Similarly, with experience on river surveys in Gippsland during the following two years, my concern had been aroused over the problem of river erosion.

In 1932, A. S. Kenyon was appointed Commissioner of the State Rivers and Water Supply Commission, and L. R. East was made Divisional Engineer – Rivers and Streams. In January, 1935, on A. S. Kenyon's retirement, L. R. East succeeded as Commissioner. H. G. Strom, District Engineer, Shepparton, became Divisional Engineer, Rivers and Streams Division. During this period, my responsibilities included most of the inspections and recommendations for river improvement works relative to the Rivers and Streams Fund.

When unemployment relief funds became available during the mid-1930s, money was allotted for topographical surveys of rivers and their flood plains. The first of these was a small survey of Campbells Creek at Chewton. Its purpose was to investigate the possibility, as an

unemployment relief project, of reclaiming the flats which had been virtually destroyed by alluvial mining operations. Unfortunately, the proposed works were not accepted as an unemployment relief project.

This survey was followed by many other river surveys throughout the State, and the recording of stream bank erosion became standard practice. In time, a substantial amount of river improvement work, mainly the removal of snags and obstructions, was carried out with unemployment relief funds.

The Development of Positive Action

In 1939, two events occurred which directly contributed to the adoption of the legislation which enabled the problems of soil conservation in Victoria to be tackled at government levels. The first was the Royal Commission, conducted by Mr. Justice Stretton, on the catastrophic bushfires of that year. In his report, he gave his opinion on the acceleration of erosion caused by bushfires. He stated that the correct utilization of land would go a long way towards enabling the two menaces – fire and soil erosion – to be brought under control. He recommended the appointment of a committee of experts, chosen from several public departments, to make recommendations for control of land use.

The second event involved me personally, in my professional capacity. Late in the 1930s, my activities included membership of the Council of the Victorian Institute of Surveyors and, in September, 1939, I addressed the Council on, 'The Surveyor's Part in Combatting Erosion'.

A quotation from that address reads, "The Surveyor, by reason of his qualifications and general knowledge of land, gained in his various experiences on surveys, is pre-eminently fitted to recognise early signs of erosion, to undertake investigations and the layout of remedial measures".

References were made to the kinds and extent of erosion occurring in Victoria and to the river and gully control works of various kinds that were being constructed at that time with assistance from the Rivers and Streams Fund. A survey of siltation in the Eildon Reservoir, early in 1939, had revealed that some 1,600 acre feet of storage had already been lost by recent man-induced siltation. Sand clearing of channels in the Mallee was costing an average of £60,000 each year to enable the annual run of water to be made available to Mallee towns and farms.

The paper concluded, " . . . the Victorian surveyor has been neglectful of his duty to the community in not giving earnest consideration to this subject before now. We are in a position to judge the effect of erosion and should be able to present a strong case for the introduction of suitable legislation."

Discussion on this paper was brisk and, under the guidance of the President, C. T. Clark, Senior Surveyor of the Lands Department, the decision was made to organise a symposium on soil erosion and to invite interested organisations to co-operate. These were the Institution of Engineers (Melbourne Division), Australian Institute of Agricultural Science (Victorian Division) and the Institute of Foresters of Australia (Victorian Division).

The symposium was held in Kelvin Hall in November, 1939. It extended over four weeks, meeting on two evenings of each week. Eleven introductory papers were presented by seven Heads of Department, three departmental officers and one landowner. These were followed by fourteen papers of a practical nature, presented by senior officers from Agriculture (3), Mines (1), State Rivers and Water Supply Commission (4), Lands (2), Forests Commission (3) and the Geology Department of the University of Melbourne (1). All meetings were well attended and discussion was brisk and informative.

The following extracts are taken from addresses given at this symposium:

"Many of the present generation can remember well the creeks and waterholes in which, as boys, they swam or fished for blackfish, but which today no longer exist. Many a farm that once had an assured supply of water in a little creek coming out of the hills is today waterless in summer or dependent upon excavated tanks because the waterholes have gone and the creek has become simply a shallow depression that forms a swamp in winter." – (L. R. East, Chairman, State Rivers and Water Supply Commission.)

"The great majority of Victorians were blissfully ignorant that there was any actual danger from the ravages of erosion in this comparatively recently settled country. We had not noticed anything untoward about an odd scour or two we observed as we travelled around the countryside. In recent years, however, the question of soil erosion has become one which is interesting many organisations, as well as private individuals, to such an extent that there is now an insistent demand for a comprehensive movement towards the adoption of measures for the

correction and prevention of erosion." – (W. McIlroy, Secretary, Department of Crown Lands and Survey.)

"From my own personal enquiry into this matter, I believe that erosion in various forms has been contributed to by the lack of understanding of its dangers wherever it has become necessary to make use of land, whether it be for public purposes or for private gain.

We are all prone to zealously exploit the soil in the manner best suitable, for the time being, for our purpose as we see it, paying little, if any, attention to the harmful effects which may result. Does the landowner pause to consider the depreciation of his own and his neighbour's property as the result of his efforts to extract an immediate return from the soil? The answer is in the negative and the reason is simply that the average person has never had the matter forcibly brought under his notice." – (W. McIlroy.)

"The State's soil and water resources will not be kept in the highest state of efficiency unless a responsible public body is charged specifically with the work of preserving our natural resources in a state of efficiency and given legal power to prevent deterioration." – (H. A. Mullett, Director of Agriculture.)

"The railway bridge over the Avon River at Stratford was constructed in 1887. In 1893, heavy erosion washed out some of the timber spans and the steel section had to be extended 300 feet. In 1909 a further 400 feet was added despite protective measures such as spalling and planting of willows. Up to about 1935, sand-drifts covering the railway tracks in the Mallee were removed by track gangs and thousands of yards had to be removed annually. Wind chutes with a gap of two feet above the surface were built, about nine feet out from the rails wherever the drift was troublesome. By 1939, these chutes had substantially reduced the cost of sand removal." – (E. Richard, Engineer, Railways Department.)

"All available evidence points to injudicious removal of the natural forest vegetion as the root cause of excessive erosion, soil degradation, siltation of streams with consequent flooding. The absolute limiting factor in Australia's development is water, and its conservation can be assured only by the very strictest regulation of land use at the source of the streams. Careful delineation of the highland areas to be permanently maintained under systematic forest management primarily for water conservation is a vital matter.

"Such areas should be inviolable and from them all influences detrimental to the protection of our water supplies should be excluded." – (A. V. Galbraith, Chairman, Forests Commission.)

"Soil erosion is a national problem, and its result directly affects every section of the community whether rural or urban. It is accordingly urged that city dwellers and city organisations join with country interests in pressing the demand for action to establish a sound national soil conservation and reafforestation policy." (A. E. Kelso, Engineer for Water Supply, Melbourne and Metropolitan Board of Works.)

"Erosion causes a direct charge on the budget of £200,000 per annum and has caused a reduction in production of the State of about £300,000 per annum, which has the effect of reducing state income through taxation and other revenue by approximately £750,000, so that the cost to state revenue is in the vicinity of £1,000,000 per annum." – (J. A. Aird, Chief Irrigation Officer, State Rivers and Water Supply Commission.)

"What is a farmer? According to the dictionary he is a man who 'farms or cultivates land', but unless he does so without robbing the land of its fertility, he is a miner. A miner cannot reproduce, therefore a good miner takes as much as possible out of the mine by putting as little as possible into it. When this is done, the mine is useless. But a farm can be made to produce continually. If a farmer exhausts his farm then he has been misnamed, for he is a miner. Every time a farmer takes a crop off his farm he has drawn a cheque on the bank of fertility, and if he does not put some fertility back into his farm, very soon his bank account is overdrawn and that is where erosion starts. Erosion is the price that sooner or later has to be paid for exploiting the soil. The system of fallow, crop and turn-the-stubble, and fallow, crop and burn again – the system that had been successful in the Wimmera – was adopted in the Mallee. The system was an ideal one to create erosion by exhausting the humus in the soil." – (H. H. Hanslow, Commissioner, State Rivers and Water Supply Commission.)

Hanslow also spoke on the colloquiolism, "Ten-minute land", as it applied to the soils of northern Victoria – after rain, a farmer has ten minutes to do his ploughing, then it sets too hard.

"Man and all forms of land life draw their life from the sun, clouds, air and earth, through a tenuous film of topsoil, indispensable and, if rudely handled, impermanent. The constituents most readily transported by wind or water are the fine particules of organic matter, silt

and clay which contain most of the nitrogen, phosphoric acid, potash – in short, the very life essence of the soil.

"The word insidious, meaning treacherous, proceeding secretly as a disease, fits well the early stages of sheet erosion, for even when the reduced productivity of the land begins to be felt as a permanent loss, erosion is seldom given its just share of the blame.

"'Worked out' is a term that has often been applied by countrymen to both pastoral and agricultural lands, their meaning being that the nutritive value of the soil has become exhausted by the growth and removal of plants and there is no doubt that continual cropping or grazing without replacing the soil fractions which go to the building of the particular crop must result in deterioration." (C. T. Clark, District Surveyor, Lands Department.)

The full text of all the addresses given was later published in a book, "Soil Erosion in Victoria". This is still the most comprehensive book ever produced in Victoria on the subject of soil erosion and its control.

During the progress of the symposium, a Joint Committee was appointed to consider recommendations for submission to the Government. It consisted of: C. T. Clark, W. Baragwanath, G. T. Thompson – Institute of Surveyors; A. E. Kelso, H. G. Strom, W. Lakeland – Institution of Engineers; W. B. Miller, H. G. Geddes, Prof. S. M. Wadham – Institute of Agricultural Science; A. A. Hone – Institute of Foresters of Australia.

This committee considered the problems of erosion in Victoria and the steps that were being taken in other States and countries to combat erosion and promote effective husbandry of the soil. By that time, the Governments of New South Wales and South Australia had both passed legislation and established organisations for soil conservation. In 1938, in New South Wales, legislation had been passed for establishment of a Soil Conservation Service, under the control of a Director. In South Australia, sand-drift control legislation had been passed in 1923 and 1935, and a Soil Conservation Act in 1939. In both States, the services provided for in these Acts were in operation.

In its report, the Joint Committee of the symposium stated its " . . . firm belief that action to combat erosion and promote effective husbandry of the soil is urgently necessary". It recommended the appointment of a representative board, to be composed of technical experts in the various aspects of land utilization and rural interests. The

departments concerned were Lands and Survey, Mines, Agriculture, Forests and the State Rivers and Water Supply Commission. An additional two representatives, one each for farming and grazing interests, were recommended. The report went into some detail on the powers, duties, staffing and finance that should be given to the board. Early in 1940, a Memorandum embodying these recommendations, prepared by the Committee, was submitted jointly by the Institutes to the Premier. Once again, no Parliamentary action seemed likely but, on this occasion, an unexpected pressure came to the surface.

"The Pocket Dynamo" – Forcing a Decision

When Government reaction to the Memorandum seemed to be negative, the selfless actions of one man, prompted by his total dedication to conserving the soil and water resources of the State, provided an extraordinary and sudden impetus to the hitherto lethargic decision-making attitudes which had become only too apparent in the political area.

The full story had started a few years earlier. One of the 1936 recommendations, of the Royal Commissioner into the State's water supply system, had been that " . . . a practical irrigator be appointed to the State Rivers and Water Supply Commission." Harold Hanslow, an irrigator in the Tongala district, staunch supporter of the Country Party and severe critic of the Water Commission's irrigation water supply activities, was accordingly appointed as a Commissioner in March, 1938. Physically slight, but strong willed, he was a very colourful character, full of enthusiasm and action. Some little time after his appointment, however, when he realised the difficulties involved in running an effective service to meet irrigation demands, he remarked to some of his old friends, "It is a very different matter looking out to what it was looking in".

The Commission then consisted of an engineer, L. R. East, Chairman (Appointed October, 1936), W. A. Robinson, also an engineer, recently appointed, and H. H. Hanslow. The immediate question became, "Where could Harold Hanslow be used to best advantage?" He had neither public service administrative experience nor knowledge of water supply, except from the farmer's viewpoint. The Commission was deeply concerned about the soil erosion problem. Wind erosion was prevalent in the Mallee. Water erosion, in the catchment areas and along rivers and streams, was causing siltation of its reservoirs and degeneration in catchment efficiency. The "Pocket Dynamo", as he was affectionately called, was the one to carry on the fight, but first he had

to be shown the problem. R. F. McNab and L. N. Welch, senior officers of the Mallee Division, were deputed to show him the wind erosion problems; he was aghast at the extent and degree of erosion in the Mallee, and on his return to Melbourne he wrote a series of articles about it. These later appeared in "The Weekly Times" and "The School Paper". H. G. Strom and I conducted him around our catchments, rivers and reservoirs, and he was also shown some of the soil conservation activities being practised in New South Wales, under the guidance of officers of the Soil Conservation Service of that State.

J. A. (Jock) Aird had been an officer in the Closer Settlement Section of the Water Commission and more recently a Member of the Closer Settlement Commission. When that Commission ceased to function, he returned to the Water Commission and was given the responsibility of assisting Harold Hanslow in his duties.

During his visits to New South Wales, Harold Hanslow became particularly impressed with the success of a soil conservation competition between farmers in the Narraburra Shire, conducted largely by the shire council, with help from the embryo NSW Soil Conservation Service.

In his capacity as a Commissioner, Hanslow encouraged the Water Commission to organise a similar competition in the Victorian Mallee, where the Commission channels were trapping large quantities of drifting sand from adjacent farms. As this sand had to be removed each year at high cost, to allow the water to reach the farmers' dams, such a competition was a legitimate activity for the Commission. First he had to obtain a worthwhile trophy, to become the central award of the competition, but he failed to persuade any commercial organisation to present one. The post-depression years were not noted for such generous gestures. To quote his own words, "I said to myself, Harold, if you want to get a job done, do it yourself". So he presented a magnificent silver cup for perpetual annual competition. This cup is still presented each year to the landholder who wins the annual Mallee Soil Conservation Competition and now bears the names of many successful Mallee farmers.

The first competition was held in 1940, the judge being the original manager of the Walpeup Research Station, H. L. Hore, who by then was Chief Agronomist, Department of Agriculture.

By 1940, some of the results of the Walpeup Research Station's soil

drift control experiments were available and were being applied by some Mallee farmers. It was notable, from the beginning of these competitions, that many of the effective sand-drift control measures used had come from the results at Walpeup.

Harold Hanslow was quick to realise the need for government action on a positive soil conservation program. He saw how frustrated so many officers in the various departments had become, through the want of such action, and decided to stir up his own Country Party. He attended party meetings throughout the country and persuaded them to pass resolutions demanding government action. The Hon. A. A. Dunstan was still Premier.

During 1940, pressure on the Government continued to mount and a Cabinet Sub-Committee, appointed to enquire into the matter, was presumably intended to stave off the pressure. The Hon. F. E. Old was Minister for Water Supply and a member of the sub-committee, L. R. East, made available the services of J. A. Aird, with his wide experience, to review the large amount of material which had accumulated from the various reports and to submit it as evidence. This gave details of the problem in Victoria and the methods of attack being practised in New South Wales. The report of the sub-committee, based on all this evidence, recommended the introduction of legislation and the appointment of a Board. This report was presented to Cabinet, but once again no action was taken.

It was then that Harold Hanslow became insistent and took dramatic action. He wrote a letter for publication in "The Countryman", the official journal of the Country Party. The letter was highly critical of the want of action by the Country Party Government. He arranged with the editor that publication would be withheld until the Premier had seen a copy. The Premier threatened to sack Hanslow if he did not withdraw the letter. The response to this threat was that unless the Premier undertook to introduce soil conservation legislation, the letter would not be withdrawn. Hanslow then left for the country to visit various Water Commission centres and to await results. The Premier rang him at several centres but Harold was adamant in his refusal to withdraw the letter unless legislation was introduced.

The Premier finally agreed to the demand. A Bill was prepared and approved by Cabinet, presented on 30th November, 1940, by F. E. Old and passed by Parliament without any adverse criticism. The *Soil Conservation Act* 1940 became the first legislative weapon in the Victorian fight against soil erosion. There were many, however, who tended to regard it as too little, too late.

The new Act provided for the creation of a Soil Conservation Board, the functions of which, as set out in the Bill, would be:

(1) prevention and mitigation of soil erosion;

(2) promotion of soil conservation;

(3) utilization of lands in such a manner as will tend towards the attainment of the objects aforesaid.

A further eight functions of the Board were then itemised.

In his Second Reading speech to Parliament, Mr. Old said that, although the Board might not achieve everything desired, he believed it necessary, in the first instance, that a central controlling authority should be appointed. He also contended that it was equally essential that ultimately the Soil Conservation Board should be clothed with powers of compulsion.

The Board was attached to the Premier's Department, in anticipation that this would enable any differences of opinion between departments to be overcome, and provide better co-ordination between all the State authorities concerned. It had no powers of compulsion but was required to report, within two years, as to what additional powers would be required to make its work effective.

The Soil Conservation Act 1940 included most of the recommendations included in the Joint Committee Memorandum which had come from the 1939 symposium. The purposes for which the Board was constituted, outlined in Section 8 of that first Act, are still part of the soil conservation legislation of today.

After a little more than a century of continuous degradation of its soil and water resources, Victoria had finally taken the first, albeit suspiciously inadequate, steps towards a practical approach to soil conservation.

PART III

THE SOIL CONSERVATION BOARD

Structure and Functions

The first members of the Soil Conservation Board were:

Chairman: H. G. Strom, B.C.E.
Members: H. L. Hore, B. Agr. B.Sc., Department of Agriculture
C. T. Clark, L.S., Lands Department of Crown Lands and Survey
R. F. McNab, L.S., E.W.S., State Rivers and Water Supply Commission
A. O. Lawrence, B.Sc.(For.), Forests Commission
W. Baragwanath, L.S., Mines Department
M. Mulquiny, Farmer

The Chairman was the only full-time member. All the other members assumed the responsibility as being additional to their normal departmental or vocational responsibilities.

It will be noted that the Chairman and the five departmental representatives appointed to the Board had each presented a paper to the 1939 soil conservation symposium and that four were members of the Joint Committee of professional institutes which presented the Memorandum on action required for Soil Conservation.

The Board's first office was established in Anzac House, 4 Collins Street, and the first meeting was held on 24th December, 1940. The Board received very little finance and provision was made only for a very small staff. During the first fiscal period, to 30th June, 1941, the total staff consisted of one permanent and two temporary officers. These were J. D. O'Carroll, Secretary, L. C. Roberts, Clerk and Draughtsman and Miss M. E. Harridge, Stenographer-Typist.

When the legislation was before Parliament, it had been explained that,

as there were a number of officers in various departments with training and experience which fitted them to investigate and advise on soil conservation, their services would be available to the Board. Provision for this was embodied in the Act but it proved to be quite unworkable. Also, the departmental representatives on the Board all held responsible positions in their own departments and could only devote limited time to soil conservation, beyond their attendance at Board meetings. Perforce, the Chairman, H. G. Strom, personally had to undertake most of the investigation and advisory work. A worsening war situation at that time made it virtually impossible to increase staff numbers.

As he was a civil engineer, H. G. Strom naturally tended to concentrate on the provision of erosion control structures, such as concrete chutes and diversion banks. Engineers of the Country Roads Board and municipalities carried out these works under his guidance.

To meet the need for staff and to comply with the Act, the Board asked for the appointment of two officers to the Department of Agriculture, one to advise landholders on erosion control measures and the other to undertake research into pasture improvement in the north-eastern water catchments. The two positions were created but no appointments were made at that time.

The Chairman and members toured the country and talked with many farmers on the farmers' properties. They also held discussions with shire councillors and addressed public meetings.

The Soil Conservation Act 1940 made provision for the appointment of Regional Advisory Committees, each to consist of six persons. Three of these were to represent grazing, agricultural or other relevant interests and two were to represent the Lands Department and the Department of Agriculture respectively. The Chairman of the Board was chairman of all committees. Eight such committees were formed and gazetted in October, 1941, to cover the Mallee, Hume Catchment, Upper Goulburn, East Wimmera, Grampians, Central, Glenelg and Lower Goulburn Regions. It was hoped that they would form a valuable link between the Board and the man on the land.

However, from its inception, the Board was restricted in its overall activities, mainly because of the demands of war. Labour became short everywhere and, with the onset of war in the Pacific, it became extremely difficult to carry on. The Board therefore recommended that activities be temporarily suspended. This recommendation was accepted and applied from March, 1942.

The Chairman, H G. Strom, was employed for a time on the Evacuation Committee of the State Emergency Services, then as an Engineer on liaision duties with the American army. The three staff officers were transferred.

Some Early Achievements.

There was one notable success in 1941. This was the start of an alpine study by Miss S.G.M. (Maisie) Fawcett, a Senior Lecturer at the Botany School, Melbourne University. Her appointment was the result of a concern felt, by members of the Board, about the condition of the Hume catchment, particularly throughout the High Plains. C. T. Clark arranged with Professor J. S. Turner, Professor of Botany, Melbourne University, for Maisie Fawcett to undertake an ecological survey of the catchment. She remained an officer of the Botany School for some time, working on a Research Grant, but her expenses were paid by the Board. She later became an officer of the Board. She rented a house in Omeo and used her own horse when moving through the area on her investigations.

Her resolute application to the problems soon earned the respect of local landowners and the alpine cattlemen. In the Omeo area, where gully and sheet erosion were severe, local farmers depended on natural grasses and artificial fertilisers were rarely used.

Miss Fawcett encouraged them to introduce improved pastures, to use superphosphate and to plough contour furrows and build diversion banks around gully heads. The gullies were called "washaways" in that area, so Maisie soon became known as the Washaway Woman. Mount Mesley, typical of the steep hilly country near Omeo, was the location of a study of ground cover. Rabbits were bad, sheet erosion severe, ground cover very sparse. A steeply sloping test area was enclosed and made rabbit proof. Comparable plots outside the enclosed area were measured for plant cover and soil movements, and the differences in extent and types of cover were recorded throughout the period of the survey.

Similarly, on her recommendation and at the request of the Soil Conservation Board, the State Electricity Commission fenced three areas on the High Plains, one of about ~~twenty-five~~ acres and two of a much smaller area. The three areas were necessary so that measurements could be made over the full range of plant associations on the High Plains. During the summer vacation, students from the Botany School assisted in the observations made within these enclosures and

within the unfenced control areas which were still being grazed. Measurements were made for several years and important changes and improvements were observed.

Miss Fawcett extended her activities over all the high country in the Hume catchment. Most of it was Crown land, used for cattle grazing on an annual licence basis. In drought periods, large numbers of sheep were also grazed. She worked hard in the field and in the preparation of her report. Unfortunately, however, this was not completed but a summary of results was made some years later. Many people – farmers, graziers and scientists – gained much from her work. Undoubtedly her influence on land use within the catchment was of great benefit.

Another early Board activity was so successful that it still exists, much in its original form. It soon became apparent that general acceptance of soil conservation by the community would be slow and that some farmers might never change their methods. C. T. Clarke was convinced that the surest way to enlighten the community would be by education of the child during school years. He therefore arranged, with the Editor of "The School Paper", for the publication of a series of articles which would lead to a general understanding, at school levels, of soil conservation.

He wrote the series under the general title, "The Story of the Soil". They appeared in "The School Paper" during 1941–42. During 1943, with the help of R. G. Thomas, then employed as Technical Officer of the Soil Conservation Board, these articles were put together in booklet form, for distribution by the Board. "The Story of the Soil", in a revised form, is still published by the Soil Conservation Authority, for reading by all who are interested in the problems of soil erosion and the principles of soil conservation.

Another of the Board's early, but not so successful, efforts to increase the knowledge of soil conservation was when it endeavoured to comply with a requirement under the Act that a survey of soil erosion in Victoria be made. Initially it was planned that the information for the survey was to be collected by field officers of various State departments, in the normal course of duties. During their travels they were to record on parish plans the degree and types of erosion on each property or crown allotment. It was expected that officers of the Lands Department, Forests Commission and State Rivers and Water Supply Commission, also other departments and municipalities, would do this work. Control was to be exercised by the District Inspectors of Lands and Divisional Inspectors of Forests.

A manual was prepared giving full details of the kind of information required, and how to obtain and record it. The methods to be used in collecting the information were also the work of C. T. Clark. Apparently this proposal was not acceptable to the departments concerned, for the survey did not proceed.

The Dookie Contour Experiments

Early in 1942, G. B. Woodgate, Principal, Dookie Agricultural College, became concerned about erosion on some of the paddocks at the college. Harold Hanslow, after visiting the area, arranged for me to lay out some experimental contour works on the property. With the help of students, contour furrows on the commanding hill near the College were surveyed and ploughed and, in a second project on a cultivation paddock, lines for contour banks were surveyed and these were then constructed. This was the first official contour work for erosion control to be done in Victoria. Consequently the work on that type of country was quite experimental. The spacing, shape and gradient for the contour banks were jointly based on American recommendations and on the limited experience of work already done in New South Wales. However, before construction, the designed spacing was widened and bank height lowered without reference to the surveyor, who, of course, was myself. With the first substantial rain, the banks failed, and the work had to be redone to the original specifications.

These contour works served for some years as a useful demonstration to visiting farmers, a training experience for college students and an experience and lesson for those of us who were trying to gain some practical experience in the arrest of soil erosion and adoption of soil conservation practices.

In addition to the problems already described here, this project was to have a further, totally unpredicted outcome. The contour banks and furrows were at first apparently successful in retarding runoff, reducing sheet erosion and promoting increases in pasture growth. What was not known at the time was the fact that the solodic soil forming this type of land was susceptible to tunnel erosion. The contour works caused this to develop and, as has already been described, Victoria was found to have a unique type of erosion.

Resumption of Activities

During the period of suspended active operations of the Board, from March to December, 1942, R. F. McNab acted as Chairman and, with

the aid of J. D. O'Carroll, the Secretary, who had moved to the Premier's Department, attended to correspondence and other matters concerned with Board activities. In December, 1942, in the continued absence of the Chairman on war service, amending legislation was passed to create a position of Deputy Chairman, to enable resumption of Board activities. On 24th December, C. T. Clark was appointed to that position and the Board was reconstituted for a further two years. The office was then located in Kurrajong House, at 127 Collins Street.

During the first six months of 1943, some progress was made. The eight Regional Committees, appointed in October, 1941, had lapsed when the Board ceased to function in March, 1942. The Board held meetings in each Region and five of the original committees were re-appointed for the Mallee, Upper Goulburn, Lower Goulburn, East Wimmera and Hume Catchment Regions. Committee meetings were then held in each, with C. T. Clark acting as Chairman.

Mr. R. G. (Eric) Thomas was appointed Technical Officer in May, 1943. He had been formerly on the staff of the Department of Agriculture as Manager, Rutherglen Research Station, but more recently had been farming at Greenhills, in Western Australia. Eric Thomas was a great acquisition to the staff and he had a tremendous influence on the subsequent development of soil conservation in Victoria, first in his work with the Board and later as Member of the Soil Conservation Authority. He was well received by the farming community, was a hard worker, painstaking in his endeavours to persuade and demonstrate, to farmers and other land users, how to conserve the soil and at the same time increase production. As new officers were appointed, he trained them in the principles of soil conservation and advised them regarding their approach to farmers.

It was in 1943 that the first Victorian demonstration area of soil conservation practices was selected on a property near Omeo, where Miss Fawcett had been carrying on her valuable work. Its purpose was to show the value of contour furrows in reducing runoff and soil loss from sloping land, and in arresting severe gully erosion.

Lines for contour furrows were set out by a Lands Department surveyor, and were marked with a hand-operated implement by Eric Thomas. The furrows were ploughed with a standard single-furrow plough.

The immediate success of these furrows was spectacular. An early rain resulted in substantial growth and the paddock remained green while in

the vicinity, on nearby non-furrowed land, the rainwater ran straight down into the 'washaways', while the paddocks remained dry and bare.

The now well established Mallee Soil Drift Control Competition continued to be held each year. In 1942, Harold Hanslow presented a second cup, this time for competition in the Goulburn catchment. Because of wartime difficulties, however, the first Goulburn Catchment competition was not held until 1945.

Changes in the Board

For some years prior to this, there had been considerable differences as to the relative responsibilities of the Forests Commission and Lands Department in regard to the control and care of forested Crown lands. At times, this led to points of difference arising between the Board members representing those two departments. C. T. Clark, the Lands representative and Deputy Chairman, was also perhaps more advanced in his thinking in conservation, and more forthright in the expression of his ideas, than some of the other members. This, too, led to friction at Board meetings.

Another cause of problems was the difficulty he experienced, as Deputy Chairman, at the Ministerial level. The Board was attached to the Premier's Department and all matters requiring Ministerial approval had to be referred through officers of that department. At no time was it made possible for the Chairman or Deputy Chairman of the Board to have direct contact with his Minister, who was the Premier, Mr. Dunstan.

With the organisation having been established under new, untried, legislation, it was particularly important that the head should have direct contact with his Minister, especially as the application of the legislation affected such a wide section of the community.

C. T. Clark believed that some changes in membership were necessary to solve the Board personality problems and that the way to get them was by personally discussing the situation with the Premier. His requests for such a meeting were blocked or refused. To bring matters to a head, he resigned. He expected that as a result he would be called to the Premier for an explanation. To his surprise, his resignation was accepted without comment.

R. F. McNab was asked to act as Deputy Chairman but, as he was near retirement, he did not wish to assume added responsibilties. He offered

to resign from the Board if the State Rivers and Water Supply Commission would replace him by another Commission officer who could be appointed Deputy Chairman. His resignation was accepted and, in August, 1943, I was appointed representative of the Commission and Deputy Chairman of the Board, and E. J. Pembertor was appointed as Member to represent the Lands Department.

The First Field Day

Within an hour of my appointment, a telephone call came from Cr. W. D. Chisholm, of Seymour, a member of the Goulburn Regional Advisory Committee. Cr. Chisholm suggested that a field day be held on the property of D. H. Lawrence, a landowner near Avenel, who had been developing his own concept of contour furrowing to control excessive surface-water runoff over his sloping land.

Next day, R. G. Thomas and I met D. H. Lawrence on his property, which was on granitic country adjoining Hughes Creek. Mr. Lawrence showed us an extensive area of contour furrowing. He claimed that he had evolved the idea himself and, to survey the lines, he had used a small A-frame level, which he had made himself. Where the lines crossed exposed rock, he had placed loose stones and soil along the contour to ensure continuity of the furrow.

An amazing feature of his effort, which he started in 1940, was that, by September, 1943, he had controlled runoff over no less than 240 acres, having dug 50 miles of furrows by hand. He had not attempted to buy any mechanical equipment, as he contended that tractors and fuel were needed by the Armed Forces and that his correct attitude was to maintain or increase production from his land through his own efforts. His furrows were at least two feet wide and up to six inches deep. His objectives were to retain all rainfall on the property and to prevent further loss of his soil. Runoff was controlled and gullies below the area were stabilised.

Arrangements were made for a field day to be held two weeks later. Cr. Chisholm worked hard to publicise the day and, despite petrol rationing, about 150 people attended.

This was the first field day held by the Soil Conservation Board and it set the pattern for many hundreds of field days to be held by the Board and by the Authority. Much was seen and discussed on this property – the number of sheep carried had been substantially increased and sub-clover and other pasture species had made better growth. It is not

suggested that this landholder was wise in doing so much work by hand. In fact, his health broke down shortly afterwards. However his ideas were certainly sound and, although his methods of construction were not recommended, he should be remembered as one of the pioneering enthusiasts of soil conservation in Victoria.

Special Report

The Soil Conservation Act of December, 1940, stipulated that, within two years, the Board would present a Special Report to the Minister. This was intended to set forth detailed proposals for any further legislation considered necessary to achieve the objective for which the Board was constituted. Owing to suspension of the Board's operations during 1942, the period for the presentation of this report was extended to three years by the amending Act of December, 1942, and a report was therefore required by December, 1943. On my appointment to the Board in August of that year, however, I found that practically no consideration had been given to preparation of the recommendations required by Parliament.

The Board then proceeded to consider several proposals for amendments to the legislation:

(1) That there be a full-time Authority of three members to replace the existing large part-time Board membership with its full-time Chairman. This the Board rejected.

(2) That a State Natural Resources Council be formed to co-ordinate the policies and activities of departments for the alienation, occupation and utilisation of Crown lands and the development of natural resources. This the Board also rejected.

Additional powers and functions which were asked for included:

(1) The right for the Board itself to carry out soil conservation works.

(2) The right to acquire land for experimental and research purposes.

(3) That Board members and officers be absolved from any personal liability in regard to actions involving the bona fide implementation of the Act.

Other proposals that appeared to cut across the policies then being pursued were not approved by the Board. Finally, the proposals which I

put to the Board as its Deputy Chairman were whittled down until the Special Report to Parliament did not contain any substantial alterations to the existing legislation.

In its own introduction to the Special Report, the Board said:

"Owing to the abnormal conditions which have prevailed since its appointment, the Board has not been able to develop soil conservation practices throughout the State to the extent which would enable it to test the full scope of its powers and functions by their application over a wide range of place and circumstance. The Board has, therefore, been denied that experience which would constitute the basis and guiding principle of any well considered recommendations for further legislation covering all phases of soil conservation."

The Special Report was signed on 3rd December, 1943, and presented to the Premier, after which nothing seemed to be going to happen. In December, 1944, twelve months later, he was put under pressure in the House. The Hon. John Cain, Leader of the Labor Opposition, had pointed out that the effects of soil erosion were of critical importance to the welfare of the State but that the Government had made little effort to cope with the problem. The Premier then admitted that the Special Report had been received and stated that a Sub-Committee of Cabinet had been asked to examine the recommendations and frame proposals for discussion by the Government.

In fact, two questions often asked in the House were: What progress is the Board making?, and, When will it be given powers of compulsion? Messrs. K. Dodgsun, Ouyen; J. McLachlan, Sale; F. E. Old, Swan Hill; W. Everard, Evelyn and C. Stoneham, Maryborough, were prominent Members who led the field with these questions.

Soil and Erosion Survey

In January, 1944, the Board accepted an offer by the Council of Scientific and Industrial Research (as CSIRO was then named) to undertake a soil and erosion survey of an extensive area of country in the Dookie district, where sheet, gully and tunnel erosion were prevalent, leading to serious loss of production. R. G. Downes, then Soil Scientist in the CSIR Soils Division, was appointed to head the survey. He commenced field work in 1944, using Dookie College as his base of operation.

R. G. Downes later became Deputy Chairman of the Soil Conservation Authority, and ultimately Director of Conservation.

Two reasons why the Dookie area was selected for such an innovative survey were the presence of the unique tunnel erosion, and the fact that aerial photographs were available to facilitate the progress of the survey. The plans and report of the survey were submitted to the Soil Conservation Board in April, 1948, and were published in 1949 as CSIR Bulletin No. 243.

By that time, the Hon. E. J. Hogan had become Chairman of the Board. After the survey had been described to him by R. G. Downes, and the symbols used for the various kinds of erosion explained, the Chairman delivered one of his characteristic solecisms: "And what is the symbol for 'no erosion', Mr. Downes?", he asked.

Fortunately, other members of the Board were more alert to the importance of this survey. It drew attention to the seriousness and extent of the now growing tunnel erosion problem, in association with sheet and gully erosion, in that type of country. Effective treatment of tunnel-eroded country had yet to be worked out and the need for experimental work, on the solodic soils commonly found in the drier hill country of north-central Victoria, was indicated. The survey report became a valuable reference work for use by field and research staff, residents and students in dealing with land use problems and studies involving this difficult type of land.

Regional Advisory Committees Conference

This first conference of its kind was held in the Euroa Council Chambers on 21st and 22nd March, 1944. It was attended by members and officers of the Board and practically all the members of its several Regional Advisory Committees.

The conference was opened by the Hon. J.G.B. McDonald, M.L.A., then Minister for Water Supply. The soil conservation experimental activities at Dookie were inspected during the first day and discussions were held that evening and throughout the second day.

Subjects introduced and debated were:

Constitution, activities and policy of the Board.
Forests and fire in relation to soil conservation.
The place of the Regional Advisory Committees.
Promotion of and education for soil conservation.
Ecology of the Hume catchment.
Soil drift control.

Strip cropping.
Material aid to farmers for soil conservation.
Vermin and weed control.
Powers of shire councils to undertake erosion control works.

The conference was a gratifying success and aroused considerable public interest. The nature of the conference discussions, and the public response, made it seem that at last we might be getting much closer to the formation of a more effective establishment. In fact, the setting up of a more permanent body – the Soil Conservation Authority – was still six years away.

In April, 1944, H. G. Strom was released from his wartime duties and resumed his responsibilities as Chairman of the Soil Conservation Board. Surely we then could look forward to substantial progress and could plan for post-war expansion and conservation activity.

The season 1943/44 was dry in Victoria, the summer long and hot. Wind erosion was severe in the Mallee and the western plains, the north-east and the hill areas of western Gippsland all suffered badly from wildfires.

In its Annual Report for that year, the Board stated:

" . . . Soil erosion is so widespread in Victoria, and in so many forms, that it calls for the co-operation of landholders and public authorities on a wide scale and on a long range plan extending over a series of years . . . However, the prevention of soil erosion could be almost entirely effected by the universal practice of soil conservation by all private landholders and public authorities having charge of land . . . The planning of post war works, and the training of personnel, experimental and research work should be pushed on as rapidly as possible, so that when labour and material become available in the post-war period, no time may be lost in implementing the conservation programme."

Further Activities, Progress and Growth

With H. G. Stom and R. G. Thomas operating full-time, substantial progress was made. By the end of June, 1944, ten demonstration areas and five experimental areas had been established. These were shortly followed by an additional four demonstration and three experimental areas. Among these areas was J. W. Payne's property, 'Merrieview', at Woodstock, where 150 acres had been treated by contour furrowing

and diversion banks. Two special field days were held on this property, one for farmers of the district and one for school teachers. It was the latter field day which led to the continuous stream of school excursions which continues to this day.

In all, 1944 was a year of continuing development. The Euroa conference had whetted the appetites of Regional Advisory Committee members for action. Meetings were held frequently and activities were commenced by the committees themselves. The Mallee committee publicised the value of cereal rye, the ploughing in of stubble, longer rotations and other measures. The East Wimmera and Glenelg Advisory Committees asked for an officer to be stationed in their districts. The Glenelg committee asked that:

(1) Free surveys be provided for contour working, etc.
(2) Plant be made available at subsidised rates.
(3) Cash subsidies be given for soil conservation when benefit is to public land or other landowners.
(4) Loans be made available where landowners are unable to meet their share of the cost.

Action was taken to establish the Barrakee Hills demonstration area, near Charlton.

A request was made for the appointment of additional field officers, to assist in the carrying out of erosion control and soil conservation works. It was envisaged that after preliminary experience was gained, these officers would be able to extend the advisory services to land-holders. Extra office staff was also requested.

The Save-the-Forests Campaign, later to become the Natural Resources Conservation League of Victoria, had commenced in 1943. The Board was actively represented on the League and co-operated with other departments in the staging of an exhibition in the Melbourne Town Hall in November, 1944. The main feature of the Board exhibit was a model of a farm, featuring erosion control and soil conservation methods.

Another important development had occurred in 1944, when the first issue of the Board's 'Bulletin' appeared. The intention of this occasional periodical was to bring together news of the Board and its activities for the information of its Regional Advisory Committee members, officers and other closely associated people. It was, of course, the fore-runner of the Soil Conservation Authority newsletter, "SCAN". The editorial of the first issue included this paragraph:

"The Board will at all times be glad to receive for inclusion in the Bulletin any items of interest regarding soil conservation, so that everyone will have a chance to know what the other fellow is doing and thinking. Like most live things, the Bulletin starts in a small way; like most live things, it should grow. We want you to look on it, not as another paper published by those people in the city, but as something of your own."

A Change of Leadership

In December, 1944, a bombshell fell! For no apparent reason, H. G. Strom was returned to the State Rivers and Water Supply Commission, as Divisional Engineer for Rivers and Reclamation. He had given great service to soil conservation. He had become well known for his conservation work throughout the State, had travelled widely, organised committees and carried out a vast amount of publicity. In doing so, he had applied his professional training as an engineer, his earlier experiences with the farming community as officer-in-charge of irrigation districts, the results of his investigations and experience in the control of erosion on rivers and streams and his comprehensive general knowledge of the farming community throughout Victoria. With this wide experience, he had contributed strongly to the development of a soil conservation service that would encourage not only the farmer, but also his colleagues, in those other departments associated in various ways with land use, to exercise the care needed to ensure conservation.

Members of the Board were left guessing as to what was going to happen, but not for long. In January, 1945, the Hon. E. J. Hogan was appointed to the position of Chairman of the Board. He had been Labor Premier from May, 1927, to November, 1928 and again from December, 1929, to May, 1932, when he brought the then newly evolved Premiers' Plan back from Canberra, but failed to win the support of his own party in the State House. E. J. Hogan, with a few other Labor Members, crossed the floor to the Opposition. The Plan was passed and the Opposition became the Government, with Sir Stanley Argyle as Premier and E. J. Hogan as Minister for Mines. He later became Minister for Agriculture in the Dunstan Government.

When he lost his seat in 1943, E. J. Hogan sought appointment to a government post. He was proposed as Chairman of the Licences Reduction Board but was not acceptable to the commercial interests of that time. His subsequent appointment to the Soil Conservation Board was confirmed before anyone in the field of conservation was aware that it was proposed.

This was a severe setback to soil conservation in Victoria, as the new Chairman was completely without knowledge of its first principles. The other Board members, who were still part-time, and the small existing staff, did what was possible to maintain the interest and co-operation of departments and landowners.

The new Chairman was an individualist in many of his activities. He would spend much of his time enquiring from outside sources about any ideas that might be helpful. Someone informed him of the high shade value of the kurrajong tree and of its usefulness as stock food in times of drought. He put this idea forward at a Board meeting but obviously did not know what a kurrajong tree looked like. As a visit had been organised to the Mallee for the following week, it was mentioned to him that there were some fine kurrajongs near the City Hall in Bendigo. He thereupon arranged for the Mayor of Bendigo to officially receive the Board at the City Hall and to show members these particular trees. Some time later, when an officer was visiting Mr. Hogan's private home, he discovered that kurrajongs lined the street. One stood right at the Chairman's front gate!

The acceleration in activities of the Board, which was so apparent during 1944, certainly suffered reduction in 1945. During the first half of that year, only two decisions having a continuing influence were taken. The first was that grazing on the Kiewa River catchment be controlled. The second decision was to distribute ryecorn and superphosphate free of charge to Mallee farmers to enable them to stabilise sand dunes and wind eroded areas. This decision resulted from experimental work undertaken, in conjunction with the Mallee Research Station, during the previous year, at Paignie, near Walpeup.

Its outcome was the general adoption of ryecorn as a first agent for controlling wind erosion in the Victorian Mallee.

The deferred Goulburn Catchment Soil Conservation Competition, for the second of the Hanslow Cups, was held for the first time in 1945, when Ian Sutherland, of Yarck, was the winner. He was followed by I. R. Currie, of "Seven Creeks", Euroa, who won the cup in 1946. Field days were held on each property, at which the Hanslow Cup and other trophies were presented. On these two properties, the pattern was set for all subsequent soil conservation competition field days to be conducted by the Board and Authority. Without doubt, the Hanslow Cup Competitions have provided a great impetus to sound conservation practices on farm land.

Hume Catchment Control

In March, 1944, a sub-committee of the Board, G. T. Thompson, E. J. Pemberton, A. O. Lawrence, aided by Miss Fawcett, had made a comprehensive inspection of the Bogong High Plains. The sub-committee reported on the obvious deterioration of grazing values, the incidence of erosion on the High Plains and the consequent effects on the catchment area. It recommended that steps should be taken to limit the number of stock allowed on the High Plains and that the dates of entry and withdrawal of the cattle, to and from the grazing runs, should also be determined on a conservation basis.

A conference was arranged, of representatives of the Board, Forests Commission, State Rivers and Water Supply Commission, Department of Crown Lands and Survey, State Electricity Commission and Department of Agriculture, to consider the recommendations of the Sub-committee. These were approved and it was decided to explain the position to the cattlemen.

In January, 1946, representatives of the Board had a meeting with most of the cattlemen who held grazing licences for the area. It was held at the Rocky Valley enclosure (where Miss Fawcett and Botany School students from Melbourne University had been carrying out investigations) and agreement was reached on the control of grazing.

Two committees were formed. One, the Advisory Committee, comprised representatives of the Board, Lands Department, State Rivers and Water Supply Commission, Forests Commission, Department of Agriculture, State Electricity Commission and three cattlemen, one each from Omeo, Bright and Tawonga districts, from which the cattle came. The Advisory Committee was responsible for deciding on the number of cattle which should be taken to the Bogong High Plains each grazing season and the period over which grazing would be permitted.

The other, the Cattlemen's Committee, with E. J. Pemberton, of Lands Department, as Chairman, and two cattlemen representatives from each of the three cattle areas, would allocate the number of cattle allowed on each run. This committee would also decide on various routine matters of control, such as salting and mustering. The Board arranged meetings in each area for the appointment of the cattlemen representatives.

This dual committee system operated into the early 1950s but proved rather cumbersome. It was then replaced by a single High Plains Advisory Committee.

The number of cattle grazing on the catchment was steadily reduced over the years and the grazing periods shortened, mainly by delaying the start of the season. In more recent years, cattle have been excluded from the highest, most vulnerable areas. The result has been a steady recovery of the vegetative cover and general condition of the catchment. In fact, today there are relatively few remaining bare patches on the High Plains, in contrast to the pre-control situation. In those times, the inter-tussock bare areas, plus the bare tops of Hotham, Bogong and other peaks, probably comprised about fifty per cent of the total area.

Staff Developments

The Board continued to press for additions to its staff. Eric Thomas, as Technical Officer, had to carry a heavy load of responsibility. He spent long hours in the field, meeting farmers and members of committees; organising and demonstrating soil conservation activities; reporting to the Board; maintaining contact with Board members and, as far as possible, assisting the new Chairman to understand and appreciate the problems the Board was up against.

The next appointment to the field staff was W. J. (Tim) Tame, in November, 1945. He lived in Benalla and was given responsibility for the Lower Goulburn District. He was followed, in February, 1946, by M. S. (Mac) Wood, who worked from Melbourne, but was mainly involved with activities in the East Wimmera and Mallee Districts. Most of his early work was centred around Charlton. Then, in April, 1946, F. D. (Deane) Runge was appointed and stationed at Stawell, as Officer-in-Charge of the Pyrenees District. The Pyrenees Regional Advisory Committee was active in that area and had urgently requested the appointment of an officer to advise the many farmers on their severe erosion problems. Deane Runge made contact quickly and was soon busy laying out contour works and building erosion control structures.

C. J. (Chas) Drmla also came on to the staff in January, 1946, as a surveyor. He had been on soil conservation work in America, had served in Australia with the American forces, married here and taken his discharge in Australia.

By June, 1946, the technical staff comprised one Technical Officer, one Research Officer, a Surveyor, an Engineer and three field officers – all classed as temporary. Members of the Board considered that a further substantial increase was required and sought the appointment

of an Executive Officer to direct and develop staff resources and activities. This appointment was approved and offered to me. In November, 1946, I resigned as part-time Deputy Chairman of the Board and transferred from the State Rivers and Water Supply Commission to become full-time Executive Officer. Full responsibility for the staff and its activities was thereupon delegated to me.

Following my transfer to the Board, H. L. (Les) Hore, representing the Department of Agriculture, was appointed Deputy Chairman and L. N. Welch became the representative of the State Rivers and Water Supply Commission. In December, Jock O'Carroll, was appointed as Secretary of the State Parliamentary Public Works Committee and A. R. McDonnell replaced him as Secretary of the Board.

The staff then consisted of:

Executive Officer:	G.T. Thompson
Technical Officer:	R.G. Thomas
Field Officers:	M.S. Wood
	W.J. Tame
	F.D. Runge
Surveyor:	C.J. Drmla
Assistant Engineer:	T.V. Terrell
Research Officer:	Miss S.G.M. Fawcett
Secretary:	A.R. McDonnell
Typists:	Miss A.R. Harridge
	Miss M. Malone.

The first staff school was held at Kurrajong House in December, 1946. All eight technical staff and professional officers attended and some Board members part of the time. No school was held in 1947. From 1948 to 1950, the schools were held at Dookie Agricultural College. A sand tray was used at the first school to illustrate problems and methods of control.

This was the beginning of a long series of annual staff schools which still take place, though now in a much more sophisticated form. The name and style have changed. The sand tray of the first school was changed to a 'cloth' model for the next few years. This consisted of a large piece of hessian raised in appropriate areas by packing with paper, and lined on the surface with coloured tapes, etc., to represent fences, roads, gullies, structures, etc. This was a direct application of an army method of teaching military tactics. It was so easy to change the topography, scale, land use, etc., to vary the problem and bring out the points for discussion.

Routine activities continued throughout the State. By June, 1947, about 7,000 acres on 115 properties had been contour furrowed and, on 1,000 acres of ten properties, contour banks had been constructed.

A Bill is Passed, Proclaimed and Forgotten

In February, 1946, the Board again asked that the amendments sought in its Special Report of December, 1943, be approved by Parliament. It stated that with these amendments the Board would be enabled to proceed with a more progressive policy of soil conservation. The Cain Labor Government was then in power, with the Hon. L. Galvin as Minister of Water Supply. The Board was asked to confer with the Parliamentary Draftsman to assist in the drafting of an amending Bill. A Bill was prepared, but was not presented to Parliament.

On 25th June, 1946, however the Cain Government appointed Judge Stretton, a Royal Commissioner, to enquire into the grazing of forest lands in Victoria, particularly in relation to water catchments and timber producing areas in mountainous regions. During the course of this enquiry, the Commissioner enquired into the extent to which grazing accelerated soil erosion or reduced water catchment efficiency. He recommended, among other things, the setting up of a Land Utilization Authority, to be charged with the duty of protecting all land.

Following on this recommendation, the Government felt it necessary to obtain the best possible advice on soil erosion control and catchment preservation. A committee of heads of departments was appointed, to make recommendations concerning the preservation of water supply catchments and to suggest the type of authority required to effectively control land utilization. This committee consisted of L. R. East, Chairman, State Rivers and Water Supply Commission; A. V. Galbraith, Chairman, Forests Commission and W. McIlroy, Secretary for Lands.

In April, 1947, the Hon. W. Galvin introduced a Soil Conservation and Land Utilization Bill which, in his opinion, represented a sensible and practical method of overcoming soil erosion and bringing about proper utilization of farm lands. It embodied most of the recommendations of the recently submitted Inter-Departmental Committee report. It provided for the creation of an authority of three members, one to have practical farm and soil conservation experience, one to possess recognised forestry qualifications and one experienced in water and soil conservation.

The Bill passed through Parliament and was proclaimed. The three member positions were advertised but, before the appointments were made, the Government was defeated and the Hon. T. T. Hollway became Premier. This was in November, 1947. The soil conservation legislation was allowed to lapse and the Board continued in office for another two years.

The Hon. T. T. Hollway, in addition to being Premier, was also Minister for Water Supply. He did not appear to be particularly interested in soil conservation but some of his Ministers and members of the party were. These included the Hon. R. C. Guthrie and the Hon. H. E. Bolte, who began to take a keen interest in the activities of the Board. I was called in for discussions with this group, and answered many questions about the extent of soil erosion in Victoria, soil conservation activities by the Board, the interest and co-operation of land owners, and the development of soil conservation in other Australian states as well as in USA. I was also asked for my opinions regarding various aspects of a permanent organisation in Victoria.

Further Progress

During 1947, Harold Hanslow presented a third cup for competition, this time in the Hume Reservoir catchment. The Board decided to hold this competition in the Upper Murray Region, which included a substantial part of the Ovens River catchment, as well as that of the Murray upstream of the reservoir. The first competition was judged in the autumn of 1947 and Mr. L. Cox, of "Florida", Wangaratta South, won it with his citrus orchard, which was grown partly on a contour layout. This property was on the lower slopes of the Warby Ranges.

A soil survey was commenced in the Coleraine/Casterton area, to obtain information as to soil structure and geological formations in relation to the prevalent landslides in that area. The survey was undertaken by Dick Blackburn, of the Council for Industrial and Scientific Research. He was assisted by T. I. (Ian) Leslie, who was employed by the Department of Agriculture to do field and laboratory work nominated by the Board. Aerial photos had been prepared by the Department of Crown Lands and Survey. The report on the results of this survey became available late in 1949.

In 1948 and 1949, steady progress was made in soil conservation throughout the State through demonstrations, advisory services and assistance to landowners, competitions, and education in various forms.

Six additional field officers had also been appointed. In October, 1947, P. C. (Peter) McNaught was appointed to the field staff, on transfer from the Department of Agriculture. He was located at Charlton, and transferred to Tallangatta in the early nineteen-fifties. Peter's tragic death in a road accident, in January, 1959, still remains the sole such staff casualty, despite the many millions of vehicle miles which have been logged by Authority officers in the routine course of duty.

A. J. (Alec) Wallis was appointed some twelve months later. Alec's initial activity was at the Walpeup Research Station and his officially supplied transport to and from Ouyen, 19 miles away, was a push bike. W. A. (Bill) Gleeson was appointed in November, 1948, and stationed later at Alexandra. K. B. (Ken) Terry, appointed in February, 1949, took over from Tim Tame at Benalla. G. A. (Tony) Rae and G. E. (Gerry) Coghlan, were next in order of appointment to the field staff.

Initially, these officers were employed mainly in carrying out erosion control and conservation works, mostly on farm properties. These usually became demonstration areas which assisted other landowners in managing their properties. In this way, the new officers gained experience which enabled them to become efficient and confident in their ability to advise.

Final Days of the Board

In December, 1948, a State election resulted in the Hollway Government, with the support of the Country Party, being returned to office. The Hon. H. E. Bolte became Minister for Water Supply. Later, in 1949, after considerable enquiry and discussions with the Chairman and Commissioners of the Water Commission, and, no doubt, other senior personnel in allied departments, the Minister introduced a Soil Conservation and Land Utilization Bill. It embodied most of the provisions of the 1947 Bill, with some changes and amendments. The title of the Board was to be changed to Soil Conservation Authority. The specific qualifications to be required of the four full-time members, when the Bill was presented, were:

(1) One shall be a person with experience in administration
(2) One shall be a person with qualifications in agriculture
(3) One shall be a person with qualifications in forestry
(4) One shall be a person with qualifications in water conservation.

One, at least, of these members was also required to have experience in soil conservation.

The Bill also provided for the setting up of the Land Utilization Advisory Council to deal with the use of land in water supply catchments.

The Council would consist of:

(1) The Chairman of the Authority, who would also be Chairman of the Council.
(2) The Director of Agriculture or his nominee.
(3) The Chairman of the Forests Commission or his nominee.
(4) The Secretary for Lands or his nominee.
(5) The Chairman of the State Rivers and Water Supply Commission or his nominee.

Back in 1944, the Commonwealth Rural Reconstruction Commission had recommended that each State should establish a Land Utilization Council as a special organisation, under the control of the relative Premier. It would consist of the heads of the Departments of Agriculture, Forests, Land, Survey and Water Supply. Where soil conservation was covered by an appropriate organisation, the head of the State soil conservation service would be included in this committee. Victoria is the only State, so far, to have complied with that recommendation.

In his speech, when introducing the Bill, Henry Bolte said,

"We could not have made a bigger mess of the soil of the country if its destruction had been carried out under supervision."

"This State is rightly proud of the fact that successive Governments have followed a progressive policy of water conservation. However it would be stupid to permit reservoirs to become silted, as there is no economic way of clearing them."

"Ten million pounds spent on soil conservation will result in greater production than a similar sum spent on water conservation schemes."

"Two blades of grass should be made to grow where one is growing now, and that objective could be achieved by the use of intelligent farming methods."

"For every farmer who is husbanding his land under existing conditions, ten others are neglecting to do so, merely because they do not know how to approach erosion problems. I trust that the new Authority will undertake an intensive educational programme."

"Members of the trades union movement also should be educated along these lines; they should be made to realise that their present high living standards are conditional upon the soil producing adequate supplies of food."

"Farmers must be taught to use scientific methods to combat soil erosion."

"In Victoria a big job awaits attention and I suggest that, unless the matter is tackled sensibly and effectively, the State will go downhill quickly. The opinion of the Government is that the first necessity is to maintain and save all existing soil."

"If the provision of money has been the real reason for the failure to cope with the problem, someone has a lot to answer for. I earnestly hope succeeding Governments will not be able to repeat the miserable cry, that they were prevented from taking action owing to lack of funds."

When the Bill and its separate clauses were debated, most of the discussion centred around the membership of the Authority, including the question as to whether the present Chairman of the Board was to carry through to the Authority. Provision was made that, if the Chairman of the Board was not appointed a member of the Authority, he would be paid compensation having regard to the unexpired portion of his term of office.

After long discussion and debate as to the membership of the Authority, the clause was amended to read: "The Authority shall consist of three members appointed by the Governor-in-Council, one of whom shall be a person with practical farm experience and with a knowledge of soil conservation." There were no circumscriptions on the qualifications required of the other two members.

The legislation was passed, and the establishment of the Soil Conservation Authority and the Land Utilization Advisory Council was authorised. The activities of the Council are described in a later chapter. The Hon. H. E. Bolte became the first Minister for Conservation in December, 1949. Applications for the three Member positions of the Authority were invited, and no less than sixty-seven were received.

It is of interest to note that the Bills for all three soil conservation Acts – No. 4786 of 1940; No. 5226 of 1947 and No. 5411 of 1949, were presented to Parliament by the Minister of Water Supply of the day.

This, in turn, indicates the importance placed on soil conservation by the Chairmen of the State Rivers and Water Supply Commission. L. R. East, typically, had always been a strong advocate for an effective soil conservation service and much credit is due to him for his persistence and for the way in which he persuaded his successive Ministers to ensure that the right kind of legislation was brought to the House. He was, of course, strongly supported by his fellow Commissioners, in particular Harold Hanslow, and many of his Commission staff. This does not mean that there was no contributory effort from other departments. It was primarily from the State Rivers and Water Supply Commission however, that strong, effective and continuous moves were forthcoming.

A sub-committee had been appointed by Cabinet to interview applicants for the positions on the Authority and to recommend appointments for the three most suitable candidates. The Minister asked me to go through the applications and select a number for interview. This came as a surprise, particularly as I was an applicant. Before accepting the commitment, I asked where I stood in the matter. I was told that, in any case, I would be one of those selected!

It eventuated that most of the applicants were farmers, many of whom had co-operated with the Board in carrying out some erosion control measures. R. G. Downes, with his qualifications and experience, stood out as being certain of appointment.

When the appointments were finalised, the Authority consisted of:

Chairman: G.T. Thompson
Deputy Chairman: E.J. Hogan
Member: R.G. Downes.

The Soil Conservation Authority held its first meeting on 16th February, 1950, on which date the Soil Conservation Board ceased to exist. A new era had commenced in the history of soil conservation in Victoria.

PART IV

THE SOIL CONSERVATION AUTHORITY – 1950–1961

1. THE FIRST ELEVEN YEARS

As already explained, during the 1920s and 1930s it was the State Rivers and Water Supply Commission and, to a lesser extent, the Forests Commission, which had realised the menace of soil erosion and most actively sought the appointment of a soil conservation organisation. The Department of Agriculture had shown much less interest and apparently saw little need for the creation of such a body. It was appropriate, therefore, that in 1940 it was the Minister for Water Supply who introduced the legislation for the creation of the Soil Conservation Board and who, on its enactment, became the first Minister for Conservation. Administration of the Board however, was placed with the Premier's Department.

Ten years later, the Soil Conservation Authority was also attached to the Premier's Department, and for similar reasons. These were:

1. Neither the Department of Agriculture nor the Lands Department had demonstrated need to actively engage in soil conservation, and there was no other department with which the Authority had obvious affinity. Of the other departments, the State Rivers and Water Supply Commission's main responsibilities are the storage and quality of water, not land. The Forests Commission certainly has large areas of Crown land under its control, but the maintenance and utilization of forests are its main concern.

2. By attachment of the Authority to the Premier's Department, it was felt that direct contact with the Premier would be assured and he, through Cabinet, would raise matters concerning land and water, farming and forests usages with the appropriate Minister.

In New South Wales, a separate Soil Conservation Service had already been established. In South Australia, a Soil Conservation Section had been formed within the Department of Agriculture. Later, similar action was taken in Western Australia and Queensland. In Tasmania, the District Agricultural Officers were required to advise on erosion control and soil conservation practices.

The Authority

In accordance with the appointments by the Governor-in-Council, the three Members of the new Authority assumed office on 16th February, 1950. The first Secretary, H. R. Phillips, had transferred from that position with the Board. The position with the new Authority however, carried a higher Public Service staff classification and, on 20th March, 1950, H. R. (Roy) Gray became Secretary in his place.

In the period under review in this Part, 1950–1961, the retirement, in 1953, of the Deputy Chairman, E. J. Hogan, caused the only major change at Authority level. His three-year appointment had expired and he had also celebrated his sixty-fifth birthday. Eric Thomas was appointed Member and R. G. Downes became Deputy Chairman.

From September, 1954, as the recipient of a Commonwealth Fund Scholarship, R. G. Downes spent ten months in the United States. He studied the administration, organisation and research programmes of the USA Soil Conservation Service, and in particular the basic land use principles for different soils and environments. For the period of his absence, H. R. Gray was appointed Acting Member.

Following the death of H. R. Gray in September, 1955, Arthur Tidd was appointed as Secretary. No other changes took place until 1961, when the much regretted death of Eric Thomas occurred on 6th January, my own retirement became effective on 1st March and that of Arthur Tidd on 11th August. Subsequently, the Authority comprised R. G. Downes, Chairman; M. S. Wood, Deputy Chairman; A. F. Saunders, J.P., Member. W. J. Crawley was appointed Secretary.

The Ministers for Conservation during the period under review were:

Hon. H.E. Bolte, Minister of Water Supply – 15/12/49 to 27/6/50;
Hon. R.K. Brose, Minister of Water Supply – 28/6/50 to 17/12/52;
Hon. J.H. Smith, Minister of Lands – 17/12/52 to 7/6/55;
Hon. H.E. Bolte, Premier – 7/6/55 to 1/3/61;
Hon. A.J. Fraser, Assistant Minister – 27/3/56 to 1/3/61.

Functioning of the Authority

Stated briefly, the functions of the new Authority, as set out in the legislation, were:

(1) To control soil erosion and reclaim eroded land.
(2) To promote soil conservation and prevent any further occurrence of erosion.
(3) To determine matters relevant to the utilization of all lands in such a manner as would tend towards attainment of soil conservation.

The Authority realised that its immediate task would be the control of erosion and the reclamation of eroded land, but that the long range objective would be to achieve soil conservation throughout the State; this would be attained through the determination and practice of safe but productive methods of land use for each of the different land classes.

The duties and responsibilities of the Authority were broader than those of its predecessor, the Soil Conservation Board. It had been given wider and firmer powers, both with respect to the carrying out of soil conservation works and in the direction of those works, and in implementing other controls aimed at achieving soil conservation.

At its first meeting, the Authority decided, as matters of future policy:

(1) To carry on and extend the policies and activities of the Board with respect to assistance to landholders and public authorities.

(2) That in general, although the statutory powers of direction may have to be applied in special circumstances, better results in erosion control and soil conservation would be achieved by seeking the co-operation of landholders, and by demonstration and education.

(3) The Authority's activities would, as far as possible, be decentralised.

It can now be said that these have continued to be the guiding principles of the Authority and that its present day success has resulted from the development and continuance of these policies.

It was realised that, to be fully effective, the new Authority and its staff would have to acquire an overall knowledge of all the problems involved. These included:

(1) The extent and degree of erosion throughout Victoria.
(2) The root causes of erosion.
(3) Determination of the best forms of land use that could be used with safety within the limitations imposed by every kind of soil, topography, aspect and climate to be found in the State.
(4) The economics of change to such safe land use.
(5) How best to present such knowledge to the land user and to persuade him to change his methods where necessary.

An effective advisory service would be required. It would need to be composed of officers with suitable basic qualifications and experience, with a personal capacity to meet farmers and other land users on their own properties, in order to discuss the particular land use problems of each and to advise on suitable measures of control and management.

Authority Organisation and Structure

The Authority decided that five functional areas would have to be established to achieve its objectives. They would be: Administration Division, Field Division, Research Division, Engineering Division, and Publications and Information Section.

The Field Division would be the largest and most prominent in its operational activities. Its members would be in direct contact with landholders and land users. It would provide advisory services directed towards control of erosion and the introduction of soil conservation measures. For maximum effectiveness, most of its staff would be stationed at country centres.

Activities of the Research Division would be directed towards;

(1) Conservation ecology involving soils, climate, vegetation, topography, land use and other allied aspects.
(2) Soil physics, including soil structure and infiltration capacity.
(3) Conservation economics.

The Conservation Engineering Section of the Engineering Division would investigate the hydraulics of soil conservation; design and supervise construction of erosion control structures; provide topographic surveys and assist with the layout of contour furrows and graded banks. The Mechanical Engineering Section would investigate machinery and equipment and would design modifications to improve performance under use in conservation works.

The Publications and Information Section would be responsible for the preparation of the latest information on soil conservation matters and its distribution to landholders and the public in general. It would arrange and conduct field days and other events, designed to educate and extend the knowledge of the latest conservation measures to landholders and the public.

The Administration Division would prepare and record all matters involving reference to the Premier's Department; organise costing and records systems and handle matters arising directly from the Authority. It would handle all financial matters; maintain liaison with the Premier's Department with regard to staff matters; keep records of all activities and handle all correspondence.

Training in a New Science

Soil conservation was a comparatively new science, internationally as well as in Victoria. It behoved the Authority, therefore, to ensure that its officers were given opportunity to become knowledgeable in the discipline of soil science and its practice.

Back in 1945, the Board had realised that, if soil erosion were to be arrested and soil conservation achieved, an extensive advisory service would be required. The Board considered that this would be best achieved by stationing, at country centres, field officers with both practical and theoretical knowledge of the principles and practise of soil conservation. These officers would need to have a basic training in agricultural science, a practical knowledge of farming and a personal ability and assurance to impart their knowledge of safe land use practises to the farmer by practical demonstration and advice. It was obvious to the Board that, when officers were appointed to the Field Division, they would need some further theoretical instruction and practical experience.

To meet this need, the annual schools of instruction, which had been initiated by the Board in 1946, were continued by the Authority. The Authority now introduced, in addition, an internal examination system. Subject to candidates having completed at least three years of satisfactory field work, the examination was accepted by the Public Service Board as a qualification for officers, whose basic qualification had been a diploma from an Agricultural College, for transfer to the Professional Division of the Victorian Public Service. Normally, degree graduates only were admitted to that Division.

The Authority therefore decided that, at the annual staff school, more attention would be paid to the basic sciences than had been the case at the earlier schools. This system of internal education and examination soon proved its worth in enabling the Authority to develop an efficient and effective advisory service throughout Victoria. From 1952 to 1957 inclusive, the school was held at the Authority's Kew offices at "Heroncourt". A marquee, erected on the site of the old tennis court behind the office building, and a Nissen hut were used. From 1958 to 1960, the Deepdene Scout Hall was hired for the purpose but the noise from the increasing traffic along Whitehorse Road forced another move.

The Authority considered that at least twenty District Conservation Officers, supported by a further forty Conservation and Assistant Conservation Officers, would be required to provide an effective field service in all parts of the State. It was to be many years before this number could be achieved.

Whole Farm Planning and the Group Approach

During its first few years, the Authority continued the methods adopted by the Board of encouraging landowners to undertake erosion control measures on localised parts of their properties, where damage was evident. This might take the form of contour furrows on an eroding hillside, or the fencing out of an eroding gully together with the construction of a diversion bank and planting the gully with trees and other binding vegetation.

However, it was soon realised that such tentative approaches could not be expected to really achieve soil conservation over the property as a whole. So the idea of complete farm planning developed. An interested landowner was encouraged to accept the concept of planning his whole property. This often involved major changes in land use, relocation of paddock boundaries to conform with the various land classes and, if needed, construction of mechanical works to arrest the various forms of erosion which existed.

This change in approach was first investigated by the Research Division in 1951, when surveys were made of the soils, vegetation, existing erosion and history of land use of three properties. These were H. R. Dalkin's property, "Westgate", near Ararat; A. John's property at Yeungroon, near Charlton, and T. Kettle's property at Nicholson, near Bairnsdale. These surveys were amongst the very first projects undertaken by the newly formed Research Division. Based on resulting information, farm plans were prepared in co-operation with the District

Conservation Officers and landowners concerned. The success of the Research participation augured well for future inter-divisional co-ordination of effort.

Soon it became obvious that erosion control works in larger catchment areas, often involving several properties, would need to be undertaken under a single integrated plan if effective recovery of the land was to result. This led to development of co-operative farm planning schemes. The first of these was at Ledcourt, near Stawell. The scheme extended over the catchment of a badly eroded gully system which involved eight properties. In 1952, the Research Division prepared soil, vegetation, and land class maps of the whole area. Reference was made to the Field Division for planning of the necessary erosion control and soil conservation measures. Essential protective work in the upper part of this catchment was carried out during the early stages, but it was some years before all landowners were prepared to co-operate and so enable the scheme to be completed.

This kind of project extended throughout the State with the result that, by 1961, some thirty-nine co-operative projects were in operation, fourteen demonstration areas had been established and seventy-five farm plans had been prepared, all in co-operation with the landowners concerned. These included projects at Cottons Pinch, near Yea; Navarre Hills, near Stawell; Buckrabanyule Hills and Barrakee Hills, near Charlton; Jeffcott Hills, between Charlton and Donald; Lawsons Road, Devenish; Sandy Gully, Cudgewa; Taylors Lane, Wallan and on landslides on Satimer Road, Coleraine.

A Major Breakthrough

In 1959, the Government had approved plans for the construction of the Eppalock Reservoir, on the Campaspe River. The Parliamentary Public Works Committee had taken evidence from landowners and others in the catchment area, all of whom had stressed the serious extent of soil erosion within the catchment and its effects on farm productivity. It was made clear that this erosion must also result in severe siltation of the proposed reservoir, if it were not arrested. Severe siltation was already apparent in the small existing srorage.

The Committee recommended to the Government that, in addition to the cost of construction of the dam, funds should be provided towards the cost of erosion control and soil conservation in the catchment area. The Government, when agreeing to the construction of this dam, allotted an amount of £500,000 for these purposes, to be spread over

a period of ten years. This work was to be organised by and carried out under the supervision of the Soil Conservation Authority.

This was a substantial breakthrough. In 1960, a local office was established at Heathcote and an Eppalock Catchment Committee was formed, including farmer representation. An initial area of about thirty square miles, comprising three badly eroded subcatchments, was selected, studied and planned for erosion control works and improved land use and management practices.

The basis of assistance was that the Authority would meet the cost, from the Government allocation, of those erosion control works which would not, in themselves, improve farm productivity, but were necessary to the success of the plan and so were in the public interest. The farmer would meet the cost of soil conservation measures that would directly increase his farm production. This financial assistance was in recognition of the fundamental point that the problems to be treated were historical, with the present landholders having little or no connection with the root causes. It also recognised that many of the works undertaken were in the public interest, not that of the landholder alone, and therefore the public, through the Government, should contribute to the costs.

The landholders co-operated very well, with substantial progress being achieved in the first year of the ten-year programme. Actual work on the farms commenced in 1960 and in the first year about 5,000 acres of hilly land were sown to improved pastures, fifty erosion control structures were built, 200 groynes and silt traps constructed in gullies, 1,500 chains of fencing erected and more than 18,000 trees planted. It was anticipated that for each pound spent by the Authority, the landowners would, during the next few years, spend a like amount.

The early success of the Eppalock Catchment Project, when co-related with the results of the earlier "whole farm" projects, set the stage for the 1962 legislation, which empowered the Authority to establish the highly successful Group Conservation Area projects which have since been undertaken throughout the State.

Acceptance and Attitudes

It is of interest today to quote from the Authority's Annual Report of 30th June, 1954, concerning the importance of soil conservation:

"Soil conservation is fundamentally a matter of proper and efficient

use of the land resources of the State for agriculture, grazing, forestry and water supply. If soil conservation can be brought nearer to achievement, then the city and urban populations will benefit both directly and indirectly. They will benefit by lower food prices as a result of a more efficient production, by lower taxes reflected by a prosperous farming community, by lower rates as a result of diminished expenditure for the repairs and maintenance of public utilities which, in the past, have been damaged as a result of soil erosion. Furthermore, these benefits will be lasting, safeguarding the productive potential of the land for the use of future generations. As an investment for the lasting benefit of the whole community, no better avenue exists for State expenditure than research and extension to provide the knowledge necessary to satisfy the growing demands of progressive landholders."

Today, it is true that soil conservation has been achieved over wide areas and most of the worst erosion scars have been eliminated; also potential and actual production have improved out of all recognition. Unfortunately however, influences beyond the control of the soil conservation services, and the farmer, have prevented the lowering of rates, taxes and food prices, and have not permitted the prosperity of the farming community to reach an acceptable level.

In its eighth Report to Parliament, dated 30th June, 1957, the Authority stated:

"In no single year since the Authority was constituted in 1950, has there been such a widespread expression of opinion by legislators, farmers, graziers and dairymen's organisations and others, of the need for soil conservation, not simply on single properties, but on a whole catchment basis.

"This planned approach to land use in Victoria, which the Authority has been urging since its inception, becomes more urgent with the rapid expansion of population, and the need for increased efficiency to compete in world markets.

"The Authority's long term plan of regional surveys to determine the best land use of undeveloped areas has already been used in part in assisting the Government in deciding whether those areas are to be opened up for settlement.

"The demand by individual farmers for Authority services continues to increase, and requests from shire councils and government

departments for specialist advice on erosion problems are being met as quickly as possible, but increased staff is urgently needed."

In its ninth Report, dated 30th June, 1958, it stated:

"The Authority endeavours to protect and develop Victoria's increasingly valuable natural resource, the soil, and in doing so contributes to the safety and maintenance of the other major resources – water and forests. In the final analysis, soil conservation is a precise approach to the problems of land use to determine the ultimate in sustained production."

And again in June, 1959:

"The first decade of endeavour, to control erosion and to introduce the ideal of conserving the soil to attain high permanent production, has made a considerable impression on those areas where the Authority has been able to concentrate effort.

"Much has been learned from research to determine the best forms of land use; thousands of landholders have been helped and many organisations have benefited by advisory services, but the real task has only begun.

"Sufficient time has passed to be assured that the basic planning, organisation and methods of attack are sound and require only development to ultimately provide an efficient economic soil conservation service throughout the State."

During the eleven years under review in this Part IV of the history, growth and development of soil conservation in Victoria were steady. At the same time, the foundations were set for considerable expansion. This had become apparent towards the end of the period, not only by an increasing realisation and demand for advice and assistance by the farming community, but also by accpetance of the situation by Parliament. An examination of Government expenditure by the Authority indicates this trend. Government expenditure from Vote and Loan Funds during those years was:

Financial Year	Total Expenditure (In Australian Pounds)
1949/50	£24,966
1950/51	£47,076
1951/52	£83,206

Financial Year	Total Expenditure (In Australian Pounds)
1952/53	£80,126
1953/54	£81,686
1954/55	£103,045
1955/56	£113,752
1956/57	£130,526
1957/58	£158,827
1958/59	£172,986
1959/60	£185,102
1960/61	£275,274

2. ADMINISTRATION DIVISION

It has already been detailed how the Board was administered through the Premier's Department and how the new Authority would continue this arrangement.

The initial Authority administrative staff consisted of H. R. Gray, Secretary, who had taken over from Ray Phillips, and Mrs. Davis and Miss Malone as stenographer-typists. Mrs. Harvey replaced Miss Malone in June, 1952.

In January, 1953, Vicky Briguglio joined the staff as telephonist and receptionist. She was a colourful character who made it her business to be friendly with all members of the staff and thus became the unofficial "communicator". As such, she served a useful purpose by keeping all informed about current events.

When the move was first made to "Heroncourt", building services were carried out by the Public Works Department, direct from Melbourne. Later a resident caretaker was provided and he occupied part of the attic accommodation. He was replaced, in 1954, by Bob McGarry, who has remained to the present day as an efficient and effective part of the organisation.

In April, 1951, W. J. (Jerry) Crawley joined the staff as Assistant Secretary. He came from the Department of Agriculture with wide experience in the Public Service. A capable, efficient officer, he was well liked by members and staff. On the retirement of Arthur Tidd, in 1961, he was appointed Secretary.

The Authority decision to group its staff into divisional units, each with defined responsibilities, meant that the Administration Division would, of necessity, be closely associated with the Authority and the overall activities of the organisation. It also had to maintain contact with other government departments with which the Authority was associated.

Most of its work consisted of routine, day-to-day activities which do not require enlargement here.

However, developments relating to the establishment of Head Office and country offices did require special effort by the Administration Division. Provision had to be made, not only for the development of Head Office accommodation, but also for office and living accommodation for field staff, wherever they might have to be located.

Some problems arose from the fact that the new legislation did not specify that any particular Minister should be the Minister for Conservation. The Premier and the Ministers of Water Supply, Lands, Agriculture and Forests have all held the Conservation portfolio over the years prior to the establishment of the Ministry for Conservation, in 1972. The fact that the Authority was administered by the Premier's Department meant that the Secretary and his staff had to maintain close contact on administrative matters with the staff of that department. The Chairman and Members, on the other hand, had to maintain a continuous contact with the incumbent Minister for Conservation, on operational matters.

Other duties of the Secretary and his staff covered a wide range of activities which included the registration and filing of all correspondence; ordering and purchase of stores and equipment; control of transport; recording of staff affairs and management of casual employment; arrangements for in-service training, including the annual staff school.

Office Accommodation

Throughout its first year, the Authority sought more suitable office accommodation than the restricted and central city offices in Kurrajong House. It required room to expand, preferably in a location which was readily accessible to the farming community.

As there was no space available in any of the existing offices occupied by State Government departments, the Minister gave approval for the Authority to seek and purchase a suitable suburban property. Several

large outer suburban properties were considered. Approval was given to bid up to £25,000 for a suitable property of 120 acres, to the north of Ringwood, with a large house and extensive outbuildings. The bidding opened at that figure and the property was sold at a much higher one, so hopes were dashed.

Many properties in nearer suburbs were considered. One, in Lansell Road, Toorak, appealed, but the Authority decided against that select residential area. No doubt strong objections would have arisen from local residents. The purchase of a property in Church Street, Richmond, for £10,000, was almost finalised. The Richmond City Council, however, objected to a residential property in its territory being turned into government offices. This objection may not have necessarily prevented the purchase but one of the provisions in the contract of sale was not acceptable, so that fell through. However, later events proved that the property would probably have been unsuitable as a permanent head office site.

In February, 1951, two rooms became available on the third and sixth floors of the VCA building, in Collins Place. These rooms had been occupied by officers of the Department of Agriculture and the lease still had some time to run. These were taken over by the Authority, to be occupied by the then Head Office staff of the Field, Research and Engineering Divisions. Whilst this temporarily relieved the crowded conditions at Kurrajong House, communications were difficult. There was only one telephone – wartime restrictions were still being felt in this important area – and the two rooms were three floors apart, so that the staff lived a very handicapped existence.

In May, 1951, a Kew house property, "Heroncourt", became available. It consisted of eight rooms, one very large, on the ground floor, plus three attic rooms. Situated at the corner of Cotham and Burke Roads, on land 307 feet by 239 feet, the house was probably built during the 1880s. It faced Burke Road, with the entrance gateway at the corner. It is of interest to note that the original owner of this property had been granted, as an enticement to build, an annual railway pass to Melbourne.

It enabled him to travel from Deepdene railway station, on the then recently constructed Outer Circle line, which was operating at the time from Deepdene to Ashburton. The line passed under the main Box Hill line at East Camberwell, where passengers for that line had to transfer to the upper platform on the main line.

The property had already been subdivided into six allotments – four facing Burke Road, and two, including the house allotment, facing Cotham Road. The house block (No. 2) had been sold at auction in 1950 but was up again for sale. As it was suited to the needs of the Authority, the Minister, Hon. R. R. Brose, gave approval and Lots 1 and 2 were purchased on 7th May. The purchase price was £9,900 for Lot 2, on which the house was located and £2,160 for Lot 1, on which a stable and shed were located.

Occupation became possible on August 31st, and the few officers then on the Head Office staff of the Field, Research and Engineering Divisions moved to "Heroncourt" from their VCA quarters. However, some alterations and a general renovation of the building were required before the Authority and administrative staff could be moved from Kurrajong House. Finality of the purchase, and delay in carrying out the necessary renovations and other works, meant that it was not until 11th June, 1952, that the staff at Kurrajong House were able to move to their new premises.

Developing a Head Office Site

While the decision to move out to a suburban site was virtually forced on the Authority because there was no government office accommodation available in the city, the Authority had the firm opinion that there would be much to be gained by developing the Kew site as a permanent Head Office, because of the many advantages of such a location for a country-oriented organisation. It determined that, unless directed otherwise, the new location would become its permanent headquarters.

It was obvious that extensions to and ultimate replacement of the original building would be required. An ultimate plan envisaged construction of two new wings to the south and a multi-storeyed structure, to face Cotham Road. Additional land for further building development, and off-street parking for Authority vehicles and private cars, would be needed. A prior necessity, however, was to convince the Government and central administration that it was suitable for a permanent head office site. Considerable opposition was encountered.

Following a request from the Government in April, 1954, investigations were made into:

(a) The likelihood of obtaining alternate suitable space in existing public offices.

(b) The purchase of some other building in or nearer the city.
(c) Siting the offices in, or adjacent to, some country town.

The Authority then submitted that, taking all aspects of the matter into consideration, the Cotham Road location was most suitable. However, Government approval for permanent occupancy was not granted and the matter was allowed to rest.

On 5th June, 1955, when Henry Bolte became Premier and Minister for Conservation, he paid an early visit to "Heroncourt". Records show that on 30th June, 1955, he approved that:

(1) The "Heroncourt" site would be the permanent Head Office location of the Soil Conservation Authority.
(2) Necessary alterations and additions would be started as soon as possible.

The alterations and additions were to be:

(1) An extension to the existing main building to provide working facilities and offices for the Research Division, a Drawing Office and offices for the Engineering Division.
(2) A storeroom, workshop and garage in a new building to the rear of the property.
(3) A caretaker's cottage.

The estimated cost of these works was £17,150. However, it was not until April, 1957, that a tender of £16,400 was accepted for the erection of a new two-storeyed wing and various alterations to the original building. It was late in 1958 when these works were completed.

In the meantime, staff numbers had continued to increase and overcrowding persisted. Plans were prepared for a second new wing, a single-storeyed structure, to provide for administrative staff. This was built during 1960 and occupied early in 1961.

From the early days of occupation of the Cotham Road site, the Authority had regarded the vacant land situated between its office and Burke Road as being very suitable for possible future development. It was unable at that time, however, to present a sufficiently strong case for its purchase. The four allotments concerned were sold at auction in June, 1954, and a house was subsequently erected on the southernmost allotment. The remaining three were held by the purchaser as an investment.

In January, 1957, a submission was made to the Minister asking that this land be purchased for future development. At his request, several departments were canvassed as to whether they might be able to join in utilizing this area if purchased, but all replied in the negative. Meanwhile, in the absence of more practical usage by the owner, the area under a large oak tree, which is still growing in the grounds of the present motel, was used by the Authority staff for its annual Christmas party and other functions.

Additional land was purchased, however, at the rear of the property, abutting the southern boundary. Negotiations were well advanced for the purchase of more land from the next two properties in that direction but those fell through when one of the owners sold his property and the new owner would not negotiate. However, lease arrangements were made with the MMBW for the use of a section of the reservoir enclosure abutting the western boundary of the Authority property. The lease terms prevented this land from being used for permanent buildings but it was put to use as a nursery block for the growing of young stock and test plantings, and as a staff car parking area.

Country Accommodation Problems

Office accommodation and housing in country towns for field officers had been difficult to obtain during the tenure of the Board. A decision by the Authority, in 1950, was that office accommodation be found, and a house provided for, each District Conservation Officer. This decision was not easy to implement at that time, as few houses for sale and office spaces for rental were available in most country towns. To obtain approval and achieve construction by the Public Works Department was a long, protracted process.

The experience of Peter McNaught, at Ouyen, was typical. He found office space at the rear of a real estate business in the town. In March, 1950, he was transferred to Charlton as District Conservation Officer, Avoca River District. The only house available was to the rear of a farm property some five miles out of town, where he lived for some time. There was no office space available. In July of that year, the Authority sought approval to purchase a block of land, on which it was proposed to build a house and office.

The land was subsequently purchased for £45, but, under the prevailing conditions, the construction of a house was likely to be long deferred. Another house then became available and was purchased by the

Authority in January, 1951, for £250. After necessary renovations had been effected, it was occupied by Peter and his family on 1st April, 1951. It served as the District Conservation Officer's home for many years, doubling as his office for some time. Relief finally came when the State Rivers and Water Supply Commision, which had in hand the design and construction of a branch office in the town, offered the Authority a room at a rental of five shillings (50 cents) per week. This offer was gladly accepted and the room became the Authority's office at Charlton.

When Tim Tame was appointed in November, 1945, his office at Benalla was established in an unoccupied shop. Similarly, when Deane Runge was stationed at Stawell in April, 1946, arrangements were made for him to occupy a corner of the Shire Offices. Some time later, Bill Gleeson was provided with a small desk in the Court House at Alexandra.

3. FIELD DIVISION

The most important task of any soil conservation organisation is to win the confidence of the farmer and to convince him that an essential element in correct land use is to ensure that the land not only produces but remains in a fertile, productive and stable condition. In other words, that it can be utilized in perpetuity and yet conserved.

To achieve this, close contact and co-operation must be achieved between the soil conservation officer and the landowner, who in turn must have confidence in his soil conservation service. To achieve this essential confidence between the landowner and the soil conservation service, it is a basic requirement that the organisation be decentralised to the extent that the advisory staff be stationed in every part of the State, particularly in those areas where land disturbance problems are severe.

The Board had realised this and set about to establish District centres quite early. The 1943 appointment of R. G. (Eric) Thomas, as Technical Officer of the Board, was intended primarily to ensure competent leadership towards this objective, and the success he achieved, mostly under difficult circumstances, is already recorded. He was a great acquisition to the conservation cause in Victoria and his appointment as Member of the Authority, in 1953, was fully deserved.

At the time of the changeover from Board to Authority, the technical staff comprised one Senior Conservation Officer, eleven Conservation Officers, a Surveyor, an Assistant Engineer and one Research Officer. Four country centres had been established, with resident officers, at Benalla (November, 1945), Charlton (February, 1949), Stawell (April, 1946) and Ouyen (October, 1947).

H. R. (Dick) Dickinson joined the Field Division staff as a Senior Conservation Officer in October, 1950, following service with the Tasmanian Department of Agriculture. He succeeded Eric Thomas as Officer-in-Charge of the Division when the latter was appointed as Authority Member in 1953. In 1957, he assumed the newly created position of Chief Conservation Officer, a position he held until his retirement in 1973.

Alex Mitchell, B.Agr.Sc., destined twenty-one years later to become Chairman of the Authority, joined the staff in March, 1951. During that year he worked, from Head Office, in various areas. He was then stationed at Coleraine, as Acting District Conservation Officer, on 25th February, 1952. He was appointed Agronomist, Research Division, on 16th November, 1953, passed the Soil Conservation Examination and was classified District Conservation Officer in January, 1954. He continued with agronomic activities and also as District Conservation Officer for the Glenelg District, until 18th February, 1957, when he was appointed Senior Conservation Officer. In December, 1957, he was transferred to Head Office and took over responsibility for the Upper Murray, West Coast and Glenelg Districts. In January, 1961, he was appointed Principal Research Officer, a position previously held by A. B. (Alec) Costin, who had accepted a Canberra appointment with CSIRO.

After appointment, Field Division officers already holding the necessary basic tertiary qualifications were also required to pass the Soil Conservation Examination. Officers already so qualified had been well accepted by the farming community as practical and competent advisers in the correction of soil erosion and the introduction of soil conservation and sound land use practices to the particular soils, climate and topography of each type of land throughout the State.

Early Erosion Control Projects

In an early appreciation, the Authority recorded that water erosion occurred widely throughout the State. It was most severe in the hilly country to the north of the Great Dividing Range and the extent to

which erosion-affected land, had been retired from cultivation was alarming. Tunnel erosion was found to be widespread. Wind erosion occurred principally in the Mallee, where the average rainfall is fifteen inches or less. It had been very severe during the drought years of 1943 to 1945, when little could be done to prevent soil drift, other than the emergency treatment of land which could be furrowed or otherwise roughened. As we soon learned, the principal objectives for the prevention of erosion by wind are the maintenance of soil structure and fertility, together with the maintenance of a protective vegetative cover.

During its first few months the Authority, as a matter of policy, and following the pattern established by the Board during the 1940s, conducted field days on the properties of winners of the four Soil Conservation Competitions. Another field day was also held on a property in the Nhill district. The sponsorship of Experimental and Demonstration Areas which had been established by the Board, mostly on eroded farmland, was continued and their number was substantially increased by the Authority. The Field Division devoted much effort towards ensuring the success of these events.

A substantial amount of the practical field work undertaken by the Field Division, for some years after its formation, was a continuation of project developments to which the Soil Conservation Board had already applied considerable effort. As soon as increases in staff numbers and experience made it possible, new projects were developed by the Division. That erosion control had been, and for some time would continue to be, a major Divisional objective, is demonstrated by six major works projects, five of which were established by the Board. They indicate the wide range of problems, localities and applications of new practices being tackled at all levels by the new Field Division personnel. Two of these projects have already been detailed – the 1942 Dookie College erosion control project, and the development of J. W. Payne's property, at Woodstock, as a Demonstration Area. A review of the development of the other four projects is appropriate here.

1. Barrakee Hills Demonstration Area – Charlton

The undulating wheat growing country in the general Wedderburn-Charlton area, typical of many other northern parts of Victoria, was subject to severe gully and sheet erosion, and severe flooding of the Avoca River due to excessive stormwater runoff. The Barrakee Soil Conservation Project was commenced in 1945, in co-operation with two landholders and the State Rivers and Water Supply Commission. It

was the first Victorian arable land project to be conducted on a co-operative basis. The land had been dissected by numerous gullies and production had substantially declined. The Charlton-Korong water supply channel passed through the properties and was threatened with siltation.

Contour banking on the arable land on one property, and the general provision of fenced grassed waterways, checked erosion and provided for safe cultivation on a wide rotation. Control of grazing on the more elevated Crown land within the project assisted in the control of runoff.

After construction of the contour banks on the first property, a field day was held on the adjoining property to demonstrate the formation of contour banks with normal farm equipment. Farm machinery firms were quick to take advantage of this opportunity. They obtained used implements and tractors from district farmers, reconditioned them, and made them available for demonstration. The lines were surveyed and several lengths of banks were constructed, as a practical demonstration, to a large attendance of district farmers.

This demonstration was followed by some contour layout on other properties in the district, but it was not until about 1958 that substantial areas of eroded arable land in the vicinity were similarly treated and the pattern had been firmly established for similar developments elsewhere.

2. Cottons Pinch – Yea to Mansfield Road

Here a large gully had developed along the main road, about eight kilometres north-east of Yea. Some years previously the road had been moved to a closely parallel location but the gully continued to erode and threaten the new road. In 1951, the Authority decided to treat this gully as a demonstration project, with the Yea Shire Council and landowners all co-operating.

Tunnels in the 500-acre catchment area were broken down, and the surface was then contour furrowed and sown to improved pasture. The Council built erosion control structures along the gully. Tree planting within and alongside the gully, to stabilise the bed and banks, was undertaken by the Authority, which had also provided survey and other project assistance to the landowners and Council. The erosion was stopped, the road effectively protected and the catchment improved. Some 120 interested local residents attended a field day which was organised when the initial works had been completed.

3. Avenel Experimental and Demonstration Area

In 1948, the Board decided to attempt the reclamation of a severely eroded area close to Avenel, adjacent to the 75-mile post on the Hume Highway. The eighty-three acres of hillside country were bare of vegetation, severely tunnelled, sheet and gully eroded and infested with rabbits. The runoff from this catchment area, involving three spurs and two depressions, had been a problem to the Country Roads Board, Railways Department and downstream landowners. Where the railway crossed the outfall gully, two culverts had already failed and a third, much larger culvert, was under construction at a lower level.

The owner of the land could not be persuaded to undertake or meet any of the cost of remedial measures but agreed to allow the Soil Conservation Board to do so. The Board decided that, if the erosion on this hillside could be corrected, the severity of runoff reduced and the area brought back into production, it would be a good demonstration to the departments affected, the district landowners and the public passing along the highway. It could be used for experimental as well as demonstration purposes.

The area was closed to grazing, a rabbit-proof surround fence erected, and reclamation work commenced in 1949. The tunnelled area was ripped across the slope, then up and down, to break down most of the tunnels. It was again ripped up and down and on the contour. Some of the gullies were filled in, resulting in wide furrows, and most of the area was cultivated for sowing.

The area was sown to cereal rye, Wimmera ryegrass and subterranean clover and, by August, 1950, a substantial crop of cereal rye had grown. The first crop was not grazed but was used to provide a mulch and seed for the next season. Limited grazing then occurred each year and further mechanical work was required where tunnels re-opened. An area, which had not been treated in the first year, was planted with trees and fenced out as a control experiment.

Each year to 1955, the area was carefully controlled. When some of the tunnels re-opened, they were again broken down and filled in. In the meantime, the Authority encountered difficulties with a new owner, and it was decided not to continue further with the project.

However, several useful conclusions had been reached:

(1) Tunnelled areas can be broken down by ripping and sowing down

but further attention is required, perhaps for some years, to ensure long-term stabilisation.

(2) Deep-rooted perennial species are preferable to shallow-rooted annuals, especially in the revegetation of tunnelled land.

(3) Light, controlled grazing is essential on tunnel-prone country.

(4) Trees can be grown to advantage in and around tunnelled areas, such as at Avenel, but must be protected from rabbits.

But perhaps the most important lesson was that co-operation of the landholder is an essential feature when attempting to reclaim eroded land.

It must be repeated that tunnelling, as a form of erosion, was unique to Australia, and in particular Victoria. There was therefore neither knowledge nor literature available about possible treatment and the Field Division officers involved in the project found themselves pioneering some totally new approaches to erosion control. The Avenel site was an example of severe tunnel erosion and a great deal of knowledge was obtained by the Authority and its officers from their experiments with various methods in their endeavours to reclaim the area and bring it back into production.

4. Experimental Orchard Layout

At the Royal Show in 1945, Mr. J. R. Harrison, of Warranwood, near Ringwood, approached the Board representatives concerning the planting of a lemon grove on the contour. His property, then recently purchased, was inspected by R. G. Thomas. It was on shallow Silurian soil with slopes varying between eight to ten degrees. It was agreed to lay out, for contour planting, an area of about four acres. About fourteen acres of the property had formerly been under citrus and other fruits, but it was burnt out in 1938 and had reverted to scrub.

Contour lines with a fall in both directions were surveyed by C. J. Drmla. The 500 lemon trees were planted and the banks built by January, 1947. One month later, 75 points of rain fell in twelve minutes, the 'water was held' and no erosion occurred.

By Februry, 1953, the trees had grown well and were producing good fruit, although there had been two very wet winters and extra drainage had been provided. However by March, 1957, there was a different

story to tell. Mr. Harrison was disappointed with the growth and condition of the trees and asked for advice. The property was inspected by Messrs. Downes, Leslie, Gyarmathy and Sleuter. They noted 'the debilitated state of the trees, dead and dying wood, yellowed leaves, sparse foliage and obvious lack of vigour' – all symptoms of wet feet. Collar rot had set in. Obviously there was an insufficient gradient along the contour banks to provide effective drainage. Water logging had resulted and the root systems were unable to cope.

A system of waterways 80 to 100 feet apart was then designed with drainage along the banks on gradients of 1%–1.5%. There were constructed by a contractor for £86, the Board contributing on a 3:1 basis.

The trees did not respond to this treatment. By 1965 Mr. Harrison had taken out the trees, and did not intend to replant.

This experiment was a failure but it provided valuable information to the Board and the Authority for subsequent recommendations to orchardists concerning the planting of trees on hillsides, particularly where heavy clay underlies the shallow surface soil. Seppelt's Great Western vineyard presented a somewhat similar problem. There, an area of well established vines was badly eroded. The recommendation was to abandon the area and replant in an area of much easier gradient where some rows were planted on a contour layout. These have grown well without an erosion problem.

The Hanslow Cups – Soil Conservation Competitions

As has already been detailed, Commissioner H. Hanslow of the State Rivers and Water Supply Commission, undertook a deep personal involvement in the promoting of soil conservation, by personally meeting the costs of the large silver trophies which, known as the Hanslow Cups, were for perpetual competition amongst Victorian farmers on a competition district basis. By 1950, there were four such competitions, the Mallee, Upper Goulburn, Hume Catchment and Pyrenees.

Until 1951, the original Mallee Hanslow Cup Competition was sponsored by the State Rivers and Water Supply Commission. The other competitions were sponsored by the Board, then by the Authority. In 1952, the Mallee competition was integrated into an overall competition pattern and the Authority undertook its sponsorship.

In the same year, the Avoca River District Competition commenced, again thanks to Harold Hanslow's generosity, with the fifth Hanslow Cup being awarded to N. Blackwood, of Buckrabanyule. From 1952, all Soil Conservation Competitions were conducted by the Authority.

In the meantime, however, Soil Conservation competitions had spread to other areas. In 1945, Harold Hanslow presented a second silver cup for competition in the Goulburn catchment area. This was followed, in 1947, by a third cup for competition in the Upper Murray catchment. In 1950, a fourth Hanslow Cup was presented for competition in the Pyrenees district. It was won, in the first year, by Messrs. Cameron and Son, of Buangor. All these competitions were sponsored by the Board and later the Authority. Mr. Hanslow judged the Mallee competition in 1950 and it was won by W. H. Kruss, Torrita; F. D. Runge D.C.O., judged the Goulburn Catchment Competition, won by C. S. Hartridge, Benalla; and W. J. Tame, D.C.O., judged the Upper Murray Competition, won by L. Cox, Wangaratta South.

In addition to the magnificent silver cups held annually by the winner in each competition, additional presentations were made to the first three place getters. These prizes were contributed mainly by banks and business houses associated with farm requirements and products. A number of Shire Councils also donated awards for the best entry within their respective shires.

Field days were held each year on the winning properties. The special features leading to the success of the winners and place getters were inspected and described, prior to presentation of the awards. These competitions developed increasing interest and entries, with the field days attracting larger and larger attendances. In 1958, an all-time record was established, when the five competitions drew an entry of 174 properties. Senior and District Officers were appointed each year to judge the entries and this led to continuing contact with the landowners and enabled staff officers to meet farmers in other districts to their own. Some 500 people attended the Mallee field day for that year, another record.

On the 1st October, 1958, Harold Hanslow, O.B.E., died. The Authority made special reference to him in its Tenth Annual Report, in the following words:

"The Authority, on behalf of many appreciative landholders, desires to acknowledge the unique services to the State in the field of conservation, of one who had no personal interests to further but was

actuated by an intense love of the land and a consciousness of its importance to the national welfare."

In his will, he had made provision for a further contribution to aid soil conservation competitions. Harold Hanslow had expressed a wish that the competitions be spread over the whole State, and this the Authority then decided to do. Each competition area would comprise four districts, to be, in turn, the venue of the annual competition. A sixth Cup was purchased from the fund provided by Mr Hanslow's bequest. Competition districts then became: Mallee, Western, North-Central, North-Eastern, Gippsland and Southern.

The total number of entries continued to rise each year. In 1959, 185 farmers were entered, and in 1960 the number was 208. The newly established sixth competition, in the Southern district, was held for the first time in 1961. There is no doubt that these competitions have provided and still provide major contributions and incentive to the development of soil conservation by farmers throughout Victoria.

Wind Erosion Control

In its first Annual Report, published in 1950, the Authority reported that wind erosion in the Mallee had been severe during the drought years of 1943 to 1945. Little could be done to prevent soil drift, other than undertaking an emergency treatment of the land, which could be furrowed or otherwise roughened. Conditions improved during the following comparatively good seasons. Wind erosion presented two problems – the treatment of broad areas to maintain production and prevent the occurrence of erosion, and the treatment of 'blown out' ridges and sand dunes. There is no specific mechanical practice for the control of wind erosion but soil conservation can be achieved by modification of existing agriculture practices.

The annual Mallee Sand Drift Control Competitions had been very helpful in focusing attention on the need for a conservation approach to dryland farming. This was largely achieved by publicising the methods which successful competitors used in preventing wind erosion. These methods aim at two principal objectives – to maintain soil fertility and structure and to ensure that, as far as possible, a vegetative cover protects the soil at all times.

By 1945, the Board had realised the value of using cereal rye plantings as a first step in the stabilisation of sand dunes and wind eroded areas. It decided to distribute, free of cost, rye seed and superphosphate to

landowners who were prepared to sow it on their eroding and wind-blown country. During the first five seasons, 1944 to 1949, this plan resulted in 3,490 bags of cereal rye seed and 369 tons of superphosphate being distributed to 539 farmers, to be sown on 15,000 acres of bare, eroded farmland. By this means the treated area was, at least, temporarily stabilised. The Authority continued to supply, free of cost to the landowner, cereal rye seed and superphosphate during 1950 and 1951. By then, the Authority considered that the use of rye as a first agent in the revegetation of wind-eroded land was well known to farmers and its use had become general. The free distribution of rye seed and superphosphate therefore could no longer be justified.

In 1951, the Authority entered into a share farming agreement with a farmer of Torrita to take over an abandoned, badly eroded, 640-acre farm. He would work it under the direction of Field Division officers, with costs and return to be shared with the Authority. In 1953, after initial preparation, an area of 366 acres was sown to wheat and cereal rye. The yield to the Authority from this crop paid for the initial costs, including levelling and clearing. In 1954, 620 acres were sown to wheat, oats and rye and only fifteen acres were non-productive. By 1958, wheat had been sown in rotation with other cereals on the better soils, to produce 9,240 bushels of wheat and 3,890 bushels of rye. In addition, 400 sheep had been grazed periodically. Barrel medic had been sown on the better soils and lucerne on the higher sand hills. The estimated value of the land was then £6 per acre whereas, in 1952, no buyers were available at twenty-five shillings per acre. This was the first of several successful demonstration Mallee farm reclamation projects entered into by the Authority during the nineteen-fifties.

Fire Damage in the North-East

Severe bushfires occurred in north-eastern Victoria in January, 1951. Extensive areas of steep sheep grazing land were burnt out and it was obvious that the first heavy rains could result in substantial sheet and gully erosion, because the complete destruction of ground cover had exposed the burnt land to this hazard. As the farmers would be fully occupied with other immediate problems, such as repairs to fencing and hand feeding of stock, the Authority set out to minimise the erosion hazard and "Operation Charcoal" was undertaken.

It was decided to plough contour furrows on as much as possible of this steep, burned out, hillside country, which extended through the Yackandandah, Derbyshire, Burrowye, Hansonville and Glenrowan districts. Agreements were made with the landowners concerned, and

by mid-February, a party of twelve officers, which at that time comprised almost the whole staff of the Field Division, was located in the district under the direct control of Dick Dickinson, Senior Conservation Officer.

The contour lines were surveyed and Kirpy reversible ploughs were used to plough the furrows. A contractor was engaged later to continue this emergency work. Under "Operation Charcoal" about 1,700 acres were surveyed and furrowed without cost to the landowners. The runoff from heavy rains during March was held, on the furrowed hillsides, without damage resulting.

Establishing a Conservation Pattern

From the days of the first appointees by the Board to its field staff, it became the accepted custom for these officers to conduct on-farm experiments with, and then to demonstrate, the construction of all kinds of erosion control works and soil conservation activities. In this way, Field Division officers not only learned how best to do the job with facilities and equipment normally available to farmers – they also gained the confidence and enthusiasm of the farmers. Thus the performance of the Field Division during the first ten years of the Authority enabled it to consolidate a pattern of direct relationships, with land users, which has been maintained ever since.

The circumstances affecting the new Authority are worth recounting. In 1950, less than a dozen Authority personnel could lay claim to any real knowledge or experience in the relatively new science of soil conservation. Most of this had come from hard, practical experimentation in the field during the days of the Board. Some overseas and interstate experience had been used and adapted to the soils and climate of Victoria.

Under the 1949 Act, the Authority was given wide statutory powers, generally along the lines of those envisaged some fifteen years earlier, when the concept of a State soil conservation service was first being considered. The charter of the new Authority made it essential to recognise that, to achieve the aims and objectives of the Act, an expert knowledge of practical soil conservation methods and techniques would, on its own, be inadequate to the task facing the Authority. An equally important need would be an ability, on the part of the Authority and its officers, to gain the co-operation of the scores of thousands of Victorian farmers, hitherto unreached, who would need to be brought into the immediate fight against erosion. Under the Act, as

the Authority gained in numbers and experience, its activities would necessarily have to be extended far more deeply into the Victorian community, to the extent that, in the long term, few people indeed would not be affected to some extent by Authority policies, decisions and activities.

It was thus imperative to ensure that contacts and communications with key people, whether they be farmers, officials or the public at large, were of such a character as to gain the confidence of those people who would be involved in Authority programs and to enlist their co-operation in implementing the programs. As the front line campaign troops in the soil conservation field, the few experienced personnel of the original Field Division had to shoulder a heavy responsibility; they had to maintain high professional standards in their work, and develop such personal links with farmers and officials as would ensure their co-operation when needed.

That they were successful in doing so is now a matter of record. During that first decade of Authority development, as the Field Division grew both in numbers and experience, its officers at all levels became increasingly involved in the assessment, planning and direction of the farm-based, group co-operative projects already described. Their relationships with the newly established District Advisory Committees in particular steadily developed along lines of mutual respect, to the extent that the committee contributions became highly valued at all levels of the Authority. With the passing of time, it became more obvious that, in the critical fields of farm erosion control and the development of the wider concepts of conservation farming, farmer confidence in Field Division officers, and the Authority, was becoming more firmly established.

It has to be kept in mind that, in those days, the popular conception of a farmer still tended to be one of a rugged individualist who was mostly resistant to innovation or change and largely contemptuous of rules and regulations if they affected his farm activities. Authority experience has been the reverse. It is to the lasting credit of thousands of Victorian farmers that they listened to the conservation case when it was put to them, mostly by Field Division officers during personal discussions, at group meetings and field days, and through District Advisory Committee activities.

It is a tribute to his collective business acumen that the Victorian farmer recognised the economic values of soil conservation methods and practice and applied them so widely to his farm management

programming, often at heavy cost in money and effort. Indeed, it is no exaggeration to claim that Victorian farmers have been the pioneers, in this State, in establishing the concept that conservation is good business, not only for the proprietor but also for the community as a whole. It is to be regretted that the inconsistencies of the market place too often make it difficult for him to be reimbursed at a scale appropriate to his enterprise, also that the community as a whole is still largely unaware of the real benefits it has gained from our farmers.

From the farm-based developments of the 1950s, the Authority established three basic working principles upon which it still leans heavily in all its activities, many of which now take place in spheres quite remote from farming.

First, if success in any area of soil conservation effort is to eventuate, it is essential that prior understanding of and confidence in Authority objectives be established amongst those people who will be involved.

Second, soil conservation works and projects are rarely concerned solely with the repair of site damage or correction of strictly localised conditions. In most cases, these are merely symptomatic of causative elements which are remote or hidden from immediate notice, and a study of the whole territory is usually necessary if the causes are to be eliminated. This was one of the most valuable lessons learned from the whole farm approach. It has since been proved to be universal in its application, particularly in the land management of water catchments.

Third, that the application of Government authority need not be insensitive, nor should it be necessary to enforce statutory directives by threats of punitive action, excepting in the most extreme circumstances. It has been a very rare occasion which has compelled the Authority or its officers to even threaten the full use of statutory powers available to them. These have come to be regarded as having to be used only as a measure of last recourse, after all powers of reason and persuasion had been conclusively exhausted.

Viewed from the perspective of time, it is debatable whether the Authority established these working concepts as a result of the effectiveness with which Field Division developed them, or whether Field Division developed them as a result of the Authority setting a pattern to be followed by the Division. The answer is probably somewhere between, linked with another factor – the total dedication of the Authority and its officers to the cause of soil conservation, and their determination to get the job done in the most effective way.

This dedication probably acted as more than being just a motivator. It was probably the factor which precipitated a positive inter-action between the Authority, its officers and the interests represented by the local District Advisory Committees – farming, government in its several forms and the general public interest.

4. RESEARCH DIVISION

In detailing the activities of the Field Division during the period 1950–1961, it was emphasised that the operations of that Division were largely farm-based over the greater part of the period, for the various reasons set out. Not stated was a further reason, related to the Authority's policy covering research objectives.

Having regard to the full charter of responsibilities delegated to the Authority under the *Soil Conservation and Land Utilization Act* 1949, it was obvious that these farm-based activities would be only one part of the full scope of Authority operations. Other responsibilities included water supply catchment management, determination of matters relevant to the utilization of all lands in relation to soil conservation and development of controls for certain types of extractive industry. Particular attention would have to be given to problems of land deterioration such as are associated with soil salting.

Lack of staff resources and background experience and technology immediately available to the newly established Authority made it a logical decision that the available operational resources should continue to concentrate on the existing farm-based activities inherited from the Board, and the Field Division programming was planned accordingly. Its work however, as already seen, was largely based on practical on-site observations or experimentation.

It was plain that comprehensive basic data on the land and its performance, such as could only be derived from co-ordinated research projects, would become essential if the limited information already available were to be appropriately augmented and extended to all other problem areas. In short, a basis had to be found for knowing the type of information needed and where it could be applied.

A basis was also needed for use in developing further appropriate conservation measures. The required basis would consist of a listing of land types, their performances and an interpretation of them. Nor was it overlooked that an economic assessment, of the consequences of soil

erosion and other forms of land deterioration, and the benefits to be derived from application of conservation measures, ranked as being equally important with biophysical descriptions of the environment. Such an assessment had not as yet been attempted in Australia.

Therefore, the Authority decided early, as a primary planning objective, to develop an applied research function. Its main purposes would be to study numerous basic aspects of Victoria's land types, soils, ecology, agronomy, hydrology and catchment conditions, aimed at filling the wide gaps in recorded local knowledge of these elements. The Authority would be heavily dependent upon the quickest possible assembly of factual data in several areas and this could only be achieved by utilizing research disciplines.

Under the 1940 legislation, the Soil Conservation Board had been empowered only to conduct field advisory and experimental activities at its operational levels. In the normal course of events, it might have been expected that a number of these activities would have been extended into programs of applied research. The limitations on the Board's manning and funding, however, made this impossible.

The valuable work undertaken between 1941 and 1951 in the Hume Catchment, by Miss Fawcett, in association with the Melbourne University School of Botany, was one of the few examples of true field research with which the Board had been associated. The soil, land use and erosion survey of the country in the Dookie to Violet Town area, which had been carried out during the 1940s by R. G. Downes, was another. A similar type of survey was carried out, prior to 1950, of soils and erosion in the Coleraine district by G. Blackburn, of CSIRO, and T. I. Leslie, who was then attached to the Authority from the Department of Agriculture. The results of these surveys had proved to be of great value to the Board and the Authority, particularly to field officers working in these areas.

A forward step was taken in July, 1949, when Ian Leslie transferred, from the Department of Agriculture to Authority staff, to undertake research into the physical properties of soils. His title, however, was that of Soil Conservation Officer, despite the obvious distinction between his laboratory-oriented duties and those of his Field Division colleagues, who were mostly country based. He was the sole research officer to transfer from the Board to the Authority – (Miss Fawcett, although fully involved in the High Plains project until 1951, for some of the time as a Board officer, had ceased to be a Board officer prior to the formation of the Authority). Subsequent to the

establishment of the Authority, Ian was titled Soil Physicist and his activities were directed specifically towards determining the structure and infiltration capacities of those soils which were particularly prone to erosion.

Having regard to the full charter of responsibilities delegated to the Authority under the *Soil Conservation and Land Utilization Act* 1949, it was obvious that farm-based activities, centred on erosion control, would be only one part of the full scope of Authority operations. Other major responsibilities included water supply catchment management; determination of matters relevant to the utilization of all lands in relation to soil conservation; development of controls for certain types of extractive industry, to name some. Particular attention would also have to be given to other hitherto little touched problems of land deterioration, such as are associated with soil salting.

It was plain that comprehensive base data on the land and its performance, such as could be derived from co-ordinated research projects, would become essential if the limited information already available were to be appropriately augmented and extended to all other problem areas. In short, a correct basis had to be found for knowing the types of information needed and where they could be applied. The basis was also needed for use in developing further appropriate conservation measures. The required basis would consist of a listing of land types, assessment of their performances and an interpretation of them.

Some soil surveys on eroded country had been carried out by CSIR Soils Division and this information was available. These and programmed surveys of other severely eroded areas would have to be examined in detail and extended to determine the extent and type of erosion on the soils of Victoria.

The Authority therefore had good reason for giving high priority to the earliest possible planning for and establishment of a research function and a decision to create a Research Division was made. Its main objectives would be to study and authenticate numerous basic aspects of Victoria's land types, soils, ecology, agronomy, hydrology and catchment conditions, aimed at filling the wide gaps in recorded local knowledge of these elements.

The new Authority therefore determined that research would be directed towards three specific objectives:

(1) The study of areas to determine the amount and kinds of erosion that have occurred and the reasons for their occurrence in relation to the features of the environment such as soils, climate, vegetation, topography and the nature of the land use. This basic information would be required before any conservation plan could be prepared for catchment areas and other major projects. Investigations would be made to determine modifications or changes of the existing forms of land use which would be necessary for soil conservation.

(2) Soil physics, namely the study of those physical properties of soils such as structure and infiltration capacity which are so important, not only in determining the erodibility of soils but also in the efficient design of erosion control measures.

(3) Conservation economics, namely the study of the economic factors which are causing the continuance of forms of land use detrimental to soil conservation and the determination of how these factors can be overcome by the introduction of soil conservation or different kinds of land use. This unit would also examine the costs of erosion control measures and the economic benefits which may be obtained by their introduction in specific areas.

R. G. Downes accepted full responsibility for the initial organising and developing of the new division, in addition to his duties as Member of the Authority. It was decided that the Division would be headed by a Principal Research Officer and, in April, 1951, A. B. (Alec) Costin was appointed to this position. He had been employed by the New South Wales Soil Conservation Service on mountain ecological research in the Snowy River catchment area. However, before taking up duty with the Authority, he won and accepted a Paulette Scholarship, which involved his being overseas from November, 1951, to May, 1953. He spent two weeks with the Authority before leaving for England. During the period of his scholarship, he concentrated on the mountainous areas of Great Britain and the Continent. During this period, Geoff Downes virtually acted as Head of Research, until Alec Costin eventually took over his duties with the Authority on 1st June, 1953.

Geoff Hexter was appointed Agronomist in May, 1951, and Imre Molnar to the position of Senior Research Officer on Conservation Economics in September, 1951. Several other positions were created but suitable applicants were not immediately available.

Frank Gibbons was appointed as Pedologist in November, 1952 but, owing to his employment in England, he was unable to commence duty

until June, 1953. His responsibility was to carry out basic soil and ecological surveys for the determination of land capability, use and management.

As appointments to the Division made it possible, several research projects were commenced. These included water infiltration experiments on various soils, physical aspects of wind erosion and the causes of landslides in relation to climatic and other factors.

In 1951, following the Division's successful initiation of the whole farm planning projects described earlier, a study of the badly eroded Parwan Valley, an important catchment in the Melton Reservoir system, was commenced, and several land classes and sub-classes were recognised and mapped. The area of Class 5 land was in the worst condition. Sheet and tunnel erosion, landslides and gullies together presented a problem of considerable magnitude. It was to become almost a corollary to project implementation that, as Authority officers extended their field experience, Class 5 land would be synonymous with the type of land which presented some of the worst problems.

A 200-acre experimental area was fenced out and several experimental projects were established. Recording gauges and automatic equipment for various purposes were installed. In the absence of all grazing, including that by rabbits, a striking regeneration of natural pasture species occurred. The water absorption rate on pasture plots was about 100 per cent higher than on comparable unprotected sheet-eroded land. The knowledge obtained from this plot work in the Parwan Valley was not only of value in understanding the problems in that area, but also in its application to problem areas elsewhere in the State.

The reclamation and revegetation of land which had been stripped of its surface soil, to obtain road building materials, was the subject of another early investigation. It was found that generally most of these areas could be reclaimed by sub-soil ripping, sowing with suitable species together with heavy fertiliser application. Soil salinity was another problem investigated in detail at that time. The ecology, hydrology, soil chemistry and physics of these saline areas were studied, and various treatment tried. Results obtained provided the basis for advice to farmers where this kind of soil deterioration was occurring. Soil conditioners were also investigated in the mid-1950s, with particular reference to their use in the reclamation of eroded soils. The economic effects of soil conservation, on the value of eroded land and on production, were investigated.

Alex Mitchell's activities at Coleraine in 1952 included a study of the severe landslides and gullies in that area and possible methods of stabilisation and reclamation. The successful reclamation of Rowes Slip and of the landslip and stream erosion at Satimer Road were carried out by him. He also established and maintained the observation and test plots at Kentbruck, prior to land settlement on that heath country. Similarly, he established observation and test plots of pasture species and *Pinus radiata* on the sand dunes at Kentbruck, adjacent to the higher heathlands. These pine plots assisted the later development of Forests Commission plantations. These valuable contributions at research levels were made in addition to his responsibilities as a District Conservation Officer with the Field Division.

In February, 1954, Miss Margaret Dettman was appointed as Assistant Soil Physicist and in May, 1954, Simon Pels, Frank Cope and Jim Rowan were appointed as Conservation Ecologists. This brought the total strength of the Research Division to nine, which enabled the development of several new projects.

Alec Costin, whose experience and particular interest centred on the ecology of mountainous areas, concentrated his field activities on a reconnaissance survey of the high mountain catchments of Victoria. In particular, he covered the Bogong High Plains, the Cobberas, the Buffalo Plateau, Dargo High Plains and the upper catchments of the Goulburn and Macalister Rivers. In an address to the Land Utilization Advisory Council in 1955, he stated:

"In these areas, accelerated erosion involving hundreds, if not thousands of millions of tons of soil has occurred already, and the aggregate is increasing year by year. The situation would warrant concern in any country, but nowhere more than in Australia, where high quality catchment areas are so very few".

His report entitled, "High Mountain Catchments in Victoria in Relation to Land Use", is comprehensive, factual, well-illustrated and alarming. It was published by the Authority in 1957. In it he says, "Compared with those of most other countries, the catchment resources of Australia are extremely limited". Therefore, " . . . careful preservation and utilization of high mountain catchment resources are more necessary for maximum economic progress and stability in Australia than in most other countries".

Regional Land Use Surveys

A program of regional land use surveys, designed ultimately to cover most of the State, was commenced in 1954. The purpose of these surveys was to obtain the information required to determine the best forms of land use for an area, and the best methods for its development and combined productivity.

The first of these surveys, by Frank Gibbons, was of a large tract of country in south-western Victoria, and comprised the greater part of the Shires of Portland, Wannon and Glenelg. Some 3,000 square miles had been completed by June 1956. About that time, a similar survey of about 2,200 square miles of the Grampians catchment and surrounding country, was also in progress.

A somewhat broader type of regional survey, of about 14,000 square miles of Mallee, was started early in 1955. For this survey, some five land systems and sixty land units were identified and mapped.

By 1957, the techniques employed on these regional surveys had become streamlined. The terms "land units", "land systems" and "geographic zones" had been introduced to differentiate between the scale and detail obtained in the surveys. The Geographic Zone, or Stage 1, described the land forms, regional geology and dominant soil groups. Stage 2, on a larger scale, showed and described the land forms, climate, parent material, topography, soils and vegetation. Stage 3a gave, in more detail, the location and composition of the land units and Stage 3b provided more detail about each land unit. Maps at this stage were produced to a scale of two miles to one inch. Stage 4 was still more detailed and maps were drawn on larger scales of up to ten chains to the inch when such particular detail was required.

The field work for the south-western Victoria survey had advanced to Stage 3b by mid-1957. Some parts had reached Stage 4. By 1959, both the Grampians survey and the Mallee survey were well advanced. A survey of the Glenmaggie catchment was commenced in 1958, and of both the Hume and the Eildon catchments in 1959. By 1961, reconnaissance surveys had covered about 31,000 square miles, which is about one-third of the State.

During the 1950s, research activities were developed in many other directions. Studies were made of the hydrological cycle from forested catchments, rainfall, runoff and peak flows from small and larger catchments being measured. A group of forested catchments at

Stewarts Creek, near Daylesford, was the main experimental area used.

A large area of farm land in Victoria was affected by soil salinity. The ecology, hydrology, soil chemistry and soil physics of these saline areas were studied, including their relationship to "cyclic" salt by means of a rainfall composition survey.

Many of these activities involved tests and special investigations in the laboratory, which was working at full capacity during this period, under the direction of Ian Leslie.

Economic Investigations

Throughout the period under review, several economic surveys were made, by Imre Molnar, into the effects of soil erosion and of improved land use practices. Each survey involved a large number of farmers and their properties. The surveys covered a wide range of climates, soils, land use practices and types and degrees of erosion. Particular attention was paid to the influence of the erosion on land values and the kind of production possible. It was found that, in general, farmers did not recognise the full significance of soil variations and still less the erosion status of each type of soil in assessing land values.

The economics of various forms of land use and management, size of properties, farming methods and the use of better and safer land use practises were all examined.

5. ENGINEERING DIVISION

In detailing the Engineering Division, it is appropriate to review the historical part played by the professional engineer in creating a consciousness of soil conservation in Victoria. The initial emphasis on the need to control soil erosion was developed by water supply engineers and land surveyors. Perhaps this was because of the obvious damage, to roads and railways, caused by gully and stream bank erosion, which resulted in destruction of culverts and bridges. Degradation of catchment areas was occurring, resulting in the siltation of reservoirs, with consequent loss of storage capacity. Wind erosion in the Mallee caused the filling of the water supply channels every year, before water could be run through to the farm dams.

It became obvious to those engaged in the replacement or repair of

damaged structures, and removal of sand from the Mallee channels, that the cause of such destruction should be attacked at its source. Soil erosion had to be arrested. Thus it was the water supply engineers and land surveyors who led the move leading to the creation of the Soil Conservation Board. It was the Surveyors Institute which brought together the various scientific bodies, including the Institution of Engineers, to discuss the problem. The outcome was that a recommendation, in terms of a virtual demand, was presented for the creation of a separate government organisation to study the cause, cure and necessary changes in land use that would have to be effected. This organisation would have to encourage, and perhaps demand, changes in methods of land use and of water disposal. It was fully recognised that the term 'land user' did not refer only to the farmer – equally at fault was the engineer – particularly those involved in the disposal of waste water.

When the Authority decided, at its first meeting, to form an Engineering Division, it defined the divisional responsibilities in these terms:

"To investigate and design structures that may be needed for soil conservation and advise on their uses; carry out surveys; erect structures for landholders; and be responsible for the maintenance of plant and vehicles. To assist shire councils and other public bodies in the control of erosion and investigate the hydraulics of soil conservation.

"To provide a service for landholders where structures, required for conservation, are too big or too complicated for erection by the average landholder.

"To investigate and determine the most suitable agricultural implements for conservation works and what simple modifications can be made for their improvement."

The full strength of the Division, at its foundation, was two officers – Keith Turner and Charles Drmla. The Authority sought to create five positions in the Division. These would be an Engineer-in-Charge, Assistant Engineer, Machinery Officer, Surveyor and a Draftsman.

Keith Turner remained as the Senior Conservation Engineer until he resigned late in 1956. R. G. (Dick) Gay was appointed as Chief Engineer in February, 1957. Gil Poynter was appointed as Machinery Officer in January, 1951, and Geoff Stevens to the position of Draftsman in October, 1950. He left in 1955 and Don Lloyd was appointed as draftsman in May of that year.

The Authority decided to contribute towards the cost of construction of approved erosion prevention works on gullies where erosion was causing or was likely to cause damage to roads or other public utilities. Grants for this purpose would be on the basis of not more than two pounds from the Authority to each pound contributed locally. The Benalla and Korong Shire Councils were assisted in that way during the first year and a further five grants of this nature were approved during the year 1950/51.

Because of the post-war demand for engineering personnel of all types, considerable difficulty was experienced in obtaining additions to the engineering staff at this time. However, some progress was made with field projects. A number of small structures was designed for land-holders and seven grants to shire councils, towards the cost of gully control structures, were approved in 1952. The Surveyor was busily employed surveying lines for the construction of contour banks and contour furrows, diversion banks and waterways.

Studies were made into the causes of up-slope development of gullies and of the accepted methods of arresting this headward erosion. Many of the earlier rigid reinforced concrete structures had failed, the result mainly of attempts to lessen construction costs. Seepage, undercutting and insufficient capacity to contain maximum flood flows were some of the causes of failure. The idea of pinning down wire netting on a prepared, grassed slope was tested and satisfactory results led to the development of the grassed chute. For occasional heavy flows of short duration, the grassed chute proved a suitable alternative to the rigid concrete structure. A later improvement, to handle the small and more sustained flow that precedes and follows the peak of the storm runoff, consisted of a bitumen or concrete lined central section to the chute.

The verandah drop structure was another innovation. Essentially it consisted of a galvanised iron, box-shaped structure, supported on timber framing. An effective cut-off wall at the head of the chute, with cut-off walls extending into the earthen bank on each side of the entrance, are essential features of the design. The objective of this structure was to carry and deliver the fall of water downstream from the eroding gully head.

Many grassed chutes and verandah drops were constructed, to designs prepared by the engineering staff, under the supervision of, and sometimes with the direct participation in construction by, District Conservation Officers. Most of these works have withstood the test of years of flood flows.

An important engineering development involved coping with erosion of embankments and similar earthworks. The steep side slopes (batters) of road cuttings and embankments, water channels and other earthworks were invariably subject to rilling and sheet erosion, sometimes leading to failure and always leading to costly maintenance work. The Authority, in conjunction with the Country Roads Board and the State Rivers and Water Supply Commission, carried out experiments to find effective and economical methods of batter stabilisation. The objective was to establish and hold a growth of grass or other vegetation on the steep face of the cutting or bank.

The Authority was informed that an implement manufacturer of Cincinnati, Ohio, Finn Equipment Company, had developed a range of batter stabilisation equipment. In 1956, the Authority made direct contact with the manufacturer and arranged to import various items of the Finn equipment. As this was their first overseas order, Mr. C. O. Finn, head of the firm, elected to visit Australia and demonstrate its use to the Authority. The equipment was assembled and given an initial trial on an earthen batter at Yallourn in April, 1957. Its use was then demonstrated to representatives of construction authorities on a small embankment on Toorak Road, at Burwood. It was then taken to Heyfield and used for the stabilisation of channel embankments, in co-operation with the State Rivers and Water Supply Commission. Charles Finn was present at these later trials and was able to straighten out difficulties that had been encountered earlier and to speed up the operations. It was then used for trial purposes by the Railways Department, Country Roads Board, Department of Works and the Army at Puckapunyal, Melbourne and Metropolitan Board of Works, Latrobe Valley Water and Sewerage Authority, Forests Commission, Public Works Department for coastal dune control at Point Lonsdale, by the Authority itself for gully control at Woodstock and the Snowy Mountains Authority at Cabramurra and Geehi.

By June, 1959, some 406 acres of earthen batters had been successfully treated with the equipment and the Authority decided that, as this technique of batter stabilisation had been amply demonstrated, it need no longer continue to operate the equipment. It was then taken over and used by the State Electricity Commission.

Throughout these years, Gil Poynter, Machinery Officer, continued to develop new ideas that could be used to improve the efficiency of equipment and so reduce the cost of erosion control works – the two-way plough for contour furrowing and a level for use on tractors

so that they could be driven along a contour, without prior survey, were two of the many ideas he introduced.

6. PUBLICATIONS AND INFORMATION SECTION

The first appointee as Publications and Information Officer was I. G. (Ian) Forbes, who transferred from the State Rivers and Water Supply Commission on 19th February, 1951. He came from the Rivers and Reclamation Division of the Commission – another product of the same branch from which H. G. Strom and I had come. He was followed on 18th April, 1951, by J. (Jim) McPhee as Assistant Publications and Information Officer.

This Section was destined to become a very important branch of the Authority's staff. It had to prepare for publication a wide range of leaflets, booklets, brochures and reports to be used for distribution to the public for information purposes and to landowners for instruction in the techniques of soil conservation. The Annual Report, for presentation to Parliament, was another major publication. The Section had to develop and maintain a photographic record of activities, including field days, structures, types of soil erosion and soil conservation activities of all kinds. It had to prepare articles for media use and generally to develop and maintain a good public image. It is of interest to note that in the year 1953/54, more than 15,000 copies of various publications were distributed.

Ian Forbes was an expert photographer and during his term of office he obtained many effective photos of erosion as it was in those days and of successful erosion control measures. He also brought together much of the photographic work which came from the cameras of H. G. Strom and R. G. Thomas – both ardent photographers. He left the Authority and returned to the Commission in 1954. The position was then filled by M. S. (Mark) Swann on 2nd August, 1954.

It was under Mark Swann's direction that the Publications and Information Section established its proper place in the organisation. He had the ability and experience to prepare attractive pamphlets and material for publication in the newspapers and periodicals. He soon became familiar with the severity and incidence of soil erosion, the methods of soil conservation being practised at that time and the general objectives of the Authority. He readily accepted responsibility for the editing of written material prepared by officers of the Authority.

In conjunction with the Field Division, he took over the responsibility for the organisation and running of field days. The Hanslow Cup Competitions in particular provided the main incentive for the holding of field days.

'SCAN' – Soil Conservation Authority Newsletter

As mentioned in Part III, it was in June, 1944, that the Board produced the first issue of the Bulletin. Its purpose was to keep the decentralised staff and District Advisory Committees informed on those topical events within the organisation which would be of general interest. It contained articles by field and office staff, and a few by District Advisory Committee members. It also recorded some decisions made by the Board and its committees.

A quotation from Bulletin No. 1 reads: "Like most live things, the Bulletin starts in a small way; like most live things, it grows. We want you to look on it not as another paper produced by those people in the city, but as something of your own." And, from the final issue, published in November, 1949:

> "Scores of gullies oft remind us,
> We should build our land to stay.
> And departing leave behind us
> Fields that have not washed away.
>
> "So when our sons assume the mortgage,
> Of the land that's had our toil.
> They'll not have to ask the question –
> Here's the farm – but where's the soil?"

The Authority continued the production of a newsletter but changed its name to "SCAN". The opportunity to use the initials of the Authority was too good to miss. SCAN No. 1 appeared in November, 1951, averaged two issues each year to June, 1955, and from then on it was produced monthly. The Chairman's Letter was a feature of each issue. Mostly I dealt with those decisions of the Authority which would be of general interest to staff and committees.

It is of interest to quote from the July, 1955 issue of SCAN, after Mr. Bolte, now noted for his interest in soil conservation, had been appointed Premier of Victoria:

"The biggest piece of news during the month was the decision of our

new Premier and Treasurer, the Hon. H. E. Bolte, MLA, to add the portfolio of Minister for Conservation to his responsibilities.

"Mr. Bolte, when Minister of Water Supply, put through the amending Soil Conservation Bill which created the Authority in February, 1950. He was the first Minister for Conservation and I have vivid recollections of his energy and drive during his then brief occupancy of the position.

"He practises soil conservation on his own property at Meredith and, because of that, has been able to safely increase his carrying capacity from well under 1,000 to 3,000 Merinos within the last few years.

"It is with great pleasure that we welcome Mr. Bolte as our Minister and we look forward with anticipation to considerable progress and development during his term of office."

It was also reported in this same issue that Mr. Bolte had agreed that "Heroncourt" should become the permanent Head Office of the Authority and that extensions could proceed.

Many articles which appeared in the Board's Bulletin and SCAN during the 1950s provide stories in themselves of the early development of soil conservation in Victoria.

They still provide interesting reading for the present generation of soil conservation officers and associates.

7. LAND UTILIZATION ADVISORY COUNCIL

The provisions of the *Soil Conservation and Land Utilization Act* of 1949 included the establishment of a Land Utilization Advisory Council, as well as the Soil Conservation Authority. This Council provided for a close relationship between the five State instrumentalities responsible for the condition, ownership and use of catchment areas. Its purpose was to advise the Minister and the Authority on the policy and the form of usage of all land in proclaimed catchment areas.

Initial membership in 1950 was:

G.T. Thompson, Chairman, Soil Conservation Authority – Chairman of the Council;
H.A. Mullett, Director of Agriculture;

F.G. Gerraty, Chairman, Forests Commission;
J.E. Hunter, Secretary for Lands;
L.R. East, Chairman, State Rivers and Water Supply Commission.

The Act provided that the Chairman and Secretary of the Authority would be Chairman and Secretary of the Council. The Act also provided that the Minister for Conservation could attend and preside at any meeting of the Council.

The Council held its first meeting on 26th April, 1950. The Minister, the Hon. H. E. Bolte, MLA, attended and chaired the meeting. At this meeting, the Council decided to recommend that the Victorian catchment of the Hume Reservoir be proclaimed as a water supply catchment under the provisions of the Act. This required the subsequent determination, by the Authority, of land use practices on all land within the proclaimed area. The Council also decided to proceed with the preliminary requirements for the proclamation of all the important catchments to country reservoirs. The Authority would, in each case, formulate recommended policies for land use, to provide for effective soil conservation and continuing production. At the same time it would give protection to the catchments of water supply storages.

The Council held five meetings during 1950/51. One of these was held at the Broadford forestry camp after viewing forestry activities in that general area. Another meeting was held at Whittlesea after viewing soil conservation activity on farm properties at Woodstock and Strath Creek. Concern was expressed about the adverse effects of sawdust heaps and other mill wastes left at sawmill sites in catchment areas. The Council decided to support recent action by the Forests Commission and Country Fire Authority to ban the establishment of new sawdust heaps.

In December, 1951, a comprehensive inspection was made in the catchment of the Eildon Reservoir, followed by a Council meeting at Thornton, when proclamation of the catchment to that reservoir was recommended.

During that year, meetings were also held at Wangaratta, after inspection of parts of the Hume catchment; at Glenmore, after viewing severe erosion in the Parwan Valley; at Apollo Bay, after having viewed much of the Bellarine Peninsula water supply systems and catchment, and a fourth meeting was held in Melbourne. The Upper Barwon and Gisborne-Sunbury water supply catchments were recommended for

proclamation and severe restrictions were placed on any further alienation of land of the dry forest and woodland types of country in the Hume catchment.

During the year 1953/54, the Council agreed to support the Forests Commission in its request for dedication of the Big River Catchment as a Forest Reserve. It held meetings at Gisborne, Maffra and at the Head Office of the Soil Conservation Authority. Members were concerned at the extent of erosion in the lower section of the Macalister River above Glenmaggie, and the continued burning of timbered country in the upper parts of the catchment. It was reported that streambank erosion along the Murray River in its upper reaches was tending to increase. But, as the bed and both banks of this river are in New South Wales, no direct action could be taken by any Victorian department.

In 1955, Mr. A. B. Costin, Principal Research Officer of the Authority, reported to the Council on his reconnaissance survey of the high mountain catchments of Victoria.

The Council decided that the cattle runs of Mount Bogong and Mount Hotham must be closed and that grazing be further limited and firing prohibited on the remainder of the high mountain country throughout Victoria.

An average of four meetings per year of the Council was held during the years 1955 to 1961. About half these visits were held at country centres in the vicinity of catchment areas which were inspected by the Council and considered for proclamation under the legislation. The catchments proclaimed during this period included those of the Macalister River above Glenmaggie Reservoir; Kiewa River (complete); Campaspe River above Eppalock Reservoir; Loddon River above Cairn Curran Reservoir.

Therefore by 1961, most of the important water supply catchments in Victoria had been proclaimed following recommendations by the Land Utilization Advisory Council. Some Land Use Determinations had also been made, stipulating the most suitable use, in the public interest, of land within the catchments so proclaimed.

There were several changes to the personnel of the Council during the period under review, mainly due to retirement of members. In 1961, there was a substantial change. Members of the Council then became: R.G. Downes, Chairman, Soil Conservation Authority – Chairman; F.M. Read, Director of Agriculture; A.O. Lawrence, Chairman, Forests

Commission; F.H. Klenner, Secretary for Lands; L.R. East (represented by H.W. McCay, Deputy Chairman, State Rivers and Water Supply Commission); W.S. Crawley, Secretary, Soil Conservation Authority – Secretary.

8. DISTRICT ADVISORY COMMITTEES

In Part III, reference was made to the difficulties encountered by the Regional Advisory Committees in the days of the Soil Conservation Board. It is obvious that the farmers of the early legislation anticipated that members of these committees would give advice to fellow landowners on soil conservation practices, thus reducing the need for a large specialist staff. However, as Committee members were quite inexperienced in the practice of soil conservation, they did not feel sufficiently confident to give advice to their fellow landowners nor was the Board prepared to encourage them to do so. Also, as the Chairman of the Board was also Chairman of all the Committees, it was impossible for him to train his widely scattered Committee members sufficiently for them to act in an advisory capacity. These two impracticable requirements were eliminated by the 1949 Act.

This Act provided for the formation of District Advisory Committees, each to consist of not more than seven members, of whom one would represent the Authority and one or two others would represent allied government departments. The remaining four or five members would represent grazing, agricultural or other relevant interests. Each committee would appoint its own chairman. The Authority adopted the principle of appointing a committee only after the appointment of a District Conservation Officer had been effected, and he had become well established and his function had become recognised in the district. He generally acted as secretary.

The committee system provided for a much closer contact between the landowners and departmental representatives and resulted in a more effective relationship. A point of interest is that the functions laid down in the legislation tend to limit committee activities to " . . . the consideration of and reporting to the Authority on matters relating to land utilization and soil conservation matters". Members were not expected to advise fellow landowners.

The main value of the farmer members of the committees lay in their knowledge of local history and land use practises and the support they could give to the District Conservation Officer in his contacts with their

farmer neighbours and friends. They could also call on their own experiences of successful or unsuccessful land use practises and could appoint local committees for specific purposes.

Regulations concerning the election and activities of these committees were gazetted in April, 1950. The first three committees were constituted two months later, following election meetings of landowners in each of the districts concerned.

The three committees were: Upper Goulburn – Shires of Mansfield, Alexandra and Yea; Lower Goulburn – Shires of Goulburn, Euroa, Violet Town, Benalla and part Shepparton; Pyrenees – Shires of Ripon, Ararat, Stawell, Avoca and Lexton.

The resident District Conservation Officers were appointed as members of these committees to represent the Authority: Upper Goulburn – W. A. Gleeson, stationed at Alexandra; Lower Goulburn – K. B. Terry, stationed at Benalla; Pyrenees – F. D. Runge, stationed at Stawell.

The Avoca River Committee was appointed later that year with P. C. McNaught, District Conservation Officer at Charlton, as representative of the Authority and Secretary of the Committee.

The reconstituted Bogong High Plains Advisory Committee also became operative about this time. It consisted of three representatives of the cattlemen, one each from the Omeo, Kiewa Valley and Ovens Valley areas, representatives of the State Electricity Commission, which was generally regarded as the prime user organisation, Lands Department and Soil Conservation Authority. I was the Authority representative and committee Chairman.

This Committee had the responsibility of determining the number of cattle that could be grazed each year on each run, the date of entry and departure and other matters of concern to this valuable catchment area. Two meetings were held each year. The first was held in March, either at Rocky Valley or Bogong Village. It took place after an inspection, from the saddle, of catchment conditions. The other was held in Melbourne, about the end of July, when cattle numbers were allotted to each run and other control matters were determined for the following grazing season.

The next District Advisory Committee to be appointed was for the Northern Mallee, in 1952. The District office was at Ouyen and G. A. (Tony) Rae, District Conservation Officer was Authority representative.

It took some time for the committees to become fully operative and for their real value to the community and to the District Conservation Officers, to be fully appreciated.

In October, 1952, a conference of representatives of District Advisory Committees was held. This enabled the Authority to outline its policy and define more precisely the ways in which District Advisory Committees could help.

The six committees then in operation continued to discuss District problems, to weigh up the value of the various soil conservation measures being applied in their districts and to encourage landowners in their districts to change their methods of land use and generally to practise soil and water conservation on their properties. Field days associated with the Hanslow Cup competitions and of a local nature, the latter sometimes organised by the relevant committee, were useful in the establishment of the co-operation necessary to achieve full value from the committee system.

In 1956, the Authority determined to clarify the responsibilities of the committees and, with this end in view, to hold a further conference of representatives. Subject matter considered ranged through functions, activities, publicity, plant hire, rabbit control and competitions. As a consequence, soil conservation throughout the State benefited from closer co-operation between officers and representative members of the farming community. The existence of the committees became increasingly important as field activities developed more and more towards overall farm and catchment planning.

The 1956 Conference led to a general resurgence of interest by members of the committees and in its Annual Report to Parliament of 30th June, 1958, the Authority gave its considered opinion, " . . . that the District Advisory Committees had played a real, though often unobtrusive, part in the development of soil conservation throughout the State, and that they can play an even more important part in the future as the co-operative project concept develops. It is also apparent that committee members must be available against the need for the operation of land use determinations, and therefore they must become known throughout the rural community as persons not only elected primarily to protect landowners, but as persons well informed on all matters relating to soil conservation".

The Authority appointed further District Advisory Committees during the year 1959/60: Glenelg District Advisory Committee – Office at

Coleraine; Central District Advisory Committee – Office at Broadford; Upper Murray District Advisory Committee – Office at Tallangatta. These were followed in 1960/61 by: Northern Wimmera District Advisory Committee – Office at Dimboola; Southern Mallee District Advisory Committee – Office at Sea Lake; Western Mallee District Advisory Committee – Office at Ouyen.

Thus by 1961 the District Advisory Committee system was well established and members were playing an important part in the development of soil conservation in Victoria.

9. STANDING COMMITTEE ON SOIL CONSERVATION

At the Premiers' Conference in January, 1946, it was decided: "That in order to deal with soil conservation, strong and well-staffed bodies of State organisations should handle the general work within State boundaries. States should be assisted by the Commonwealth in aspects dealing with: co-ordination of work of the States; co-operation and assistance from trained personnel; the undertaking of special research projects in consultation with the States or by collaboration with the States.

"To achieve this there should be a Standing Committee on Soil Conservation which would report to the responsible Minister in each State and to the Commonwealth Minister concerned.

"The Standing Committee would consist of: one representative of the Department of Commerce and Agriculture; one representative of the Council of Scientific and Industrial Research; seven other members, consisting of the Chief of each State soil conservation service and of the Commonwealth soil conservation service."

The first meeting of the Standing Committee was held at Reliance House, 301 Flinders Lane, Melbourne, in June 1946.

It was attended by these official representatives: Chairman – Dr. J.R.A. McMillan, Acting Director-General of Agriculture; Members – Mr. E. McCarthy, Secretary, Department of Commerce and Agriculture; Mr. J. E. Morrow, Department of Interior, Canberra; Mr. J. K. Taylor, Council for Scientific and Industrial Research; Mr. E. S. Clayton, Director, Soil Conservation Service, New South Wales; Mr. E. J. Hogan, Chairman, Soil Conservation Board, Victoria; Mr. W. G. Wells, Department of Agriculture and Stock, Queensland; Mr. R. I. Herriot, Soil

Conservator, South Australia; Dr. L.J.H. Teakle, Commissioner of Soil Conservation, Western Australia; Mr. H. C. Smith, Secretary of Agriculture, Tasmania.

In addition, several departmental officers were in attendance: Messrs. S. C. Hodgson, A. M. Acock, E. S. Keeher, and K. Ewart, all of the Commonwealth Department of Commerce and Agriculture; Mr. W. T. Doig, Commonwealth Ministry of Postwar Reconstruction; Mr. L. Thomson, Commonwealth Department of Interior. I was also numbered amongst these officers in my then capacity as Deputy Chairman of the Soil Conservation Board, Victoria.

It was noticeable that a preponderance of senior Commonwealth departmental officers was present, particularly representatives from the Department of Commerce and Agriculture.

Decisions made at that first meeting were:

1. The name to be "Standing Committee on Soil Conservation".

2. The chairmanship to rotate annually between the six States and the Commonwealth.

3. The Australian Agricultural Council would be the body through which recommendations and reports would be submitted to the Government. For Victoria and New South Wales, the appropriate Ministers would be invited to join the Australian Agricultural Council when soil conservation was to be discussed.

4. There is a need for the establishment of a properly organised soil conservation service in each State.

5. There is need for appropriate measures throughout Australia for the protection of catchment areas associated with all important streams and storage dams – with particular reference to bushfires.

6. That an outstanding authority on soil conservation be invited from the USA to visit Australia.

7. That a fund be established to finance the manufacture of prototypes of such new machines as seemed to the Standing Committee on Soil Conservation to be worthy of further investigation in the interests of soil conservation in Australia.

8. That State and Commonwealth interests collaborate in promoting research in Australia. Note: Extension and demonstration will be a function of the States and should be closely linked with research.

9. The initiation and conduct of research in the economic field of soil conservation are required.

10. That the Committee collect from States available information regarding methods used for soil erosion surveys.

The Committee also considered the need for uniformity in legislation throughout Australia in relation to soil conservation and the need for an information service for members of the Committee.

The second meeting was held at Cowra (NSW) on 26th–27th November, 1946. Representatives attended from five States (the Western Australian representative was unable to attend) and three Commonwealth Departments.

It was resolved:

1. That officers should be sent overseas for experience.

2. That inventions of machinery likely to be of use for soil conservation be referred to the Committee for consideration and referred to the Department of Commerce and Agriculture seeking provision of funds for manufacture of approved prototypes.

3. That the US type Basin Lister, Queensland "basin scoop" and stubble mulch machinery all be investigated and tried out.

4. That expenditure on soil conservation should be recommended as an allowable tax deduction.

5. That terminology on soil conservation be unified throughout Australia.

The third meeting was held at Adelaide in May, 1947. Members from three Commonwealth departments and representatives of five States attended (Tasmania was not represented).

Decisions made were:

1. To obtain cereal rye seed from as many countries as possible

with a view to testing and plant breeding – this work to be done at Walpeup, Victoria, Roseworthy, South Australia and Wongan Hills, Western Australia.

2. To import a Duley stubble mulch machine from USA for testing by the New South Wales Conservation Service.

3. To recommend to the Commonwealth and State authorities that, prior to purchase of any land for soldier settlement, the proposal be referred to the State soil conservation organisation concerned, for assessment of its suitability, having regard to both present and potential soil erosion.

4. It was noted that Income Tax remissions for soil conservation works had been approved and would apply as from July, 1946.

The Committee expressed its concern that its decisions were considered and could be varied or rejected by the Standing Committee on Agriculture before being referred to the Agricultural Council. Finally, if approved by that Council, the decisions would go to Cabinet. This laborious system meant too few of the resolutions of the Standing Committee on Soil Conservation ever reached their intended destination at the ultimate decision making levels.

This led to a feeling of frustration among members and resulted in loss of interest and poorly attended meetings. The real value, however, of the Committee and its annual meetings and inspections in each State, proved to be the exchange of views and the success or otherwise of the various practical applications of sound land use practices. These were more important and helpful than the actual passage of resolutions seeking action by the Commonwealth.

Subsequent annual meetings of the Standing Committee were held in each State and at Canberra.

Note: A Special Meeting was called in July 1952 to consider the need for a substantial increase in food production. The Committee decided to seek Commonwealth funds for soil conservation purposes – subsequently £200,000 was granted to the States but no part of this grant came to Victoria.

Inspections of at least three days' duration were held, of soil conservation practices, generally on farm lands, prior to each annual meeting. The continuing discussions and practical demonstrations of the development of soil conservation throughout the Commonwealth

enabled the State and Commonwealth representatives to appreciate the problems and successes achieved by the various State conservation organisations. Matters and ideas raised during the inspection tours were discussed by members at the meeting and reported back to their relevant State organisations.

During the period under review, soil conservation services were established, with supporting legislation, in five of the six States. Although the Tasmanian Government did not pass special legislation, an advisory service was established within its system of Agricultural Districts.

10. NATURAL RESOURCES CONSERVATION LEAGUE

Throughout his life, the Hon. C. E. Isaac, M.L.C., was active in establishing organisations associated with the growing and development of plants and trees. He founded the State School Horticultural Society in 1910; the State School Nursery; Children's Flower Day; took a leading part in the foundation and development of Associated Nurseries and the National Parks Authority.

Following the disastrous bushfires in 1939, Judge Stretton conducted a Royal Commission into their cause and effect. In his report he stressed the importance of an "Inseparable Trinity" – Soil, Water and Forests – his theme being that if any one of these three is destroyed, the other two would also be depleted or destroyed.

Based on this conception, Mr. Isaac conceived the idea of a Save the Forests Campaign. In January, 1944, he outlined his plan to a meeting of representatives of Government departments, associations active in community service and municipalities, at which it was proposed to form the campaign. At a large meeting in the Lower Melbourne Town Hall, the decision was made to proceed. I was asked to represent the State Rivers and Water Supply Commission at these two meetings.

Cyril Isaac was untiring in his efforts to develop this organisation and in a short time it established an active presence in many districts throughout Victoria. Forestry exhibitions in the Melbourne Town Hall; Forest and Conservation Weeks; community tree plantings; annual free distribution of trees to returned soldier settlers and school children were organised. A portable exhibit for use at country shows was obtained and used to good effect. In 1949, land was purchased at Springvale South for a tree and research nursery.

To provide a widening of the scope of the movement and the development of a permanent organisation, its title was changed in 1951 to Natural Resources Conservation League of Victoria. The League was registered under the Companies Act and from then on more emphasis was given to the allied resources of soil and water. Later, wildlife was added as an equal natural resource. The executive consisted of the President, Organiser, Treasurer, representatives of the Forests Commission, Soil Conservation Authority, State Rivers and Water Supply Commission, Fisheries and Wildlife Department, each Regional Advisory Committee and ten other member organisations.

A form of membership, known as Farm Members, was established early in the Campaign, entitling such members to purchase trees from the League nursery. A junior section was introduced for school children. On payment of a small charge, each child received a tree to plant at home and a Certificate of Membership. To provide for individual association with the League, Associate Members were created. In more recent years, the League sponsored, then took part in, the development of the Conservation Council of Victoria and also the Soil and Water Conservation League.

The first issue of "Conservation News" was introduced by the Campaign in June 1944 and it continued at irregular intervals until 1958. This was followed by the quarterly magazine "Victoria's Resources". In an introduction to the first issue of this magazine in 1959, Mrs. Dorothy Laver, President, wrote, "It is the aim of the League to present to our readers interesting and educational information on what is being carried on all the time in Victoria to conserve the State's natural resources". In the same issue, there is a quotation from Theodore Roosevelt: "When you help to preserve our forests or plant new ones, you are acting the part of good citizens". This quarterly magazine continues to this day and attracts writers to produce articles of general interest on the particular aspect of conservation in which they are interested and knowledgeable. It is certainly the most authoritative and attractive magazine of its kind in Australia.

In 1956, Mr Isaac was awarded the Order of the British Empire for his services to the community. In 1965, he wrote, "The trend in League developments gives every reason for confidence that its educational programme and production from its nursery will play an ever-increasing and significant part in helping to keep Victoria green in the years to come". He died in September of that year.

I was involved in the activities of the Save the Forests Campaign from

its inception, and this interest continued with the establishment of the Natural Resources Conservation League. At various times over the years I have held the positions of President, Director and Secretary, and am still a member of the Executive. My O.B.E., awarded in 1966, was for "Services to Conservation".

11. IN CONCLUSION

My direct participation in the developments covered by this book ceased with my retirement in 1961, except for my continuing association with the National Resources Conservation League. Because of this, I have not felt justified in attempting to cover developments covering the period since 1961.

A few words in review, however, do seem to be in order, linking the past with the present. What has been the real value of what has occurred in soil conservation in Victoria since the 1940 establishment of the Soil Conservation Board?

Probably the most vital outcome has been a dramatic widening of perspectives in the overall approach to land management. In 1940, the problems primarily appeared to be centred on the alarming deterioration of Victoria's farmlands since settlement in the 1830s, and on the threat to our water catchments, to our critical water resources. That erosion was the common factor was obvious. Therefore erosion had to be tackled.

In the event, the tackling of erosion proved to be an activity which led into the development of several other equally critical conservation activities. In dealing with erosion, it was quickly discovered that it was merely symptomatic of much more deeply entrenched problems, all requiring a detailed understanding of the soil, of the land as an entity, and of the improved management of land at total operating levels.

The initial phase of activity, based on this wider concept, inevitably and logically led to the appreciation of a need to develop community outlooks. Erosion and its causes did not respect boundary fences – what caused erosion on one man's property was often located on the property next door. The public was often involved to the extent that road reserves and roadside drains, for example, were not exempt from erosion. The same erosion problems were often mutual to private and public property.

Finally there was the historical factor. Large areas of erosion-ravaged land were known to have broken down fifty and more years earlier – the present owners had inherited the outcome without in any way being responsible for the cause. But to repair the damage was beyond their resources. By the time studies of the situation were made in the early twenties and thirties, the economic viability of whole communities, both farm and town, was in peril. It became obvious that the rehabilitation of the land was often dependent on total community involvement, with a government lead and assistance as the principal requirements. The "sins" of the fathers had to be carried by all, not the few, in those cases where all would benefit.

We became progressively more aware of most of these aspects as practical experience was gathered during the post-war forties and the fifties. As progress was made, the need for development of a discipline in conservation engineering, capable of meeting local needs, became increasingly apparent. Even more important was the critical need for a research-based knowledge of the land and its reactions to change or abuse.

That the newly established Authority gave high priority to the development of these two functions ensured the widening of perspectives I have already referred to.

Under the *Soil Conservation and Land Utilization Act,* the Authority carries a wide variation of land use management responsibilities. That it has been able to assume these responsibilities has been largely due first, to the steadily growing research-based data which has been established and second, to the on-going engineering developments, with the latter steadily assuming the role of preventive, rather than control engineering. The objective here is to work with nature, not against it. Both are providing steadily increasing support to government, semi-government and private organisations. Underlying both are the intensely practical, now highly respected, Field Operations Division services which contribute to the daily growth of statewide land management skills and practises.

It is a far cry today from the farm-based activities which were the main forms of action in earlier years. Today, the Soil Conservation Authority is deeply involved, not only in those traditional farm-based conservation programs, but also in the soil conservation aspects of water catchment management, alpine land management, extractive industries, foreshores management and subdivision of rural properties, to name some of them broadly.

It has established itself in the world scene, contributing its experience to efforts being made to overcome soil conservation problems in many other countries. Overseas visitors of high professional repute come to study the Victorian efforts, not only as contributors to help them, but equally as much to learn from them.

That I have had a part to play in bringing this about has brought me a feeling of privilege which is a very adequate reward.

F. D. Atkinson, Government Printer, Melbourne