

\$10,000,000 invested by the Canadian life companies last year went into mortgages on real estate, which were increased by \$10,500,000, while only \$4,600,000 new bonds and debentures were coincidentally added to the companies' holdings.

In this connection, it is interesting to note the experience of the Australasian companies in regard to mortgages. In 1800, mortgages formed 55.9 per cent. of the whole of their assets. But the proportion in the intervening period has rapidly decreased and in 1910 it was no more than 43.2 p.c. Between 1800 and 1895, in fact, the proportion decreased by more than 7 p.c. "The banking crisis of 1893," says Mr. Anderson, in the paper already referred to, "was, of course, responsible almost entirely for this sudden change, for the value of property suffered at the same time a severe fall, and money was not so freely advanced on this form of security as formerly. It is a significant fact, that the item 'foreclosures' is now seen for the first time in the list of assets, and while it is possible, of course, that there may have been some foreclosures in earlier years, if so, they were probably included under the heading of mortgages." The increase in the Australasian companies' holdings of Government and municipal securities, which in 1910 were 29.9 per cent. of assets against only 7.9 per cent. in 1800, may practically, says Mr. Anderson, be dated from the year 1893, "and it is plainly evident that it was then considered by the various managements prudent to spread the investments a little more than it was thought necessary to do in previous years, even at the expense of a somewhat reduced return therefrom." It is to be hoped that those Canadian companies which have followed the policy of putting practically all their eggs into the one basket of western mortgages will not find cause to rue the practice such as the Australasian offices evidently found in 1893.

It will be noticed that the British offices have also largely reduced the proportion of mortgages to total assets held in recent years, and that government securities, debentures and stocks represented about one-half of the companies' assets in 1909. In Australasia, according to Mr. Anderson, within recent years legislation has considerably improved the position of municipal securities and they are looked upon with much greater favor than formerly. While state socialism has considerably restricted the field of the companies' investments in a way, in which it is not restricted elsewhere, at least one of the large mutual companies of Australia has within the last few years sought and obtained extension of its investment powers. In Mr. Anderson's opinion, the tendency evidenced by this move will continue.

Mr. W. F. Benson has been appointed assistant manager in London, England, of the Bank of Montreal.

#### GROWTH OF AUTOMATIC SPRINKLERS.

**National Fire Protection Association Report Shows their Increasing Usefulness in Holding Fires in Check—A Summary of Experience.**

That the automatic sprinkler has "revolutionised the science of fire fighting and has been the main factor in bringing about the control of the fire hazard" is the statement of Edward V. French, vice-president and engineer of the Arkwright Mutual Fire Insurance Company.

The development of automatic sprinkler protection has been most rapid in the New England States. The first sprinkler equipment in New York City was installed in 1884. At the beginning of 1906 there were 605 approved equipments. On August 1, 1912, 1,000 such systems were said to be in service. Certain requirements for this protection are written into the fire prevention law of New York State. The city of Chicago is considering a similar proposition. Certain lesser cities have it now.

The widespread introduction of automatic sprinklers, observes Insurance Engineering, has not been altogether due to the belief in the merits of the device, as is exemplified in the comment made by a manufacturer to the contracting agent of a large sprinkler company who was soliciting him: "Young man, I don't care what you put up. You can put up rosettes if they will satisfy the insurance man." Underwriters have encouraged the introduction of the device by reducing rates to such an extent that the savings in insurance premiums have paid the interest on the investment and contributed enough each year to a sinking fund to pay the principal in a few years.

Though at first sprinklers were introduced into cotton mills exclusively, it was not long before other industries adopted the protection and they are now being used in factories of various kinds as well as in large stores.

#### SPRINKLER DESIGN.

An automatic sprinkler is simply a valve held in a closed position by an arrangement of links, called a strut, the parts of which are joined together by a solder alloy and set in the frame of the sprinkler. In the top of this is set a deflector. In the heat of fire the solder melts, the parts of the strut fall asunder releasing the valve. Water emerges from the opening under the valve, strikes the deflector and is sprayed in all directions over an area of 100 square feet like a heavy downpour of rain. A number of these valves in a series of pipes, which convey the water, constitute a sprinkler system.

Of the requirements in the design of an automatic sprinkler, E. V. French, of the Arkwright Mutual Fire Insurance Company, says:

The whole aim has been to get a form of valve which would not be likely to stick after long remaining sealed, and an arrangement of levers and links which would allow the solder to become quickly heated and which would themselves not be liable to stick. At the same time, the whole device must be simple, rugged and such that it could remain in repose for years and then respond—almost instantly and with full effectiveness—when a fire occurs. Further, the sprinkler must withstand various changes in the atmosphere, and all ordinary tendencies to corrosion.

The great value of the automatic sprinkler lies in the fact that it is on duty twenty-four hours a day, and three hundred and sixty-five days a year. It can work as well in smoke and out-of-the-way places as in the open, can reach fire where men with hose streams could not live, and can pour water into sections out of the range of fire