

STATE OF VICTORIA

SAND DRIFT

To the Honourable
The Minister of Water Supply, Melbourne

We, the undersigned, members of the Committee appointed to consider ways and means of combating the sand drift menace in the Victorian Mallee, beg to report as follows:

Cause of Sand Drift

The Committee has made many inspections of roads, channels, and railways in Victoria. The Committee considers that sand drift is due in a great measure to indiscriminate clearing of the natural growth in course of settlement and to the thoughtless cultivation of sandy areas on which the natural cover should be allowed to remain as protection against sand drift. If such areas were treated in a suitable manner this Committee is of the opinion that production would not be decreased but would ultimately be increased and much damage to public utilities and adjacent cultivable land would be prevented. Many places have been seen where the sandy surface soil has been blown away and rendered unproductive.

Sand Drift Carried Short Distances

The Committee formed the opinion that the sand which causes practically all the trouble to public works and fences is that which is carried comparatively short distances. This is not in accord with the prevailing idea that drift carries for miles.

In support of its opinion the Committee instances –

1. The fact that the Mallee in South Australia has been cleared and cultivated for many years right up to the Victorian Boarder Line where the country is virgin, yet there is no evidence of sand drifted over the Border into Victoria except within a short distance of the boundary fence;
2. A similar example of this and the effect of wind-break reserves is that the road on the east side of the Railway Line from Lascelles to Mildura, running in a northerly direction, has at no time been affected by drift and up to the present no serious trouble has been experienced in this section of railway, which is protected by a belt of natural growth, while all other Mallee railway lines without this protection are very seriously affected.

Preventive Steps Essential

The Committee is convinced that the menace will certainly increase, particularly in the newer settled Mallee, as it becomes more cleared and cultivated, and, therefore, the prevention or minimizing of sand drift is imperative, and in the opinion of the Committee would be best dealt with by legislation.

Legislation – South Australia and Western Australia

In South Australia and in Western Australia, where the sand drift problem is acute, Sand Drift Acts have been in operation, for 9 years and 43 years respectively, in order to protect roads, railways and private property. Copies of these Acts accompany this report, but legislation of such far-reaching character is hardly deemed by this Committee to be necessary in Victoria. At the same time, it is considered that some sacrifice should be made by the landholder in his own interest, as it is, already stated, chiefly through cultivation and the neglect to leave shelter belts that the trouble has been accentuated.

Working of Sand Drift Act in South Australia

In order to ascertain the effect of the Sand Drift Act in South Australia members inspected Mallee areas in that State between the Murray River and the Victorian Border and several District Council Officers gave evidence at Loxton before the Committee. The President of the Council stated that in his opinion the South Australian Sand Drift Act worked successfully, but although it might appear to be too drastic if carried out in its entirety, his Council realised that the provisions were desirable as a safeguard in administering the Act. They considered that by co-operating with the farmer and having the Act. They considered that by co-operating with the farmer and having the Act behind them they had done effective work.

Regulating Fallowing

Action had been taken with excellent results in controlling fallowing and burning-off, in the sowing of summer crops on sandy ridges on farm lands, and also on roads where the crops were allowed to seed down each year. In many cases that had resulted in permanent benefit.

The Committee formed the opinion that with the exception of a small area of poor desert land, which would be considered unsuitable for settlement in Victoria, the drift in the area inspected in South Australia was not as bad as that inspected in Victoria, although the areas had been settled about the same time.

Problem More Serious in Victoria than in South Australia

In South Australia, the bodies affected were the Roads Board, the District Councils and the Railways Department, but as the area inspected obtains its water supply by bore, or by pipe system, sand drift is not nearly so serious a problem as in Victoria, where the water supply is by open channel system, without which the existing settlement cannot be maintained.

Authorities Concerned in Victoria

The Authorities principally concerned in Victoria, are the State Rivers and Water Supply Commission, Municipal Councils, the Railways Department, the landholders, and, to a lesser extent, the Country Roads Board.

Extent of Sand Drift in Victoria – see maps appended

The extent of the trouble as it affects the channel system today, may be gauged from the accompanying plan on which the channels most affected are shown in colours. *Red* colour shows *badly affected channels* requiring reservation and plating (estimated at 100 miles). *Green* colour shows *channels that are affected by fallow every year* (estimated at 350 miles), and *Yellow* colour shows *channels affected to a lesser extent by fallow in adverse seasons* (estimate at 350 miles).

It is pointed out that the Water Commission controls 4,000 miles of channels in the Mallee, as shown on accompanying plan, and has spent over £300,000 in the years 1929, 1930, 1931, in clearing sand drift from channels before water could be run, and its experience is that the trouble is increasing to such an extent that the abandonment of the channel system, in certain areas, may be necessary if no relief can be obtained.

Cost of Cleaning Channels

The average amount spent each year in clearing channels is approximately £60,000 varying from £25,000 in a good year to £160,000 in a bad year. It is predicted that in the near dry period, owing to the increasing acreage of land where natural vegetation is being destroyed, that an expenditure of £200,000 would be required to clear the channels in a bad year.

Pipe System not Practicable

It has been frequently suggested that the Wimmera-Mallee channel system should be converted into a pipe system. To do this a capital expenditure of not less than £16,000,000 would be involved, requiring annual interest and sinking fund payments of £900,000, apart from working expenses, depreciation on works, on pumping machinery. This would entail too large a financial burden on the community and cannot, therefore, be considered.

Menace not Appreciated

We consider that the seriousness of the sand drift menace is not appreciated even by the land-owners in the affected areas, who depend for their water supplies on these channels. In the interests of the general community the abandonment of the channel system would be a serious calamity, but may be necessary in isolated cases of extreme difficulty.

Water Commission Works Affected Most

The Committee is of opinion that the Water Commission's works are affected to the greatest extent and, in the event of legislation, the Commission should be given fully powers to take action under the provisions of the proposed Act; any other authority desiring to take action could do so with the consent of a Sand Drift Board of three members to be appointed to supervise and co-ordinate any action which may be taken under the Act. Any authority, land-holder, or any person affected, by any proposed action of the Water Commission to have the right to appeal to the Sand Drift Board.

Railways

In Victoria, the Railways Department has experienced trouble, in the recent dry period, in keeping certain lines open, and, has spent up to £10,000 annually to maintain services. The Department, although it could ill afford to spend such sums, was vitally concerned with the safety of the public. As many as twelve derailments had occurred in one season due to sand drift.

Of the 750 miles of Mallee railways, 200 miles were threatened, and there were approximately 15 miles vitally affected. The trouble had been accentuated to a great extent by the Postal Department unnecessarily cutting down protective cover near their telegraph lines on railway reserves.

In adjacent Mallee areas, in South Australia, sand drift cost the Railway Department up to £5,000 in a dry year. There, however, they had the Sand Drift Act to assist them, and, moreover, in construction the railway lines are run more in embankment than in Victoria, and, when the tracks are below ground level the cutting are made much wider to give a greater margin to safety. As an instance of the danger to trains, a rail car in South Australia had to be stopped in a cutting because sand had drifted over the rails. Passengers were transported otherwise, and the car left standing overnight. In the morning the sand has accumulated up to the windows of the vehicle.

Drift will Limit State Services

The Victorian Railway Department considers that in the next dry period it will be very difficult to maintain a night train service to Mildura on account of sand drift.

The Railway Department does not desire to acquire land for protective purposes, but seeks power to prohibit fallowing, burning, &c., and would be prepared to act under the proposed Sand Drift Board.

Although certain provisions exist in the Water and Local Government Acts to control fallowing by by-law, these provisions are considered to be quite inadequate to meet the increasing menace, particularly as some municipalities have been unsuccessful in prosecutions under their by-laws.

Recommendations of this Committee – Act to be Introduced and a Board Created

The recommendations of this Committee are, therefore, as follows:

- That an Act of Parliament be introduced giving full powers for dealing with the sand drift problem in the Victorian Mallee, which is the area shown north of the black border on the plan submitted;
- That a Board of three members, consisting of two departmental officers and one representing farming interests, be appointed to supervise its working and to ensure that co-ordinate action would be taken.

The following provisions to be incorporated in the proposed Act, which would supersede any provisions in any other Acts dealing with the question.

1. Alienation of Crown lands

A provision to be inserted in each new Selection Purchase Lease that the natural timber and arboreal cover must not be cleared from sandy ridges specified in the lease, these areas to be included as parts of the percentages set forth below.

In new leases it is considered advisable that the existing 3 percent provision in all leases, since 1st January 1909, should be increased in allotments over 640 acres as follows, as the larger the allotment thrown open for selection the poorer and more likely to drifts the nature of its soil:-

3	per cent up to	640 acres
3½	percent up to	800 acres
4	percent up to	960 acres
4½	percent up to	1,120 acres
5	percent up to	1,280 acres
6	percent over	1,280 acres

Any protection provided for channels and other works shall be considered portion of the percentage required under the conditions of the Selection Purchase Lease. Any destruction of vermin and noxious weeds to be the responsibility of the authority requiring the reservation under the proposed Act, on in such cases where the land is fenced by that authority.

The existing 3 per cent provision is considered quite inadequate and has not been complied with in the great majority of cases. This Committee, therefore, considers that no Crown grant in respect to future Selection Purchase Leases should be issued unless a certificate is produced from the proposed Sand Drift Board that the proper provision of timber and natural vegetation has been made.

2. *Alienated land and lands in process of alienation*

- (a) Prevention of further clearing where deemed necessary for protection of works or adjoining lands to the extent of 3 per cent without compensation, any excess of this amount to be acquired under existing powers, and any additional land required for replanting of arboreal cover may be acquired in the same manner;
- (b) Prevention of burning off of stubble or other herbage up to within 5 chains of a channel or other works where ordered;
- (c) The prevention of fallowing up to within 3 chains of a channel or other works where ordered.

Roads – East and West Roads

General

In the design of new subdivisions of Crown land for selection the provision of roads should be carefully considered and laid out so that the greatest protection would be afforded from drifting sand. In addition it is recommended that roads in an east and west direction should be not less than 4 chains in width. Any works undertaken on them must be carried out directly in the centre, so that protection to the works will be afforded from both north and south winds.

North and South Roads

Roads in a north and south direction should not be less than 3 chains in width. Any works undertaken on them to have two (2) chains protection on the west side. This would apply to all clearing and grubbing carried out under land loading as well as to permanent new works.

The winds which cause drift are invariably those in the western sector north veering west to south, those from the south-west being then most prevalent, although in certain droughty years those from the north cause more drift than from the southerly direction.

Reserves for Railways

In the laying out of new railway lines it is recommended that greater protective reserves be provided on the same basis as for roads.

Clause 14 of Vermin and Noxious Weeds Act to be Repealed

The Committee considers that Clause 14 of the *Vermin and Noxious Weeds Act 1928* should be repealed as it is the destruction of such breaks that accentuates drift. The destruction of vermin and noxious weeds is considered of secondary importance to sand drift.

(Extract from Act referred to reads as follows):-

14. Notwithstanding anything in any Act if any owner or occupier of land in the Mallee country (within the meaning of the *Land Act 1928*) satisfies the Superintendent –
 - (a) that any saplings, mallee shoots, shrubs, or underwood growing upon any unformed part of the adjacent half-width of any road bounding or adjoining the said land or any part thereof are a harbor or cover for vermin; and
 - (b) that it is under this Act the duty of the said owner or occupier to destroy all vermin on the said half-width of road and to keep the same clear and free of vermin; and
 - (c) that it is desirable that the said saplings mallee shoots shrubs or underwood should be destroyed, the Superintendent subject to this section may in writing authorize the said owner or occupier at his own expense and subject to such conditions restriction directions and supervision as are specified in the authority to enter on the said half-width of road and to take all such measures as are reasonably necessary for cutting rolling-down or otherwise destroying such saplings mallee shoots shrubs or underwood to a sufficient extent to make the same no longer a harbor or cover for vermin.

Sand Drift Board to Continue Investigations

The Committee considers that the proposed Sand Drift Board should continue to investigate the sand drift problem on scientific, as well as practical lines, and, in order to operate it is recommended that a sum of £500 be made available each year to enable experimental work to be carried out.

Destruction of Timber on Crown Lands and Roads

It is recommended that the proposed Sand Drift Board have power to take action against persons who, without authority, destroy timber or natural cover on roads and reserves.

Penalties

The Committee suggests that when the proposed Act is being framed adequate penalties be provided for offences under the Act, and that the Committee be conferred with when the Act is being framed.

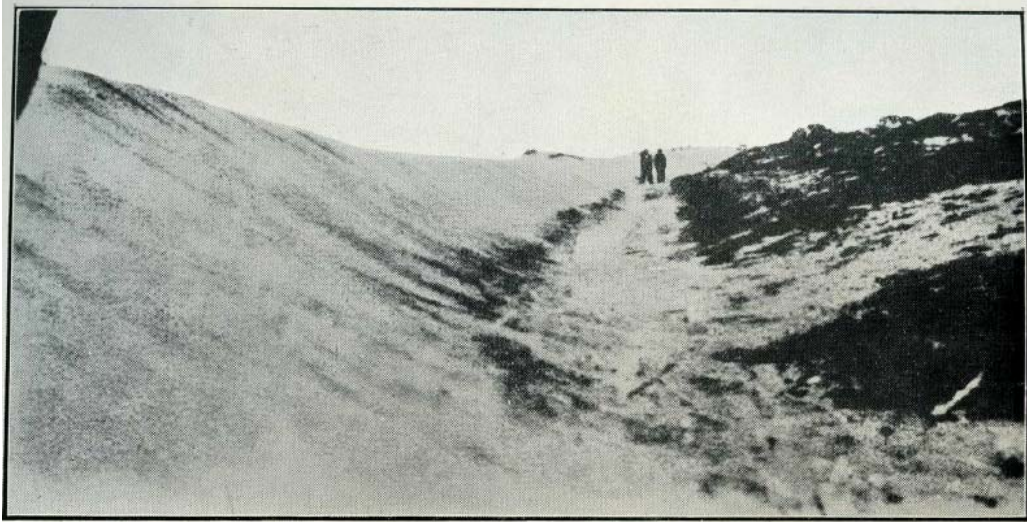
Maps and Plans Appended

A plan of the Water Commission's channels, as referred to previously, accompanies this Report, also a plan of railway lines affected, and a number of illustrations showing fencing, roads, railways, and water channels affected by drift.

The Committee desires to stress the urgency for legislation, particularly as each year more and more Mallee cover is being destroyed, and, further, where areas have to be replanted advantage should be taken of the prevalence of good seasons to promote growth.

- (Signed) R F McNAB, Chairman,
Engineer in Charge, Wimmera-Mallee Water Supply
- (Signed) P CAMPBELL, Member,
Surveyor-General, Lands Department
- (Signed) J BRAKE, Member,
Senior Inspector, Department of Agriculture
- (Signed) A LOUIS BUSSAU, Member,
Representing North-Western Shire Association
- (Signed) J K GLEN, Member,
Representing North-Western Shire Association
- (Signed) L N WELCH, Secretary,
Sand Drift Committee.

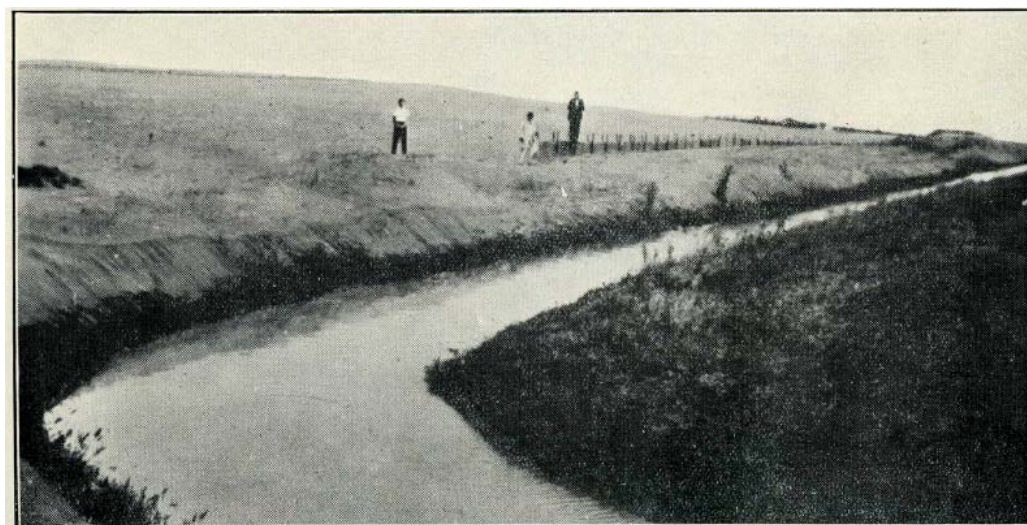
State Rivers and Water Supply Commission, Melbourne,
17th March 1933.



Water Channel, Tyrrell West – Drift caught by channel banks. Channel which was originally 3 ft. bed width and 1ft. 6 inc. deep has been abandoned.



Tyrrell West Main Water Channel, near Sea Lake, completely blocked. 7,000 persons depend on this channel for their water supply.



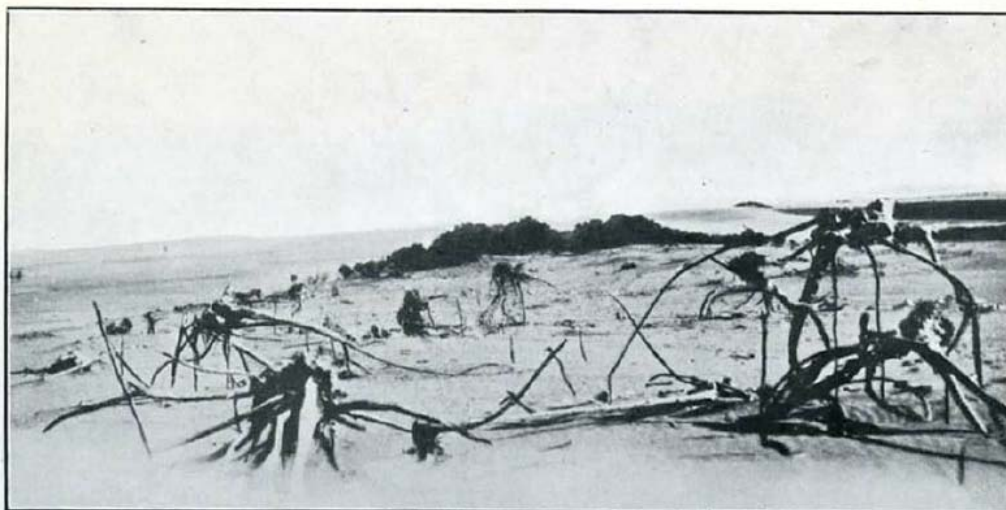
Water Channel, Piangil – Sand drift from fallow shown blocking the running stream. Note the vegetation on the other side of the channel has prevented drifting.



Main Channel near Woomelang completely blocked by drift from fallow. Note that there are no sandhills near the channel.



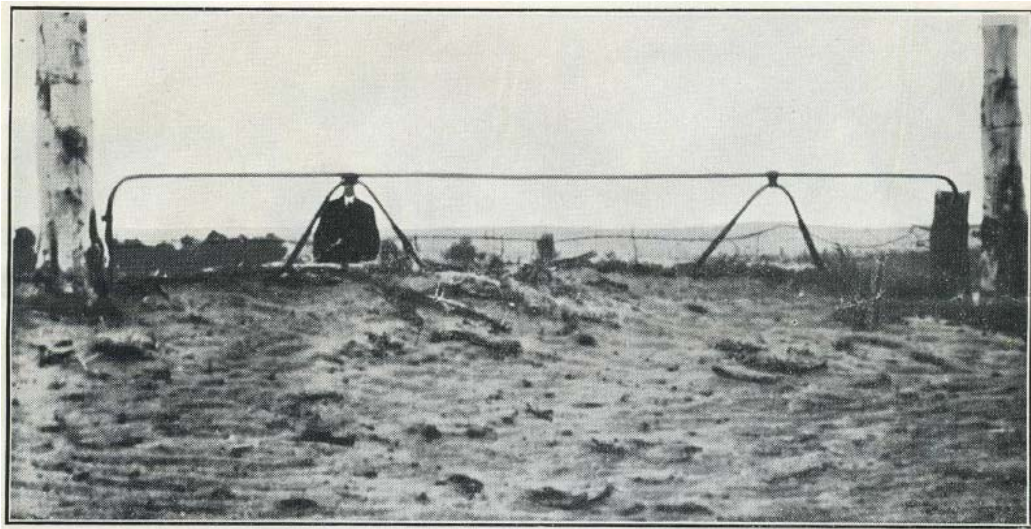
Road, Walpeup – Sand drift from fallow has smothered the Mallee scrub, and is fast encroaching on to track



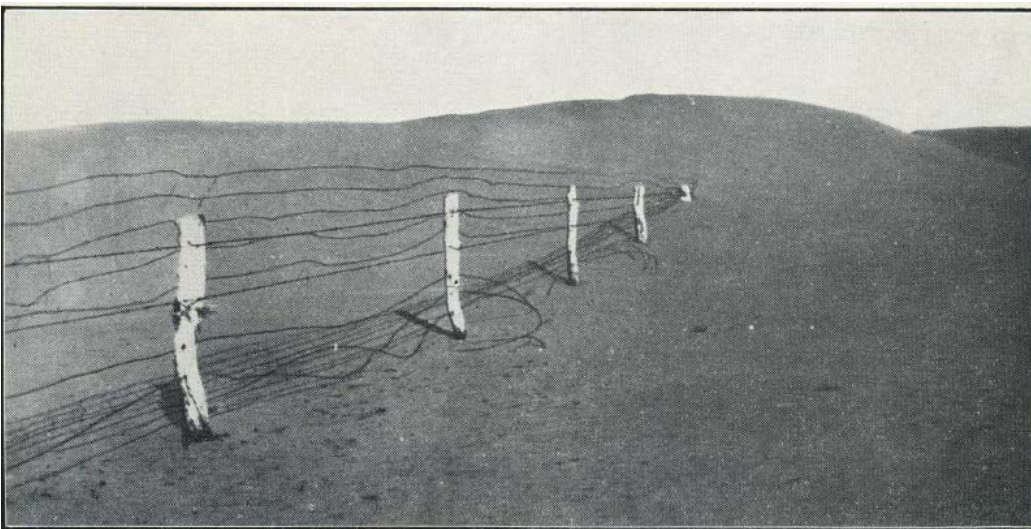
Sand Ridge blown away at Underbool – The farmer has lost this acreage through thoughtless clearing and cultivation. The tops of the Mallee roots given an idea of the original surface level.



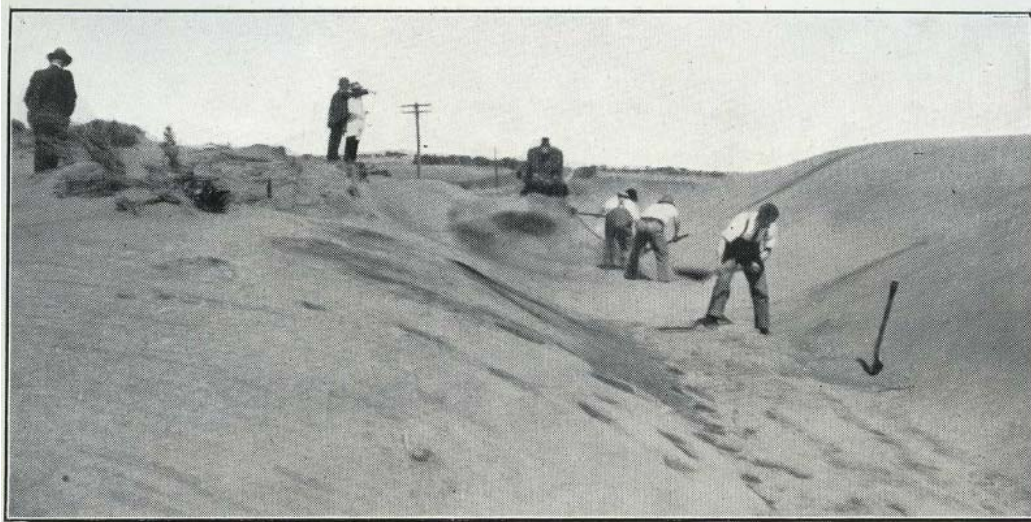
Fence, drifted up at Walpeup – A second fence has had to be erected.



Gate drifted up, Chinkapook.



Sand hill formed over top of fence at Carwarp.



Kulwin Railway Line – Train help up by sand drift. This cutting was filled in three hours.



Patchewollock Railway Line showing both rails covered with sand



Mittyack Railway Line showing sand hill encroaching on line