Publications of the

BRITISH FIRE PREVENTION COMMITTEE.—No. 15.

Edited by Edwin O. Sachs.

CONFLAGRATIONS

DURING THE

LAST TEN YEARS.

A Paper

Read before the Insurance Institute of Manchester,

BY

CHARLES E. GOAD,

MEMBER OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS;
MEMBER OF THE CANADIAN SOCIETY OF CIVIL ENGINEERS;
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ETC., ETC.

WITH

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OBJECTS OF THE COMMITTEE:

The main objects of the Committee are:—

To direct attention to the urgent need for increased protection of life and property from fire by the adoption of preventive measures.

To use its influence in every direction towards minimising the possibilities and dangers of fire.

To bring together those scientifically interested in the subject of Fire Prevention.

To arrange periodical meetings for the discussion of practical questions bearing on the same.

To establish a reading-room, library and collections for purposes of research, and for supplying recent and authentic information on the subject of Fire Prevention.

To publish from time to time papers specially prepared for the Committee, together with records, extracts, and translations.

To undertake such independent investigations and tests of materials, methods and appliances as may be considered advisable.

The Committee does not hold itself in any way responsible for the opinions expressed, or methods advocated, by members and others who kindly contribute to these publications.

Comments on the opinions expressed in these papers, or further information on the subjects under consideration, are cordially invited by the Executive, at whose discretion they will be circulated among the members of the Committee.

The Committee's Reports on Tests with Materials, Methods of Construction, or Appliances are intended solely to state bare facts and occurrences, with tables, diagrams, or illustrations, and they are on no account intended to read as expressions of opinion, criticisms, or comparisons.

NOTE.

There is probably no chapter in the vast subject of Fire Prevention about which so little is known by the professional man, as well as the general public, as that of Fire Geography Alone in the insurance world do we find a systematic study of this special chapter, aided by the characteristic maps that are prepared for insurance purposes, and which so clearly define the various hazards which the underwriters have to meet.

Nothing, again, can prove more instructive to the architect and the engineer than the study of a map showing a large conflagration, inasmuch as such a map alone will explain to him the character of a fire and the reasons of its extent.

Mr. Charles E. Goad, whose maps are so well known in every insurance office, has lately taken upon himself the very arduous but instructive duty of preparing plans of the more important conflagrations in English-speaking countries of the last ten years. These maps were presented at a meeting of the Insurance Institute of Manchester, held on December 13th, 1898, accompanied by this valuable descriptive paper.

It has been the good fortune of this Committee, by the courtesy of the Insurance Institute and its officers, Messrs. J. B. Cairnie, President, and Thos. A. Bentley, Hon. Secretary, to be allowed to publish the paper and illustrations in question for the benefit of its members, while, by the generosity of Mr. Goad, no less than eleven of these plans have been specially reproduced for this publication by lithography, and hand-coloured. The Editors of "Engineering" have also kindly lent various blocks that were reproduced in their columns at an earlier date.

It is needless to add how much the Executive appreciate the courtesy of the Insurance Institute of Manchester in this matter, the more so as such assistance from a body of old standing to quite a new comer among the incorporated scientific societies is particularly valuable.

EDWIN O. SACHS.

April 5th, 1899.

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CONFLAGRATIONS

DURING THE

LAST TEN YEARS.

INTRODUCTION.

THE meaning of a word often conveys more than, at a first glance, one would deem sufficient.

Referring to dictionaries, we find in Webster,—"Conflagration"—"a fire on a great scale, or extending to many objects"—the compiler adding a quotation from Bentley (who has been considered by far the greatest scholar that England has ever produced.)

"Mankind hath had a gradual increase, notwithstanding what floods and conflagrations . . . may have "interrupted."

Again, in Lloyd's Dictionary, a quotation from Milton's "Paradise Lost."

"From the conflagrant mass then raise, purged and "refined, new heavens, new earth."

Hence evidently these authorities have borne in mind the eventual benefit that should, and that does accrue from present disaster.

Possibly in designating my task for this evening, your Hon. Secretary intended to impose on me, not a mere compilation of statistics, but, as more to the purpose, a resumé of the most important disasters during the last ten years, in order that you could consider the lessons to be drawn from the past, in view of future possibilities in years to come.

Many are wont to speak of things past as deserving to be "out of mind" considering it to be one's path in life to

> "Let the dead past bury its dead.
> Act, act, in the living present."

overlooking other stanzas in that memorable psalm.

> "But to act, that each to-morrow
> Find us farther than to-day.
>
> . . . . . .
>
> And, departing, leave behind us
> Footprints on the sands of Time,
> Footprints that perhaps another
>
> . . . . . .
>
> Seeing, shall take heart again."

It is my purpose to speak as concisely as possible of conflagrations of a notable nature which have occurred during the last ten years, and of which particulars are within reach; not to dwell on the painful features of these disasters, which are only too well known, nor to give the details of loss and insurance, excepting where these lie ready to hand, but rather to dwell on the improvement that should necessarily follow such calamities, and to point out a few, a very few, of the evident warnings so forcibly illustrated. Thus I hope, by recording the failures of protective appliances and noting the sometimes unlooked for and unforeseen occurrences, to lay before you the lessons to be learnt from each disaster.

It seems more fitting to deal with these events geographically than to consider them in their proper chronological order: as by so doing we avoid going over the same ground twice in the very long journey we have to make.

Passing over Manchester, which during the past ten years has not suffered from any general conflagration, we come first to

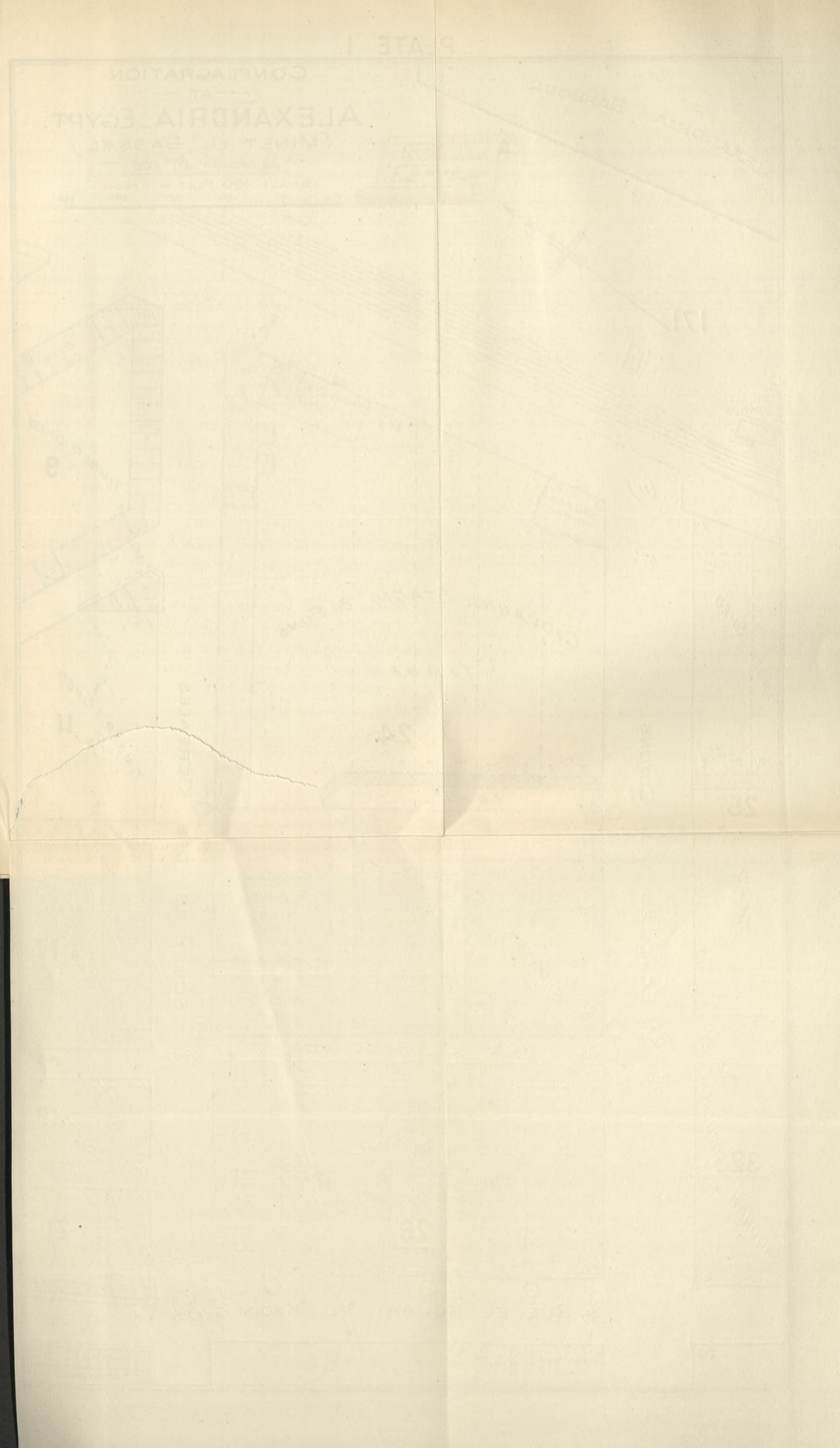
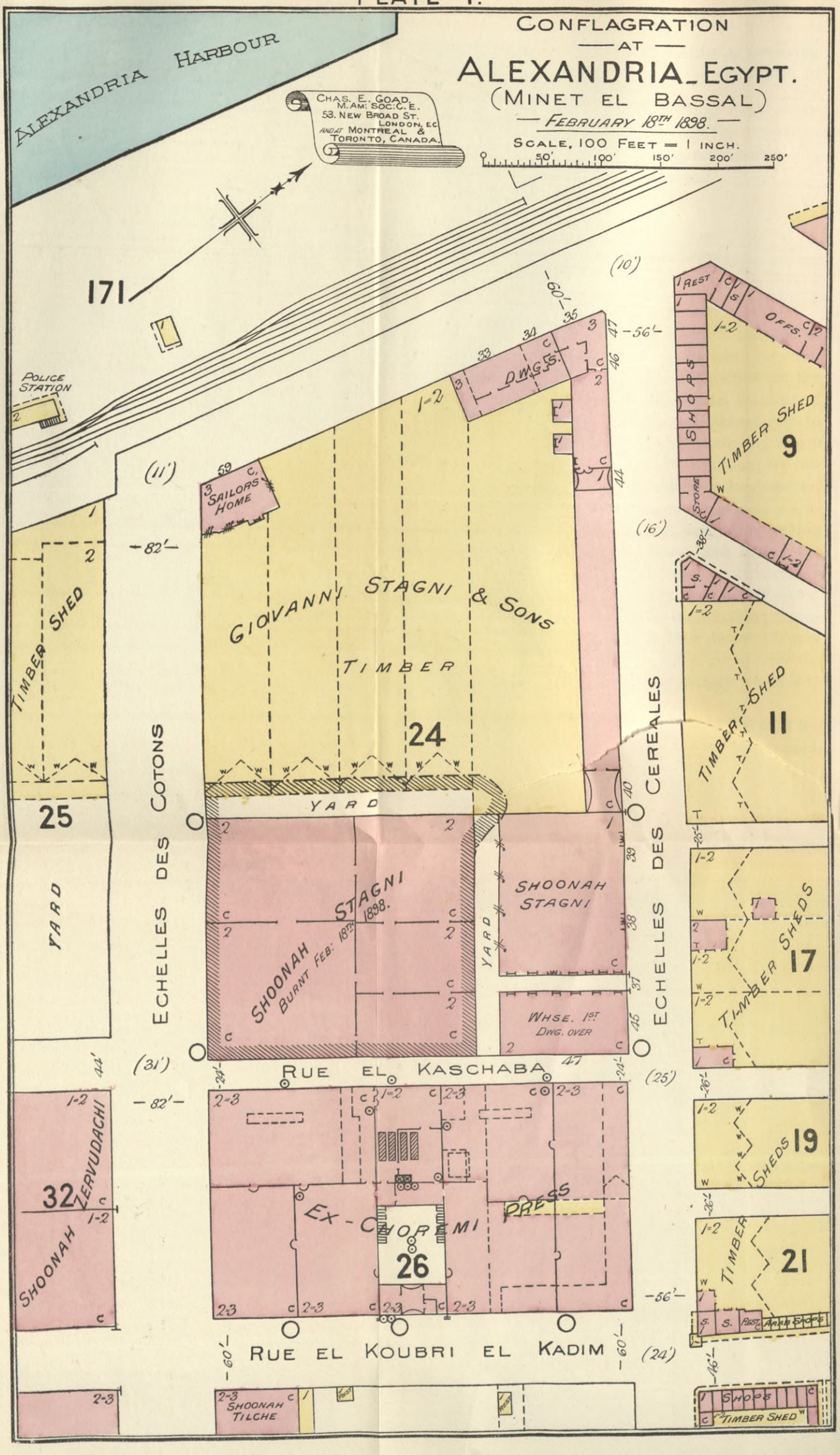


PLATE I.


CONFLAGRATION
— AT —
ALEXANDRIA, EGYPT.
(MINET EL BASSAL)
— FEBRUARY 18TH 1898. —
SCALE, 100 FEET = 1 INCH.
50' 100' 150' 200' 250'
ALEXANDRIA HARBOUR
CHAS. E. GOAD, M. AM. SOC. C. E. 53. NEW BROAD ST. LONDON, EC AND AT MONTREAL & TORONTO, CANADA.
171
POLICE STATION
SAILORS HOME
D.W.G.S.
SHOPS
STORE
OFFS.
REST
TIMBER SHED 9
TIMBER SHED 11
TIMBER SHED 25
GIOVANNI STAGNI & SONS TIMBER YARD 24
YARD
STAGNI 1898.
SHOONAH BURNT FEB. 18TH
SHOONAH STAGNI
WHSE. 1ST DWG. OVER
ECHELLES DES COTONS
ECHELLES DES CEREALES
RUE EL KASCHABA
RUE EL KOUBRI EL KADIM
TIMBER SHEDS 17
SHEDS 19
TIMBER 21
32 ZERVUDACHI
SHOONAH
EX-CHORBAGI PRESS 26
SHOONAH TILCHE
SHOPS
TIMBER SHED

LIVERPOOL,

the city next in importance, which has seen frequent Cotton Fires. It does not seem advisable to comment at any length on this class of fire, as the subject could be treated in a special paper written by some one competent to discuss the matter at length. I will merely note the fact that during the ten years, 1888 to 1897, I find records of at least 19 large Cotton Warehouse Fires, the loss totalling approximately between one and $1\frac{1}{4}$ million sterling.

In August, 1893, four timber yards were burnt, at an estimated loss of £100,000.

It may, however, appear superfluous to offer remarks on disasters so near home, the particulars and resultant warnings of which must still be fresh in the memories of many of my readers.

Sailing from Liverpool, therefore, on a tour to countries under British or Anglo-Saxon rule and influence, let us glance at the commercial metropolis of Egypt,

ALEXANDRIA.

Plate I.

The cotton industry of Egypt has now assumed large proportions and is increasing year by year.

The hydraulic pressed bales are brought down the Mahmoudieh Canal in dahabiehs, from all parts of Egypt to Minet-el-Bassel, the cotton quarter of Alexandria, where they are unloaded and stored in shoonahs, or, at the height of the season, when the shoonahs are full, in the streets and alley-ways. They are then opened, cleaned, and re-pressed in powerful steam presses, which greatly reduces the risk of fire, as the resultant steam-pressed bale is not liable to burn.

The outbreak shown in the accompanying plate occurred on February 18th, 1898, at about 7.30 in the morning. The people in the press opposite declared that they had been taking bales out of the shoonah at seven o'clock; but this seems incredible, as, from the fact that the roofs of the whole five shoonahs fell in at eight o'clock, there must have been fire smouldering nearly all the previous night. The truth no doubt was that the zaptiehs (Arab watchmen) neglected their duty, officers on ships in the harbour testifying that they had seen the smoke rising very early in the morning.

The Arab firemen, under the charge of Captain Lynn, who is the second in command to Colonel Harrington, Chief of the Police Force, Alexandria, and who has special charge of the Fire Brigade, seem to have worked well to prevent the fire from spreading to an adjoining timber yard. There is no doubt that had this got well alight, and had the breeze freshened, a very large district of the city would have been involved, as the fire would have spread over a large series of timber yards, sheds, and long warehouses on the wharves.

The owner of this adjoining timber yard did all in his power to keep the firemen from putting water on his timber, seeming rather to dread the damage from water than to realise the imminent danger of total loss by fire. As a matter of fact, very little damage was done to this yard, except to the gable ends of the large, high, open timber sheds, while a cotton shoonah, only 12 feet away from those burnt, was saved.

In going over the débris some weeks after the fire, when there was not the slightest appearance or smell of burning, a gang of men engaged in clearing the ruins would pull a mass down, and suddenly fire would break

out viciously. A stream of water would then be thrown on, and the outbreak being mastered they would proceed with their work. Steam-pressed bales were drawn out occasionally, which, although charred on all sides, were yet intact; and I was told that with a little trouble in taking off the charred outside, the bale would still be worth at least £12.

The total loss to insurance companies was £109,203, of which £20,000 was salvaged, consisting mostly of steam-pressed bales drawn out from the fire intact.

It may be noted that had the openings between these five shoonahs been protected by double fire-resisting doors, with all the walls prolonged 1 metre (3′ 3½″) above the roof, the fire would probably have been confined to a single one, and the loss £20,000 instead of £90,000. An expenditure of £70,000 will go a long way in constructing fire-resisting and self-closing doors.

The total value of the Egyptian cotton crop last year was £10,000,000 sterling. The whole of this passed through Minet-el-Bassel, where there is a liability of between £3,000,000 and £4,000,000 worth of cotton being stored at one time.

Doubtless a general conflagration is an improbability, but cotton fires are frequent, and as fire will be very often brought down the canal in the interior of a bale, not declaring itself until the bale bursts open at some unexpected moment, there is every reason why the unpressed cotton should be stored in, or separated into, as small quantities as possible. It would also seem of great advantage to this district to have the shoonahs isolated or protected from each other.

The Insurance Companies have an organised syndicate, and their reasonable wishes would, I believe, be complied with, if the owners were generally to

understand that the rates are established according to the risk involved. Many years' premiums, indeed, were lost in this one fire. Although the Arabs insure very little, still the various European nationalities represented in Alexandria have large interests at stake, and seem fully alive to the necessity of taking reasonable precautions against the occurrence of a similar disaster.

Crossing to the West Indies,

PORT OF SPAIN,

the principal city of the Island of Trinidad, was the scene of an extensive outbreak on Monday, March 4th, 1895, of which I give an illustration,

Plate II.

The fire started about 16.30 o'clock, the probable origin being revenge on the part of a coloured clerk, because his employers did not close as early that day as their neighbours, so as to allow him to see the English Cricket Match then in progress.

A steady breeze from the south-east fanned the flames, and a huge blunder was committed by bursting open the doors on the Frederick Street side, allowing the wind to sweep the flames from end to end of the establishment.

It will be noticed in this area (see Plate II.) that nearly all the establishments had large wooden louvres, 10 feet over the roof. The openings between the louvre boards were from 3 to 4 inches wide, with the object of giving ventilation and a free circulation of air, which is indispensable in tropical climates, These openings freely admitted live embers to fall on the inflammable goods beneath. The fire walls, which in this instance ran parallel with the direction of the flames, afforded

PLATE II.

CONFLAGRATION — AT — PORT OF SPAIN — TRINIDAD. — WEST INDIES. —

MARCH 4TH 1895.

CHAS. E. GOAD, M. CAN. SOC. C. E.
53, NEW BROAD ST. LONDON, E.C.
AND AT MONTREAL & TORONTO, CANADA.

SCALE, 100 FEET = 1 INCH

0 50' 100' 150' 200' 250'

BRUNSWICK SQ. SOUTH

TRINITY CHURCH

CHURCHYARD

PARSONAGE

DIRECTION OF WIND C MARCH 4TH 1895. 36

ST.

QUEEN ST.

KING ST.

ABERCROMBIE ST.

CHACON ST.

FREDERICK ST.

HENRY ST.

MARINE SQ.

WALK

PUBLIC LIBRARY

WIPPENBECK'S HOTEL

CENTRAL HOTEL

ICE ESTABLISHMENT

FAMILY HOTEL

CORR IRON CLAD

SMITH BROS. & Co "THE BONANZA"

GEORGE GOODWILLIE

JAS. TODD & SONS

WILSON SON & Co

FIRE STARTED HERE

LOUVRE 10' OVER

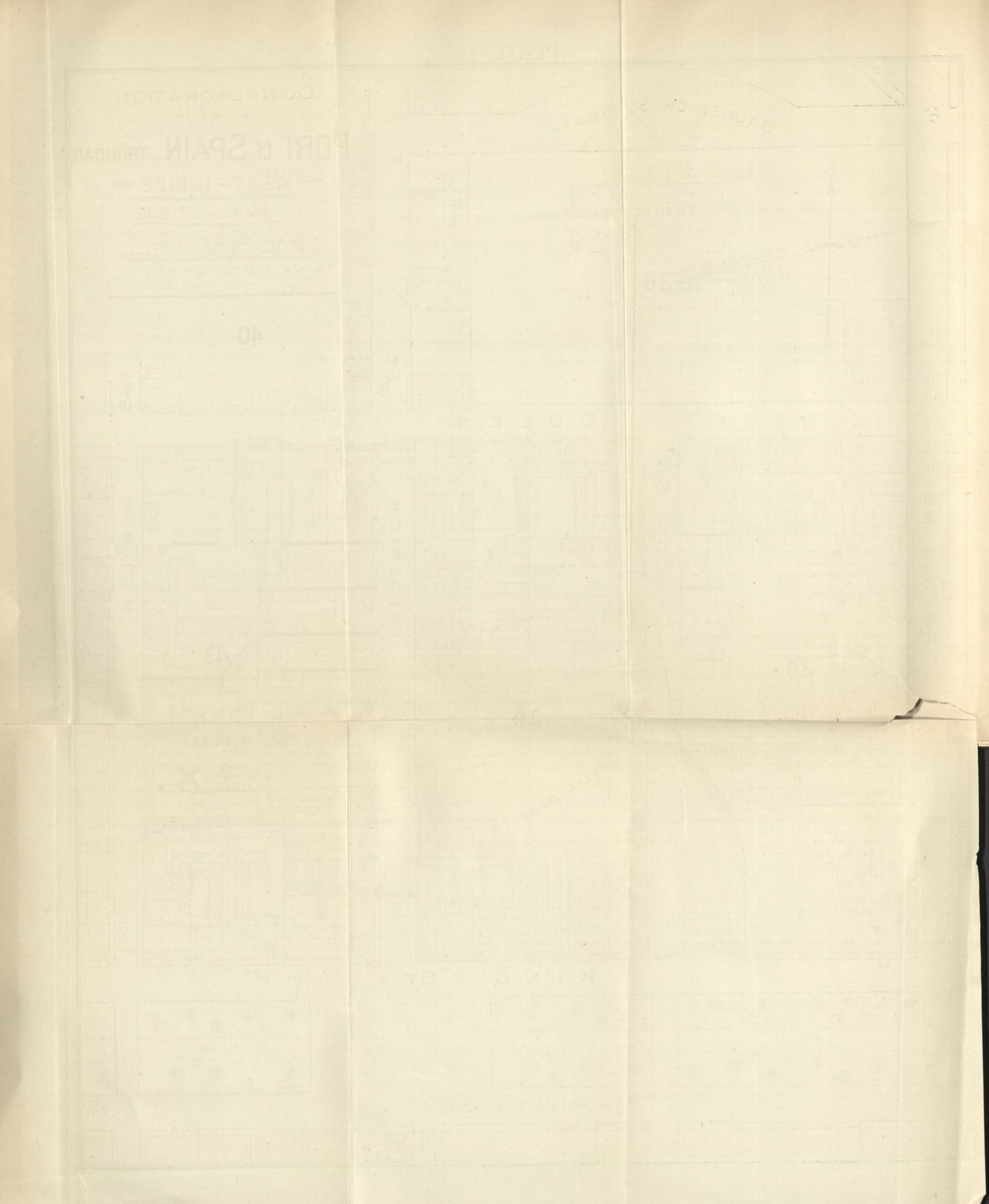
LOUVRE 20' OVER OPEN TO ROOF

LOUVRE 10' OVER OPEN TO ROOF

LOUVRE 8' OVER

LOUVRE 8' OVER OPEN TO ROOF

36 38 39 40 43



little protection. Fortunately, British and American men-of-war were lying in the harbour at the time, and from these parties of blue-jackets were landed and organised as firemen to fight the flames. Their efforts in this direction were effective, and the progress of the fire was checked, but not before the sailors as well as the townspeople were thoroughly exhausted. The waterworks were not of sufficient capacity to cope with a fire of any magnitude, although for ordinary or domestic purposes the supply was considered ample.

After the fire an agitation arose for the widening of Frederick Street, the main business thoroughfare, but the Government were unable to see their way to a large expenditure for this purpose, and, although an extra 12 feet in width (50 feet in place of 38 feet) has been added, it is to be regretted that this street was not widened to 66 or 70 feet.

In this district, as re-constructed, there is now a great increase in the number of fire walls, and the wooden louvres have given way to a new style, constructed with iron frames, filled in with ventilating windows of thick glass, that can be easily closed on occasion. These are a distinct improvement in the construction of the business portion of the city.

Sailing across the Caribbean Sea and up the Pacific Coast, we reach British Columbia, a province of the Dominion of Canada, where

NEW WESTMINSTER,

a thriving and pretty city of 7,000 inhabitants, has lately been devastated by fire, the property destroyed approximating to a total of £400,000, with an insurance of about £218,000.

Plate III.

This conflagration started on Saturday, September 10th, 1898, at 23.30 o'clock.

The outbreak occurred in a large wooden warehouse on the water-front, which contained about 200 tons of hay. This had been stored there all the season and was consequently very dry.

A spark from one of the steamers alongside is supposed to have ignited the hay, but this is denied by the captain of the steamer, who states that his fires had been banked for fully an hour, so that it could not possibly have commenced in that way. The only other supposable cause would be a match thrown down by a man after lighting his pipe.

The fire was first noticed by persons in buildings on Front Street, opposite. A strong wind from the south-east was blowing at the time, and before the firemen reached the locality, the building was enveloped in flames, the large wooden Market Building taking fire almost immediately. The weather for some weeks previously had been very dry and warm, the thermometer standing at about 75° that evening. Shortly after the fire started, the stern-wheel steamer "Edgar," laying alongside the wharf, became involved. Her moorings being burnt through, she drifted down stream, fouling the "Gladys" a side-wheel steamer, and setting her also on fire. The two boats then struck and set alight the "Bon-Accord." The three steamers floated down the river, keeping close in to the wharves, ignited a coal barge, and, in company with the latter, drifted down along the wooden sheds, wharves, and canneries, setting them on fire one after another, for a distance of about 500 yards. The vessels then swung out into the river, and though they were themselves, of course, completely

destroyed, fortunately did no further damage to the wharves below.

From the wharves, blazing along the full front of the city, the flames rushed in a mad chase up Eighth, Alexander, Begbie, Lorne, Mackenzie, Sixth, and Church Streets. Front Street, being only 48 feet wide, the fire very soon gained the mastery over the business blocks on the opposite side.

Columbia, the next and main street, 99 feet wide, might have seemed capable of offering a stand to break the onrush of the flames, but, with a gale blowing, and with such an extensive frontage to the flames, this street also was very soon crossed, and the conflagration, spreading itself around the base of the slope, ran up the hill as far as First Avenue. The gale had now increased in fury, and the fire was literally blown across Columbia Street, showers of burning embers being carried far up the hill to the north, among the dwelling-houses adjacent to the blocks used for business purposes.

Help was summoned from Vancouver, twelve miles distant, and twenty men with a supply of hose reached the scene at about two o'clock on Sunday morning. By this time the business portion was doomed, and the firemen of both cities were occupied in confining the fire east and west, the inhabitants themselves looking to saving their own dwellings on the upper streets. Regarding the efforts made by the firemen, there seems no doubt that the steam fire engine and chemical worked as never before, though, unfortunately, it is certain that the Fire Department were slow in commencing operations. But as it only consisted of six fully-paid, five partially-paid, and a small number of "call" men, and as the Chief Fireman was at the time absent from the city, their number and organisation were totally inadequate

to combat such a fire. Before long they were forced to abandon their position, leaving the hydrants open, as they could not approach to close them, or even to save the hose. It is probable, therefore, that the failure of the water supply was partly due to these hydrants on the lower level being left open. The supply for fire purposes depended on a reservoir with a capacity of 1,375,000 gallons, 400 feet above the level of the river. During ordinary times, however, the lower level of the city drew its supply from a relief tank on Moody Square, as the full pressure would tend to strain or burst the house plumbing. To enable the high-level pressure to be turned on to the lower level system at any given section of the city, a series of 6-inch "fire gates" are located at various points on the hill. The main gate, a 14-inch one, which would turn the full fire pressure on to the entire lower level is placed at the junction of First (or Royal) Avenue and Sixth Street, on the 14-inch steel main which feeds the system east and west. On this particular night the 14-inch gate would appear, according to a reasonable explanation, to have been forgotten in the hurry and excitement incident to the sudden breaking out of an evidently very serious fire, although it may be that nothing could have saved the town after those fortuitous fire-ships had effected their deadly work, with the precision almost of a plan of campaign, along the water front; yet it was most unfortunate that the firemen should have been driven from the lower portion of the town before they had time to turn off the hydrants, and that these "gates" should have been overlooked. It appears that afterwards a man was sent to open the 14-inch gate, but that he failed to find it in the darkness. It was opened subsequently by the Superintendent, but too late to be of any service in

PLATE III.

CONFLAGRATION — AT — NEW WESTMINSTER. BRITISH COLUMBIA. DOMINION OF CANADA.

SEPT.R 10TH 1898.

SCALE, 200 FT. = INCH

100' 200' 300' 400' 500' 600'

DIRECTION OF WIND SEPT 10TH 1898

QUEBEC ST. · ONTARIO ST. · JAIL · TORONTO PLACE · ROYAL OR FIRST AVE. · FIRST AVE. · HANLAN ST. · JEMMET ST. · TENTH ST. · MOODY ST. · CUNNINGHAM ST. · SEVENTH ST. · AGNES STREET · HOLBROOK ST · VICTORIA ST. · CARNARVON STREET · COLUMBIA STREET · FRONT ST. · RAMMAGE ST. · McINNES ST. · BLACKIE ST. · McNEELY ST. · EIGHTH ST. · ALEXANDER ST. · BEGBIE ST. · LORNE ST. · McKENZIE ST. · SIXTH ST. · CHURCH ST. · FOURTH ST. · MERRIVALE ST

146 · 147 · 148 · 149 · 135 · 134 · 120 · 137 · 138 · 139 · 136 · 122 · 123 · 112 · 113 · 27A · 27B · 22 · 23 · 21 · 16 · 14 · 13 · 114 · 7 · 105 · 37 · 6 · 38 · 24 · 25 · 26 · 20 · 20A · 17A · 17 · 15 · 12 · 8 · 6A · 39 · 11 · 9 · 5 · 2 · 31 · 19 · 18 · 10C · 10B · 4 · 3 · 10D · 10A · 4A

ELECTRIC LIGHT STATION · CITY HALL · METH. CHURCH · OLIVET BAPTIST CHURCH · HERRING'S OPERA HOUSE · WOODEN BRIDGE · LOFTY WOODEN BRIDGE · HOLY TRINITY CHURCH · MERCHANTS SQUARE · COURT HOUSE · GUICHON HOTEL · COLONIAL HOTEL · POST OFFICE · FIRE STAT.N°1 · QUEENS HOTEL · CLEVELAND HOTEL · C.P.R. DEPOT · C.P.R. STORAGE · BANK OF MONTREAL · BANK OF BRIT. COLUMBIA · LYTTON SQ. · CANADIAN PACIFIC RY · FIRE STAT.N°3 · WESTERN FISHERIES Co. CANNERY · SINCLAIR CANNING Co's · CAN. PAC. NAV. Co's LANDING WHF. · FIRE STARTED HERE · CITY MARKET

"BON ACCORD" · "GLADYS" · "EDGAR"

PROFILES OF STREETS — AT — RIGHT ANGLES TO FRASER RIVER

VERTICAL SCALE 200'=1" · HORIZONTAL SCALE 1000'=1"

ST. MARK'S HOSPITAL · HIGH WATER LEVEL FRASER RIVER

BUILDINGS TAKEN FROM SURVEY DATED JULY 1897.

N.B. BRICK OR STONE BUILDINGS SHOWN
WOODEN (FRAME) —"— —"—

FRASER RIVER

CHAS. E. GOAD.
M.AM.SOC.C.E. M.CAN.SOC.C.E.
53 NEW BROAD ST. LONDON, E.C.
AND AT
MONTREAL & TORONTO. CANADA.

saving the eastern business portion of Columbia Street, and the district further up the hill, which not improbably might have been saved.

It has lately been stated that companies should not write in such places, but, from personal knowledge of this city, I can assert that the buildings on both sides of Columbia Avenue were imposing brick and stone structures of a description that any city might be proud of. Naturally, there were many wooden buildings intermixed, mainly of one or two stories high only, which were doubtless a source of danger, but, in such a conflagration as this, started along the whole water-front by the floating fire-ships, and attacking the business portion along its entire length in a direction parallel with the fire-walls, it was hardly to be expected that these fire-walls could have any effect in making a stop. The conditions here were similar to those noted in the Trinidad fire, with the addition that the wind was very much stronger. A certain extra draft, too, was added by the sloping nature of the ground, Columbia Street ranging from five to thirty feet above Front, and the streets in the rear being at a still higher level.

It may be noted that underwriters were careful in writing on the warehouses along the wharves, and also on the British Columbia Saw Mills at the west end of the town. These Saw Mills were partly burnt on May 25th, 1894, but, on the present occasion, they suffered no damage.

There is no doubt that the people of New Westminster, as in the case of most Canadian towns, have had considerable experience in fighting fire, and will now take special precautions that such a failure of water does not occur again, and, we should hope, will not allow the erection of wooden structures for the storage

of large quantities of hay or combustible material along the water front.

Branching off for a glance at the supposed new Eldorado, we find that the metropolis of Klondyke,

DAWSON CITY,

on October 14th last, had a very narrow escape from destruction.

There are, it appears, some not very desirable characters there, and one of these, known locally as "Coal Oil Belle" had a nasty habit of throwing lighted lamps at her friends when annoyed with them, and this is said to be the reason why Dawson City had such a "hot time" of it a few weeks ago. Until a fire-engine could be got into working order,—for, happily, one had just arrived, the effect of the "Coal Oil Belle" lamp gave the Dawsonites something to think about. An amateur fire brigade was organised, and buckets of water, passed from hand to hand, were thrown on the flames, but with little effect, for when a city of wood catches fire, buckets are of little use. It is quite possible that the greater part of the city would have been destroyed had not the happy idea of blowing up buildings in the line of flames been put into action. When the reckoning came, it was found that not a few of the inhabitants had lost all their precious gold dust in the scramble to save themselves. At the same time some of the more notorious characters of the place were not to be found, even in the ashes. But then these little accidents will happen even in Klondyke.

There were, probably, but few Insurance losses to require adjustment.

Travelling eastward again across the continent, time will not allow stops at several small Manitoba towns that have suffered more or less from the fire fiend during the last ten years.

Before speaking of the eastern portion of Canada, mention should be made of the conflagration in the World's Fair Buildings in

CHICAGO.

During the progress of the World's Fair in 1893, there were many varying opinions as to the probability of a conflagration in the beautiful series of buildings erected for the purposes of this Exhibition. Many managers declined to write on these buildings, but the result proved that those who accepted the risks came out without much loss The thorough system of protection and fire patrols proving successful during the period for which the Exhibition was open.

On July 10th, 1893, there was a conflagration in the Cold Storage Building, which, although not on the grounds of the World's Fair, was, I believe, under the control of the management. The building, about 250 × 200 feet, had not been erected according to the architect's plans, and proved to be a veritable fire-trap: a large iron chimney, in the centre of an ornamental tower 200 feet high, had started fires two or three times, and finally, on the date mentioned, the whole building was burnt in broad daylight.

Visitors to the Fair will remember the imposing row of columns in the rear of the Egyptian Obelisk. This colonnade between the Agricultural Building and Machinery Hall was burnt about January, 1894.

In May, 1894, many of the larger structures were sold for £16,000 to the Columbian Exposition Salvage Co., they being under bond to remove everything from the site, Jackson Park, by a certain date, as the ground had to be delivered up to the City of Chicago, as arranged previous to the exhibition. On the evening of July 5th, 1894, the White City, that "dream of Architecture" as it has been called, was wiped out with fire, and in a few hours, the buildings that had housed the finest of International Exhibitions were nothing but a few heaps of tangled ironwork, the gilded Statue of Liberty still towering above the black ruins, with arms uplifted as if appealing against such disaster.

The Administration Building was 250 feet square, dome 260 feet high, and cost £130,000.

The Electricity Building was 690 × 345 feet, and cost £82,700.

The Mines and Mining Building was 700 × 350 feet, and cost £53,300.

The Machinery Hall was 842 × 494 feet, with an annex 490 × 550 feet, costing £240,000.

The Agricultural Building was 800 × 500 feet, with an annex 312 × 550 feet, and cost £124,000.

The Manufactures and Liberal Arts Building was 1,687 × 787 feet, the largest building the world has ever seen. The corner pavilions were 97 feet high; the pylons, 122 feet; and the high roof, 312 feet high. It contained 14,000,000 lbs. of steel and iron, and 17,000,000 feet of lumber. The cost was £473,000.

The total cost of these six buildings, with the two annexes, that were burnt, was about £980,000 sterling.

The Central Station in Manchester can be considered a large structure, being 550 × 225 ft., and 108 feet high above the tracks.

Nine of these stations in three rows of three each could have been accommodated on the floor of the Manufactures and Liberal Arts Building, and six more Central Stations could have been piled on the top of those nine, still leaving a vacant space under the roof.

Were these six Exhibition Buildings with the two annexes placed in line, they would make a magnificent promenade reaching from the London Road Station to the Exchange Station, with an annex reaching across the Town Hall to the Central Station, the width of this promenade ranging from 345 ft. to 787 ft.

Comparing the area of this building with that covered by the Cripplegate fire in London, four Cripplegate fires could have been comfortably accommodated in the structure.

On Thursday, July 5th, 1894, a few minutes after 18 o'clock, some small boys discovered a blaze in the corner of the Terminal Station Building. They tried to stamp it out, but were unsuccessful, and in a few minutes it had penetrated the framework of the walls and then all was over. The big building burned like tinder. In a short time the great station was red-hot, and then the roof collapsed, followed, a few minutes later, by the walls. Meantime burning brands that had been hurled across to the Administration Building, started flames here and there around the base of the dome. They quickly burned through, and the intense draught from the interior made the dome a furnace. In ten minutes it collapsed. Then the Electricity Building caught in the south end, and while the blaze was getting good headway, the south end of the Mines and Mining Building

caught through the gable roof. As soon as the fire got inside, it shot the entire length of the building with the speed of an express train, and in five seconds the interior was a roaring furnace. Then followed an explosion. One-half of the west side of the roof and a part of the west wall were blown out, giving the fire full play, and it was not long before all that was left of the Mines and Mining Building was a row or two of red-hot iron columns.

By this time the Manufactures Building was on fire, where it had previously caught on several occasions—along the roof promenade. It took one hour to destroy the huge building. First the roof burned half its length. The huge girders might as well have been of wood. They appeared to collapse, and with them the roof sank several feet, but still it did not fall until at length the big hinges were burned through. Then, with a roar like the discharge of a battery of artillery, one half of that monster roof sank into the fiery furnace beneath.

The firemen had little to do. The Terminal Station was destroyed, and the Administration Dome had collapsed before the first engines got to work. The south-east corner of the Transportation Building caught fire, but the firemen worked from its roof and succeeded in saving it. When the north end of the Manufactures Building fell, a shower of burning brands fell on the Government Building; but, as this had been well soaked with water, the brands had no effect.

There was no salvage from the fire. All the iron that was not melted was torn and twisted into masses that could not well be handled, much less sold or disposed of in any way. The massive girders in the Manufactures Building roof, which were supposed to be able to stand almost anything, were twisted like wire,

and some were even melted into masses of metal. After the fire, the highest point of the ruined building was only about 28 feet above the ground. In three hours the whole of these six buildings, with the two annexes, which had cost £980,000 sterling, were destroyed.

There was, of course, no insurance on the buildings, which had been at the mercy of vandals and tramps for several months; in fact, it was openly stated at the time that the Salvage Company had destroyed the buildings, finding that they had more on their hands than they could take care of, being under bond to remove all buildings by a certain date.

During last summer an alarm was cabled over that there was danger of another enormous fire in Chicago from possible spread of prairie fires. This was laughed at as an American story, and was, doubtless, also ridiculed by the Chicago people themselves. Yet, although not a probability, it is quite within the bounds of possibility, that in the dry season, with a strong wind from the south blowing towards the city, a prairie fire might ignite many of the fences, then out-buildings, then the smaller wooden houses in the suburbs; and the large embers from these, as in so many other conflagrations, would be carried for half a mile or more, starting a whole series of fires and endangering large districts of the city. Chicago has well been called the "Windy City," and there is no doubt that extraordinary precautions should be taken during the prevalence of a strong, dry wind coming from any direction across the prairie in the late summer and autumn months.

While speaking of the United States, although the subject would provide ample matter for consideration in a special paper, or series of papers, it may be well to make mention of the fire on Sunday evening, December 4th last, in

NEW YORK CITY,

where a five-story mercantile establishment was burned, setting fire to the upper stories of the adjoining fifteen-story modern building of the Home Life Insurance Co., doing, it is stated, over £200,000 damage.

It has been remarked that never before was a fire reported where the building was destroyed from the 8th to the 15th story, without any material damage being done below the 8th story, where the roof usually is found, and at which point the firemen seem to have neglected the danger of the flames spreading sideways in order to stop their downward extension. There are people who say that this circumstance demonstrates that no building should be permitted to exceed 200 feet high, since above 125 feet the hose becomes increasingly ineffective, independent of the difficulty of getting the hose to that altitude. On the other hand, architects think it vindicates the modern fire-proof construction, viz., steel uprights and beams, carrying concrete floors. They urge that no solidity of construction upon older methods would have equally withstood and checked the flames.

The fire seems to have gone through the upper stories of the Home Life Insurance building and to have attacked the three upper floors of the Postal Telegraph building adjoining. This is a modern building of superior construction, but the damage done to it is understood to be but slight.

Returning again to Canada, to

TORONTO,

the Queen City of the Dominion. Toronto University, the finest example of Norman architecture in the Dominion, was totally destroyed by fire on Friday, February 14th, 1890. The loss amounted to £80,000 (the fine Library alone being worth £30,000). The total insurance was only £28,000.

A primitive method of lighting and inadequate appliances for protection, were responsible for this fire. In preparation for the annual conversazione to be held on that evening, two of the employees, at about 18.40 o'clock, were proceeding along the eastern wing, carrying two or three dozen coal oil lamps on a portable rack. The floors had been recently waxed, and by an accident one of the lamps was overturned, and presently all of them were in a blaze. In spite of the endeavours of the men to stamp out the flame, the floor became ignited. There was no water at hand, and though they attempted to get out what hose and appliances there were in the building they were unable to stay the progress of the fire. It was a considerable distance to the nearest fire alarm box, and the alarm was not turned in until a passing policeman saw the flames bursting through the windows. A general alarm brought out all the brigade, but there were very few hydrants within the grounds, most of these being so far away as to cause great delay in making attachments and others being frozen. A strong north-westerly gale was blowing at the time, so that it was impossible to stay the destruction of the building and nothing was left but the bare walls and empty tower.

Plate IV.

On Sunday, January 6th, 1895, at 2.48, fire was noticed in the boiler room of the *Globe* newspaper building (see Plate IV.) by the watchman. It burned so fiercely that 20 minutes after the alarm was sounded it had extended from the basement to the top story and so weakened the walls that the tower on the corner of Yonge and Melinda Streets fell into the road. The fire rapidly spread across the street, westward along the block and across Jordan Street to the McKinnon building, a new six-story block just on the point of completion The firemen had to work under tremendous disadvantages. The water pressure was not sufficient for a stream to reach the five and six story buildings, and this they tried to overcome by the large aerial ladder which was run into Melinda Street and placed in position with the intention of carrying up the hose so as to reach the top of the *Globe* building. When the ladder was almost in place, it was found that the position was too hot to work in. Before, however, it could be lowered, a portion of the *Globe* wall fell outwards, burying the ladder and two firemen. In the meantime, the Chief of the Brigade, with two other firemen, entered an adjoining building, and their retreat being cut off, had to jump from the windows; they were removed to the hospital, where the Chief died a few weeks afterwards from injuries and shock.

A heavy snowstorm was falling at the time, but in about 3 hours the fire was got under control.

The total loss was £250,000 and the Insurance £81,200.

Four days after the above, on the 10th January, a worse outbreak occurred in the Osgoodby Building (see Plate IV.), on Melinda Street, at 19 o'clock, the origin being incendiarism (the crime having been proved, the man is now serving a term of twelve years' imprisonment). This building adjoined the ruins of the previous fire.

Here again the best efforts of the firemen could not get the water higher than the fourth story windows, and above this the flames roared uncontrolled.

During the fire the ruined water power of the passenger lift in the Osgoodby Building threw out an enormous stream, reducing the pressure on the hydrants considerably.

The wind, which at the beginning was blowing strongly from the south-east, now turned, driving the flames south, to the rear of the warehouses on Wellington Street, which were quickly gutted. Here the fire worked parallel with the fire walls, then leaped across a wide street, where, however, it was stopped by a good fire wall, thus saving the most valuable business block in Toronto (more valuable, of course, on account of its containing my Toronto offices, with a large quantity of invaluable plans). The damage was £150,000. Insurance £89,000. Duration of fire a little under three hours.

The third disastrous fire, within a few weeks, occurred at Simpson's building (see Plate IV.), a seven-story departmental store, early on Sunday morning, March 3rd, 1895. It is supposed to have broken out in the boiler room.

Eleven minutes after the first alarm, flames burst through the roof, which, fourteen minutes later, caved in, and part of the wall fell out. Twenty minutes later, the remainder of the Yonge and Queen Street elevations fell

out into the street, bringing down telephone, trolley and electric light wires and poles.

When the fire broke out there was scarcely any wind, and that from the west. This, however, gradually developed until its velocity was sufficient to carry burning embers to the River Don, a mile away.

Not only did it freshen, but twice changed its direction. First it blew west, then it veered to west by north, driving the flames across Yonge Street, and by the time the fire had spread south as far as the Tremont House, it veered round again to west by south, thus saving the magnificent block belonging to the Confederation Life Association, one of the finest commercial structures in the city. The private appliances in this Confederation building are credited with having had considerable effect in staying the spread of the fire, by playing on the roofs of the lower buildings intervening.

Early in the fire, on the steeple of the Presbyterian Church, close by Simpson's, a tiny fire was visible, high up at the top, which a bucket of water would have quenched. A fireman made an attempt to ascend the steeple inside, with a Babcock Extinguisher, but by this time the fire had become brighter, so that his errand failed, and the spire was doomed.

The body of the spire buckled and fell to the ground. The brigade poured tons of water into the belfry in the hope of saving the bell from falling, but the effort was futile, and soon after the partially-melted bell fell through several floors of the tower, into the basement. The bell weighed about two tons and cost $900. The main body of the church was saved from further damage after strenuous efforts on the part of the firemen.

The total loss by this fire was £155,000, with an insurance of £110,000. Duration of fire, about four hours.

PLATE IV.

CONFLAGRATIONS — AT — TORONTO. — CANADA.

JANUARY 6TH – 10TH – & MARCH 3RD — 1895.

CHAS. E. GOAD, M. CAN. SOC. C.E.
53, NEW BROAD ST. LONDON, E.C.
AND AT MONTREAL & TORONTO, – CANADA.

SCALE, 100 FEET = 1 INCH.

0 50' 100' 150' 200' 250'

TORONTO VOL. I SHEET Nº 28. BLOCKS 146. 147.
" " " " " 29 " " 151. 154.

TORONTO VOL. I. SHEET Nº 14. BLOCKS 50. 51. & 52.
" " " " " 6 " " 11

KEY

SCALE, 1000' = 1"

THE NEW CITY HALL

MELINDA ST.

JORDAN ST.

YONGE ST.

WELLINGTON ST. WEST.

QUEEN ST. WEST

QUEEN ST. EAST

RICHMOND ST. WEST.

RICHMOND ST. E.

OSGOODBY BUILDING

Mc KINNON BLDG.

TORONTO GLOBE BUILDING

BANK OF COMMERCE

MATTRESS FAC.

REST.T

FRONT DAMAGED

OFFS

GRO.

4½ & B REST.T BURNT INTERNALLY ROOF OFF

FRONTS SLIGHTLY DAMAGED

FIRE STARTED HERE X BURNT OUT (JAN 10TH '95)

BURNT OUT COMPLETELY WALLS PARTLY STANDING OFFS. & WARE RMS.

WALLS STANDING BURNT OUT COMPLETELY

WHO. CLO.

WHO. S.

MILLINERY & FANCY

STANDARD BANK

SIGNAL BOX

TORONTO LITHO. BURNT OUT Co OVER

FIRE STARTED HERE JAN. 6TH '95

WHO. D.G. BURNT OUT

BURNT OUT PRINTER

TYPE FOUNDRY

PRINTING

WHO. JEWELLERY

WHO. S.

TURRET 20' OVER

WHO D.G.

PARTLY BURNT WAL PAPER

WHO. INTERIOR BURNT OUT & ROOF GEO.

PUBLISHERS

VAULT

BAG & PAPER BOX FAC

UNION BANK

MERCHANTS BANK OFFICE OF CHAS E. GOAD CIVIL ENGINEER

THE T. EATON Co LTD

DAMAGED BY WATER

BURNT OUT WALLS STANDING

BURNT OUT CLO. OFFS. OVER

DAMAGED BY BURNT

DIRECTION OF WIND.

JANUARY 6TH PROBABLY S.E. to E. THICK SNOWSTORM.
" 10TH STRONG FROM S.E. THEN STRONG N.
MARCH 3RD STRONG FROM W. THEN W. BY N. THEN W. BY S.

N.B. AREA OF FIRE OF JANUARY 6TH 1895 SHOWN THUS –
AREA OF FIRE OF JANUARY 10TH 1895 " " " "
AREA OF FIRE OF MARCH 3RD 1895 " " " "

MAR. 3RD 1895 FIRE STARTED IN BAST. HERE. COMPLETELY BURNT

ROBERT SIMPSON

KNOX CHURCH

SCHOOL ROOM

CHRISTIAN INSTITUTE

BURNT OUT

WALLS STANDING BURNT OUT

DAMAGED

TREMONT HOUSE HOTEL

CONFEDERATION LIFE ASSCE Co's BUILDING

Since this, Toronto has had a comparative immunity from conflagrations, and the City Council, which, before these fires, had been seriously considering the question of inaugurating a Municipal Insurance Bureau, is again beginning to pluck up courage to attempt the organisation of a Corporation Department of Insurance, in order to relieve the managers and shareholders of insurance companies of any anxieties respecting the future welfare of the city.

Leaving Toronto, coming eastwards, we pass

MONTREAL,

the commercial metropolis of Canada, in which city many fires, but no conflagrations, have occurred during the past ten years.

(N.B.—This paper was prepared before the date of the fire in Victoria Square, on December 20th, 1898.)

Then through Quebec, a city of many conflagrations, happily exempt of late years, onwards down the St. Lawrence River and across New Brunswick and Nova Scotia to

Plate V.

WINDSOR, NOVA SCOTIA,

a seaport on the River Avon, in the Acadian Valley, immortalised in Longfellow's poem "Evangeline;" not a modern town in any sense, except through the steady growth of many years; the population being about 3,500.

When making a first survey, in 1880, the general character and construction of the place so impressed me with its liability to conflagration, that I doubted the advisability of completing the survey. My quarters were on the third story of a wooden hotel, and I was careful to keep a

100-ft chain handy, to facilitate escape in the event of a midnight alarm.

At that time the old-fashioned unused hand-engine and rotten hose would have been of no value whatever in the event of a large fire breaking out. However, the inhabitants assured me the town was then more than a hundred years old, and had never had a fire.

During the subsequent eighteen years the town has improved, and a fairly efficient system of waterworks has been constructed.

On Sunday morning, October 17th, 1897, about two or three o'clock, a fire was started in a stable on one of the wharves (see Plate V.) either by a negro, in revenge for having been fined several times at the instance of the Women's Temperance Union, or by some loafers drinking and smoking at untimely hours.

At the time there was but little wind, and that from the south. It is reported that the firemen turned out quickly, doing excellent service with a pressure of about 60 lbs. on the hydrants, and it was supposed that the fire was well in hand.

Without warning, the wind increased to a gale of about 60 miles an hour from the north-west, augmenting the fire and conveying the burning brands and shingles hundreds of yards in among the dwelling-houses and business portion of the town.

As an example of the force of wind, embers were carried from the first buildings as far as the foundry, in Block 8, a distance of 900 yards, these embers setting fire to isolated buildings all over the town.

The fire then became unmanageable, the firemen deserting their posts to protect as best they might their families and goods.

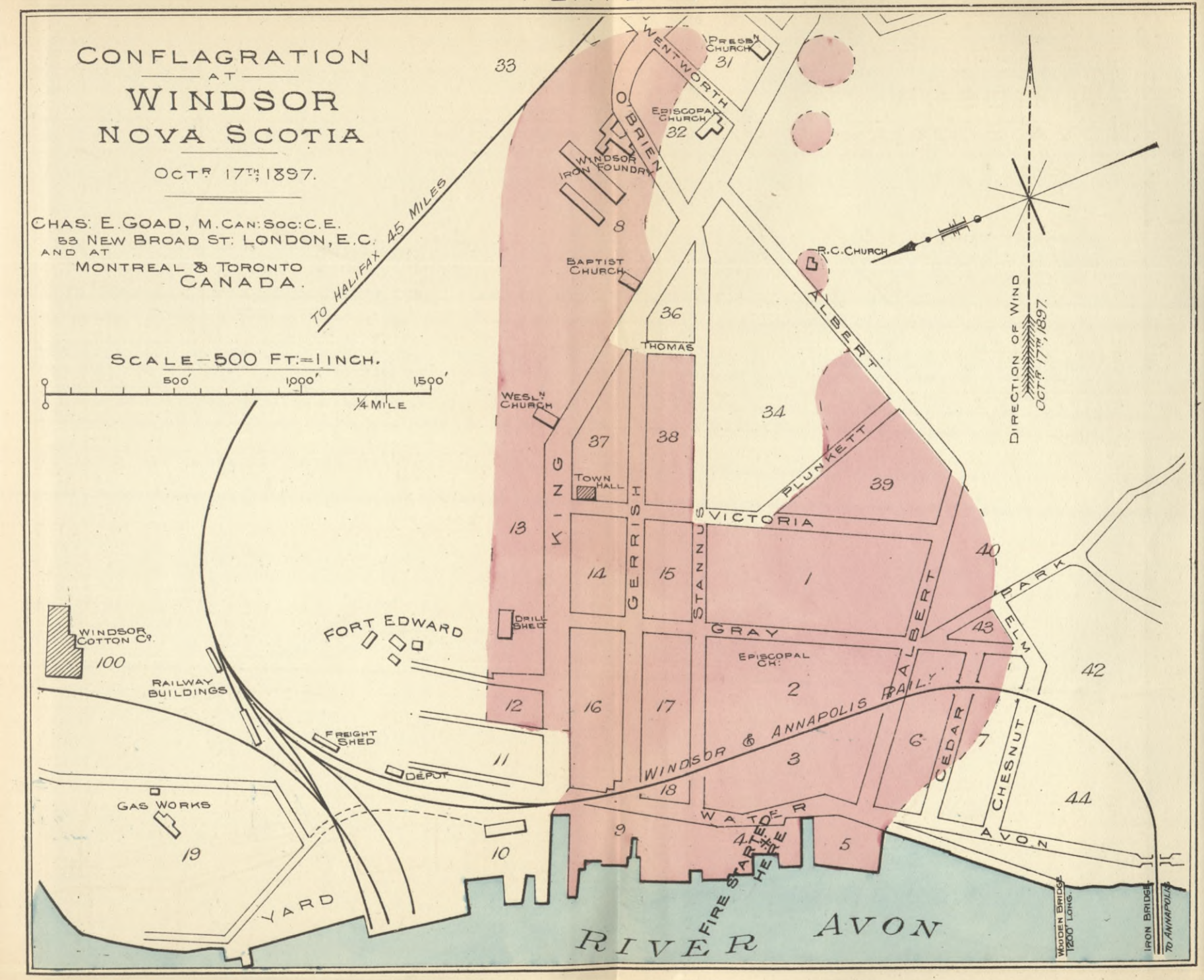
The area burned cannot be spoken of as hilly,

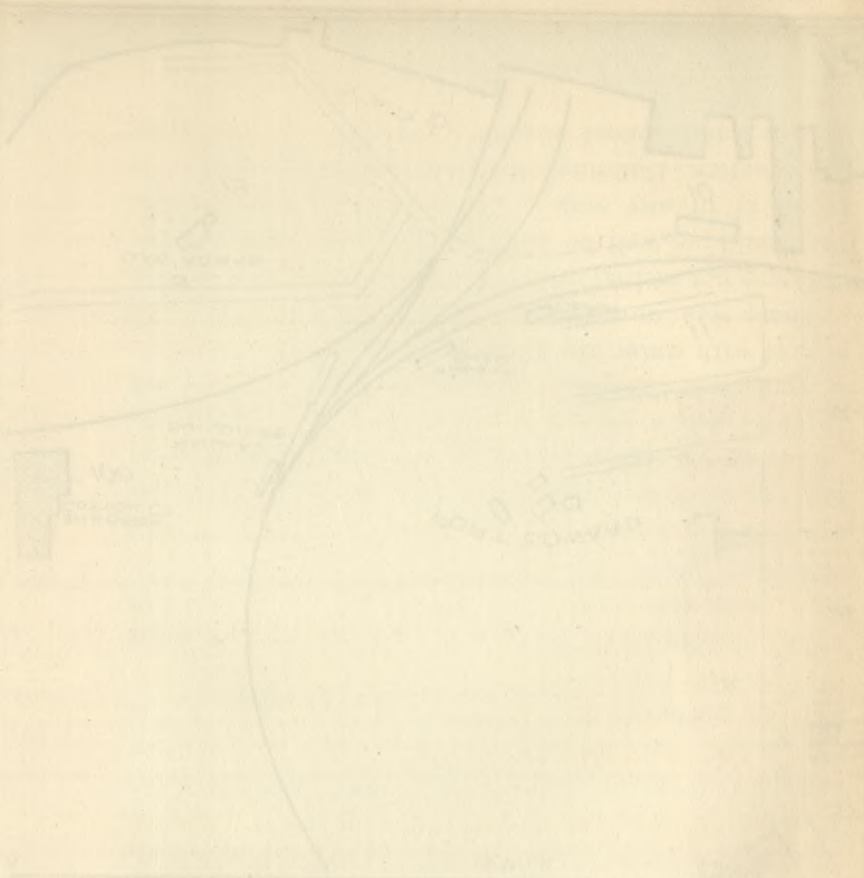
PLATE V.

CONFLAGRATION AT WINDSOR NOVA SCOTIA

OCTR 17TH; 1897.

CHAS: E. GOAD, M. CAN: SOC: C.E.
53 NEW BROAD ST: LONDON, E.C.
AND AT
MONTREAL & TORONTO
CANADA.





although there was a rise in the central part of about 20 feet, falling again towards the east.

The idea generally conceded locally, is that, had the Fire Department continued with the first hydrants, instead of opening others and thus reducing the pressure, the town would have been saved, as, in the early stage, concentrated effort would have got the flames under control; but five hydrants were opened in the vicinity, thus lessening the pressure, so that the streams could not reach to the roofs of the higher buildings.

The people of Windsor always boasted of their magnificent water pressure, and claimed that no fire could make headway there. They also had the courage of their convictions, for when the fire came and destroyed £300,000 worth of property, they were found to have only £135,000 insurance.

It took about nine hours to complete the work of destruction. The Halifax Fire Brigade arrived about 8 o'clock on Sunday morning, and contributed to saving some buildings in the outskirts.

A few other conflagrations have taken place in the Maritime Provinces, but, having no particulars, I must pass them over, coming to

ST. JOHN'S, NEWFOUNDLAND.

Thrice during the present century has this city been almost totally destroyed by fire, the first time in 1816; again, on June 9th, 1846, a conflagration destroyed the whole water front of the city (area shown by black line on plan), but did not extend to the closely-built wooden district on the hill.

On Friday, July 8th, 1892, at about 17 o'clock, a stable at the head of Long's Hill took fire (see Plate VI.).

After the 1846 conflagration there were several wide streets opened, to serve as fire breaks, along the water front, but it will be observed that on this occasion the fire commenced at a point 250 feet above the water, nearly at the top of a high hill, spreading along the crest and downward towards the water front, so that the fire breaks were of no service in staying its progress.

Unfortunately, the water pipes were being cleaned that day, and, although the water had been turned on shortly before, it had not reached the higher levels of the city when the fire started. The flames, therefore, made headway before water was procurable, and, as a very high west-north-westerly wind was blowing, and there had been no rain for three weeks previously, the fire soon had the mastery, consuming the upper portion of the town, which was mostly composed of wood; the brick portion along the water front could not then be protected against the long line of flames.

The total damage was supposed to be about £3,000,000 sterling, and the Insurance loss about £850,000 or £900,000.

An inquiry was held soon after, and from a perusal of the report there are several lessons to be learnt.

It appears that immediately opposite to the barn where the fire started there was a tank, specially erected for the protection of that neighbourhood. At the time of the fire it had some water in it, but was certainly not full, not having been properly attended to.

"The water supply had been turned off from the town at 9 o'clock that morning, and not turned on again until 15 o'clock. No urgent reason can be given for such an act, which (I am quoting from the report), in view of the forest fires during the phenomenal heat of the previous

PLATE VI

CONFLAGRATIONS
ST JOHN'S – NEWFOUNDLAND

JUNE 9TH, 1846 – *BETWEEN HARBOUR & BLACK DOTTED LINE.*
JULY 8TH, 1892 – *COLORED RED.*
—— LIMITS ARE APPROXIMATE ONLY. ——

SCALE – 500 FT. = 1 INCH.

0 500' 1000' 1500' 2000' 2500'
0 ¼ MILE ½ MILE

FIRE STARTED HERE

FORT TOWNSEND 102

BANNERMAN PARK

GOVERNMENT HOUSE GROUNDS

CEMETERY

FORT WILLIAM

HOYLES TOWN

HARBOUR

THE NARROWS

RIMMERHEAD

SEAL OIL FACTORIES AND WAREHOUSES (SOUTH SIDE)

DIRECTION OF WIND JULY 8TH 1892.

CHAS. E. GOAD, M CAN. SOC. C.E.
53 NEW BROAD ST. LONDON, E.C.
AND AT
MONTREAL & TORONTO, CANADA.

two weeks was one of great danger to the town of fire, and cannot be too severely censured."

It would take at least three hours running of the water from the mains for the pressure to have been sufficient in the quarter where the fire started.

The town has a second supply from George's Pond, Signal Hill, and this could have been utilised, when absolutely necessary to turn off the main or Windsor Lake supply.

It appears that there was a fatal delay in getting up steam in the steam fire engine, of 20 to 25 minutes, occasioned by the action of the Council, they having disallowed the practice, formerly in use, of keeping the boiler always heated.

The two important factors upon which the city had to rely in case of fire were, first, their ample water supply; second, their steam fire engine; neither of these was available when urgently required.

The city has been rebuilt in a more substantial manner; many of the narrow streets, both in the upper and lower portions, having been considerably widened.

It is to be hoped that the splendid water service, which is under the control of the Newfoundland Government, will be so managed as to allow of the pipes being cleaned at any time without the whole city being left unprotected.

Crossing the Atlantic again, we reach my own foggy, smoky little village,

LONDON,

which usually holds its own from time to time in the way of conflagrations.

Within the last ten years, omitting notice of fires that did not extend beyond two or three buildings, there have been ten conflagrations which can justly be described as such.

The Plates VII. to XVI., referring to these fires, have been prepared from a series of fire plans made to a scale of 40 feet to 1 inch, copies of which I have presented to the Insurance Institute of Manchester and to the British Fire Prevention Committee, London.

CHARTERHOUSE SQUARE.

December 25th, 1889.

This fire, happening on Christmas Day, must have been smouldering and burning long before discovered, as when noticed, the whole building was in flames.

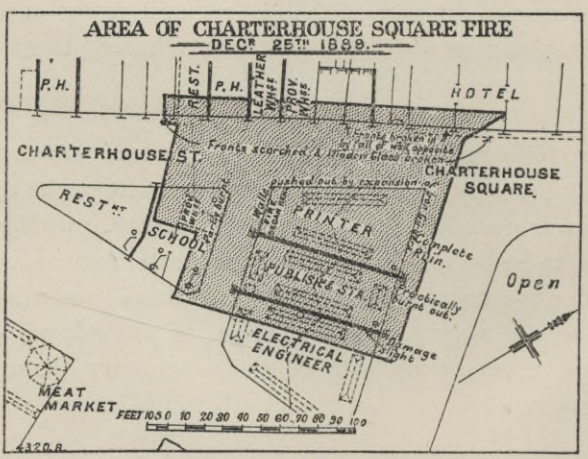


Plate VII.

A noticeable feature seems to have been that the fire extended over what may have been considered a good wall, on account of the shape of the roof and the presence of large skylights. A large front wall was pushed out by the expansion of iron girders, and in its

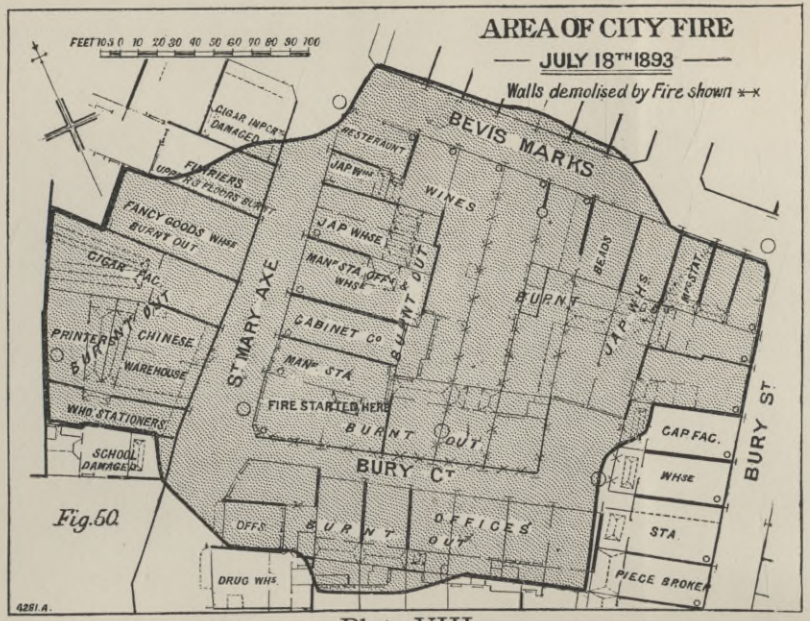


Fig. 60

Plate VIII.

fall damaged the premises on the opposite side of a very wide street.

Plate VIII.

ST. MARY AXE.

July 18th, 1893.

This fire started on the north-east corner of St. Mary Axe and Bury Court, and communicated with other premises through the light courts, also by running along cornices and igniting the casements and roofs of other buildings across narrow streets.

St. Mary Axe was impassable at the time, owing to excavations, and there was great danger during the fire from falling walls.

The contents of the warehouses were of a dangerously inflammable nature, the occupations being printers, cabinet-makers, fancy goods, Chinese, Japanese, and bamboo goods warehousemen, cigar stores, etc., consequently the fire spread with great rapidity.

OLD BAILEY AND FLEET LANE.

November 15th, 1893.

Condensing the official report, we find that this fire, which was discovered about 22.34 o'clock, commenced in a building of six floors, situated in the corner of Old Bailey and Fleet Lane, occupied partly as a perfumery manufactory. The nature of the contents and the area of the premises caused the fire to spread rapidly, whilst the narrowness of Fleet Lane and the dangerous state of the walls, rendered the task of dealing with it exceedingly difficult. Two large printing establishments and several shops on the opposite side of Fleet Lane suffered severely, and it was only by the most strenuous efforts that the vast premises of Messrs. Cassell & Co., were saved from destruction.

In all, six buildings were burned out and ten others more or less severely damaged. Six hydrants and 28 steamers were kept at work for nearly three hours. The

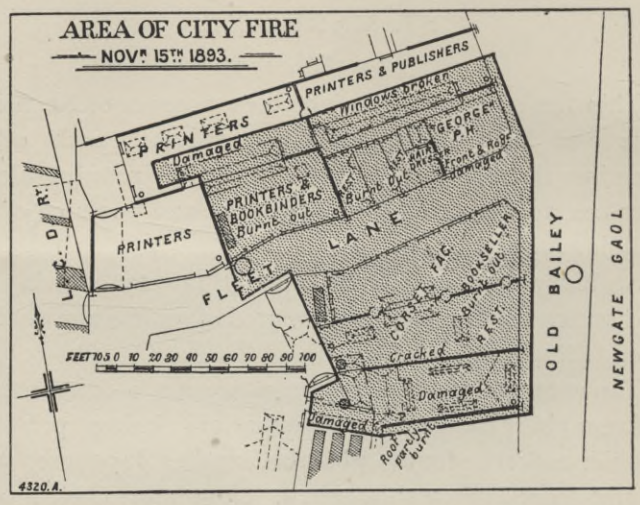


Plate IX.

total force in attendance consisted of 218 men, with 41 engines, the water-tower, etc. The cause of the fire was not ascertained.

Plate X.

TABERNACLE STREET, FINSBURY.

June 21st, 1894.

Again condensing the official report, we find that this fire, in almost the centre of what is known as the Cabinet District, broke out shortly after 21 o'clock in a building of five floors, used as a furniture manufactory and warehouse, situated in the centre of a large block of similar building, on the south-east side of Tabernacle Street.

Owing to the highly inflammable nature of the stock and to the prevalence of a strong wind, the fire spread

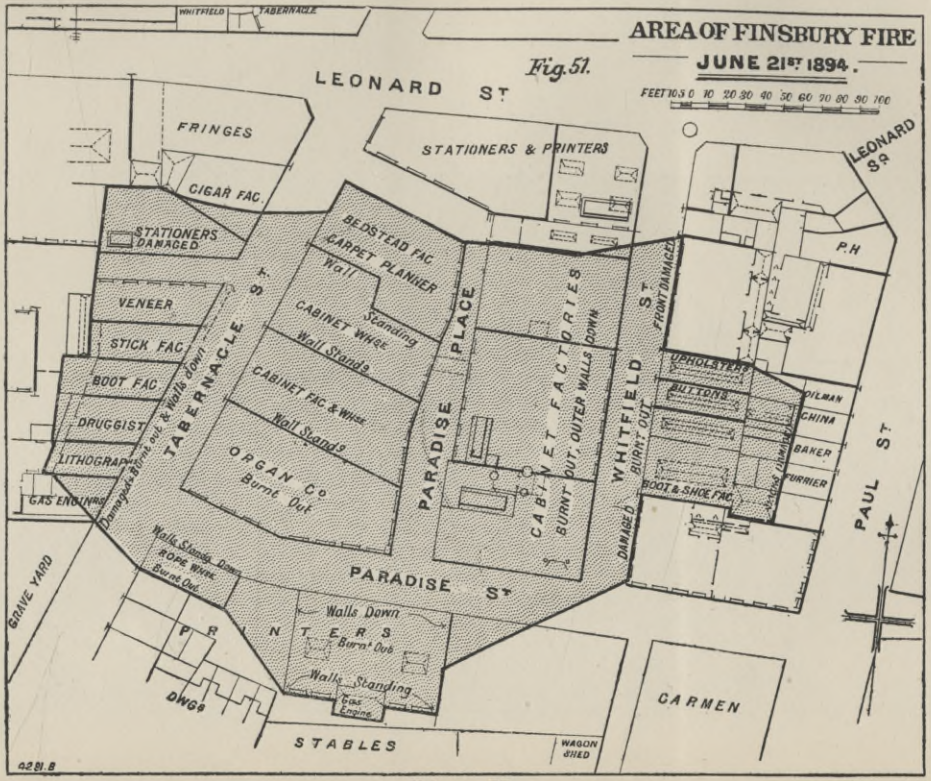

AREA OF FINSBURY FIRE
JUNE 21ST 1894.
Fig. 51.
FEET 10 0 10 20 30 40 50 60 70 80 90 100
WHITFIELD TABERNACLE
LEONARD ST
FRINGES
STATIONERS & PRINTERS
LEONARD ST
CIGAR FAC.
STATIONERS DAMAGED
BEDSTEAD FAC.
CARPET PLANNER
Wall Standing
CABINET WHSE
Wall Stands
CABINET FAC. & Whse
Wall Stands
VENEER
STICK FAC.
BOOT FAC.
DRUGGIST
LITHOGRAPH
GAS ENGINE
Damaged by Burnt out & Walls Down
TABERNACLE ST
ORGAN Co
Burnt Out
PARADISE PLACE
CABINET FACTORIES
BURNT OUT, OUTER WALLS DOWN
WHITFIELD ST
FRONT DAMAGED
DAMAGED BURNT OUT
P.H
UPHOLSTERY
BUTTONS
PULLMAN
CHINA
BAKER
FURRIER
BOOT & SHOE FAC.
PAUL ST
Walls Standing Down
ROPE WORK
Burnt Out
PARADISE ST
GRAVE YARD
Walls Down
N T E R S
Burnt Out
Walls Standing
Gas Engine
P R
DWGS
STABLES
WAGON SHED
CARMEN
G2 81.8

Plate X.

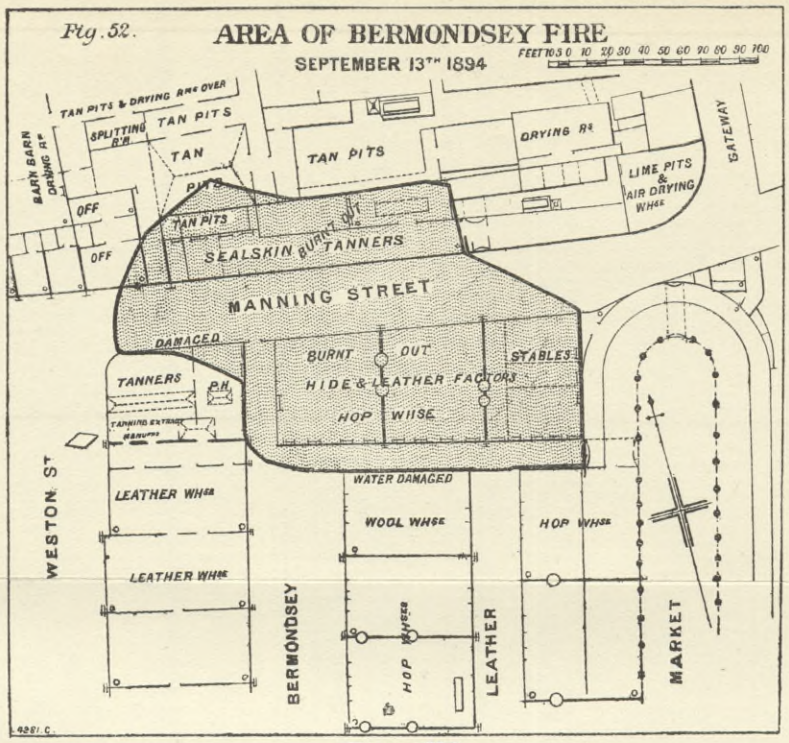


Plate XI.

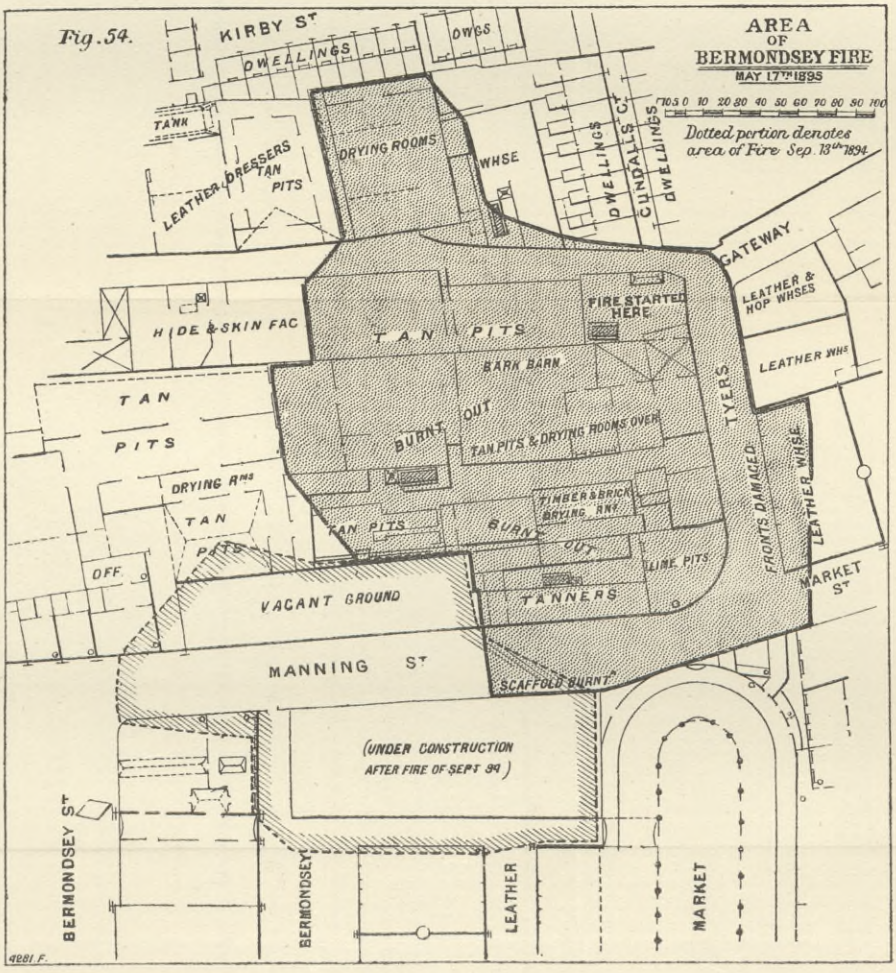


Plate XII.

with such rapidity that the firemen, at an early stage, experienced great difficulty in getting some engines out of danger.

Eight warehouses were destroyed, 12 others severely, and 14 slightly damaged.

Nearly the whole available strength of the brigade was brought up, 41 steamers, 14 manuals, 2 hydrants, the water-tower, 15 fire escapes and 256 men being engaged.

Plate XI.

BERMONDSEY.—LEATHER MARKET.

September 13th, 1894.

Commencing shortly before midnight—cause unknown—in a leather manufactory adjoining the Bermondsey Leather Market; the flames spread to warehouses on the opposite side of the street, which were severely damaged before the fire could be checked. A force of 130 firemen, with one hydrant and 18 steamers was actively engaged for five hours.

Plate XII.

BERMONDSEY.

May 17th, 1895.

This was exactly north of the fire previously stated; in fact, being stopped on its southern boundary by the vacant ground containing the ruins of the previous fire.

The official report says:—

"This fire occurred shortly after midnight in a building "of one and two floors, covering an area of about 200 ft. "by 25 ft., used as a leather manufactory and store. "Owing to the construction of the buildings and the "inflammable nature of the materials, assisted by a "strong wind, the fire spread with great rapidity to the "surrounding premises, and it was only by the greatest "possible exertions that the firemen were enabled, after

"about two hours, to check the conflagration, which had "then assumed much larger proportions, involving "buildings of two and three floors, covering an area of "300 ft. by 200 ft.

"Nearly all the buildings within this area, constructed "principally of wood, were destroyed."

"The brigade, however, was successful in preventing "several of the largest and most valuable of the adjoining "buildings from becoming involved.

"A force of 172 firemen attended this fire, with 28 "steamers and other appliances, and was actively en- "gaged for about four hours."

MINORIES.

November 10th, 1894.

Commencing from an unascertained cause between five and six o'clock in the morning, this fire originated in a tea warehouse of five floors.

When the firemen arrived, these premises and the unoccupied building adjoining were well alight from top to bottom. The fire spread rapidly owing to a strong wind.

It was a work of considerable difficulty to attack this fire from the east or rear side. Church Street being impassable at the time the first engine arrived, the steamers had to be taken by a circuitous route, through the Haydon Square goods depôt of the L. & N.-W. Railway, where several were attached to private hydrants, the property of the Railway Co.

It will be observed that the fire spread in a peculiar manner, through different warehouses and the usual well-holes and light courts. The premises involved were mainly occupied for the purpose of storing isinglass, tea, cork, etc.

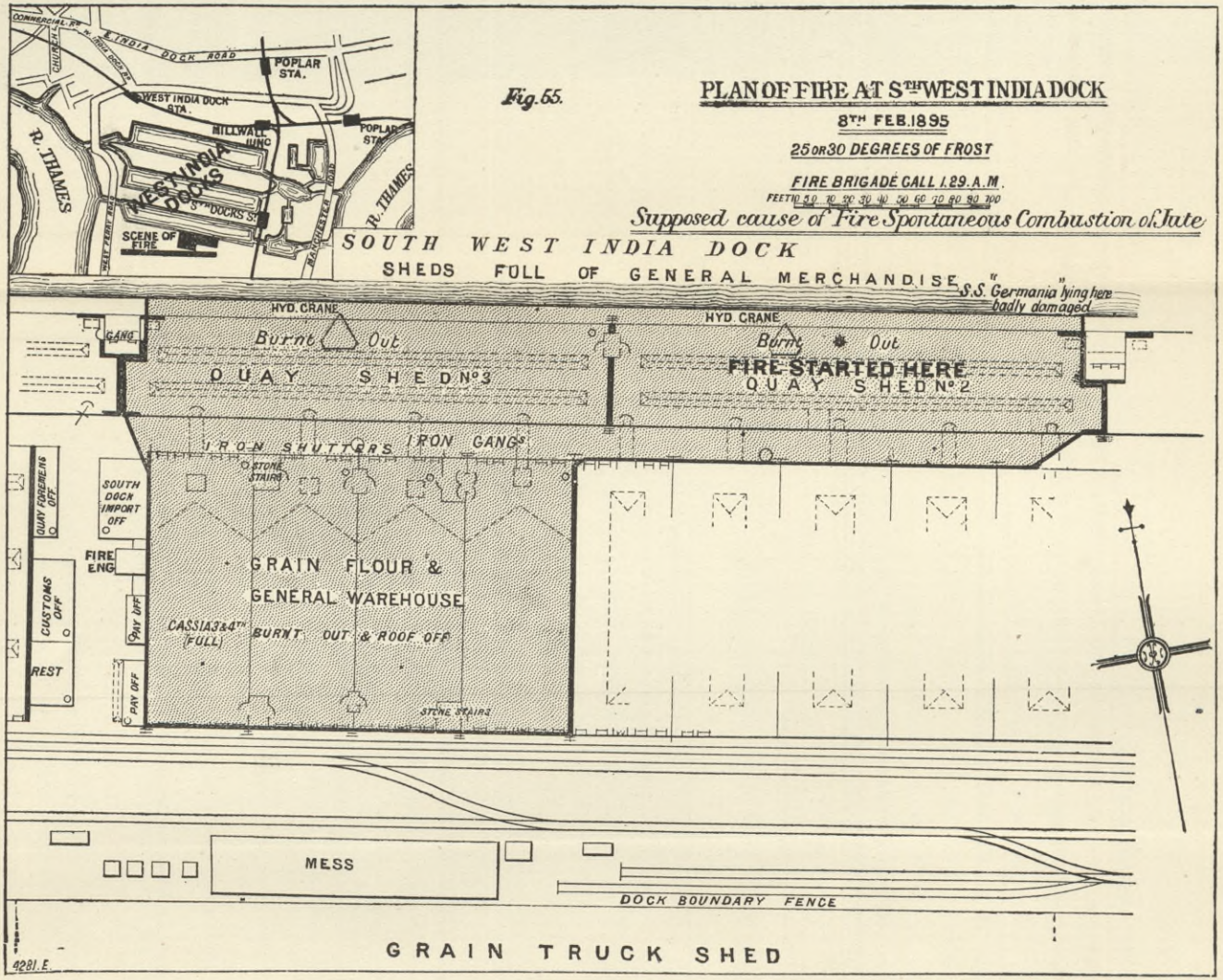

COMMERCIAL RD.
E. INDIA DOCK ROAD
POPLAR STA.
WEST INDIA DOCK STA.
MILLWALL JUNC
POPLAR STA.
R. THAMES
WEST INDIA DOCKS
S^TH DOCKS S^T
SCENE OF FIRE
R. THAMES
Fig. 55.
PLAN OF FIRE AT S^TH WEST INDIA DOCK
8^TH FEB. 1895
25 OR 30 DEGREES OF FROST
FIRE BRIGADE CALL 1.29. A.M.
FEET 10 20 30 40 50 60 70 80 90 100
Supposed cause of Fire Spontaneous Combustion of Jute
SOUTH WEST INDIA DOCK
SHEDS FULL OF GENERAL MERCHANDISE
"S.S. Germania" lying here badly damaged
HYD. CRANE
GANG
Burnt Out
QUAY SHED N°3
HYD. CRANE
Burnt Out
FIRE STARTED HERE
QUAY SHED N°2
IRON SHUTTERS
IRON GANGS
STONE STAIRS
SOUTH DOCK IMPORT OFF
QUAY FOREMENS OFF
FIRE ENG
CUSTOMS OFF
REST
PAY OFF
PAY OFF
GRAIN FLOUR & GENERAL WAREHOUSE
CASSIA 3&4^TH (FULL)
BURNT OUT & ROOF OFF
STONE STAIRS
MESS
DOCK BOUNDARY FENCE
GRAIN TRUCK SHED
4281. E.

Plate XIV.

In the end, four buildings were burnt out; four had the upper floors burnt and roofs off, whilst 15 others were more

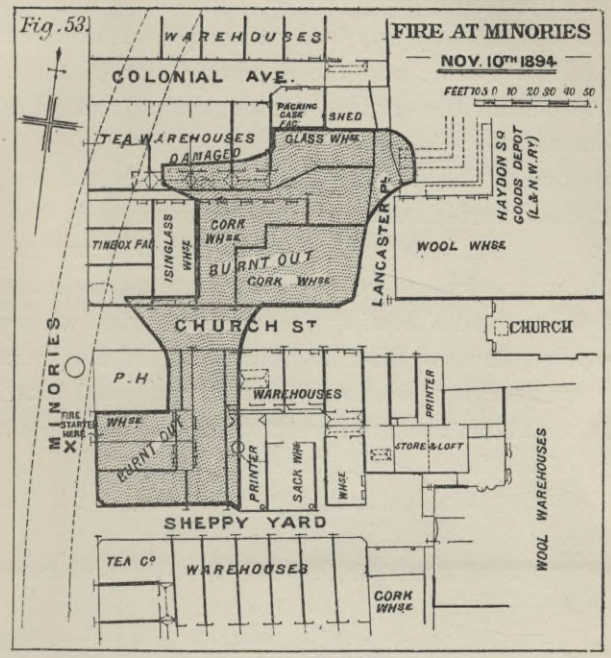


Plate XIII.

or less damaged. One hundred and ninety-seven men, with ten hydrants and 33 steamers, were engaged 11 hours.

Plate XIV.

SOUTH-WEST INDIA DOCK.

February 8th, 1895.

This fire started about 1 a.m. in No. 2 Quay Shed; when the brigade arrived the flames, fanned by a strong north-north-east wind, were spreading very rapidly to No. 3 Quay Shed and the upper floors of the large warehouses on the south side.

Owing to the severity of the weather, the greatest difficulty was experienced in obtaining water, the

hydrants on the dock premises being frozen and the dock covered with ice of a considerable thickness.

There was also difficulty in getting some of the engines to the quay, the only way being through the sheds, which were full of goods, and the doorways not of sufficient height to admit the engines without removing the brake-handles and funnels.

Only one of the floating fire engines was able to get into the dock, which was perhaps fortunate, as it was not able to get out again for three weeks afterwards, on account of the ice. Two private hydrants, one manual, 28 steamers, and a floating steam fire engine with four deliveries were used for nine hours, and, as the thermometer was down near zero, with a strong wind blowing the water about in spray, which froze as it fell, the sufferings of the firemen were intense.

With true British fortitude, they bore it without a murmur.

The supposed cause of this fire was the spontaneous combustion of jute.

The premises damaged comprised a range of four four-story warehouses, covering an area of 260 × 160 ft., and two two-story quay sheds, partly brick and partly wood, about 600 × 60 ft.

The steamship "Germania" and 11 barges, lying at the wharf, were severely damaged, two barges being sunk.

Plate XV.

CHARLOTTE STREET AND LEONARD STREET, FINSBURY.

June 10th, 1896.

This was practically a double fire. The first call was at 20.32 o'clock, when four cabinet factories were burnt out, and the stop was signalled at 22.44. The wind

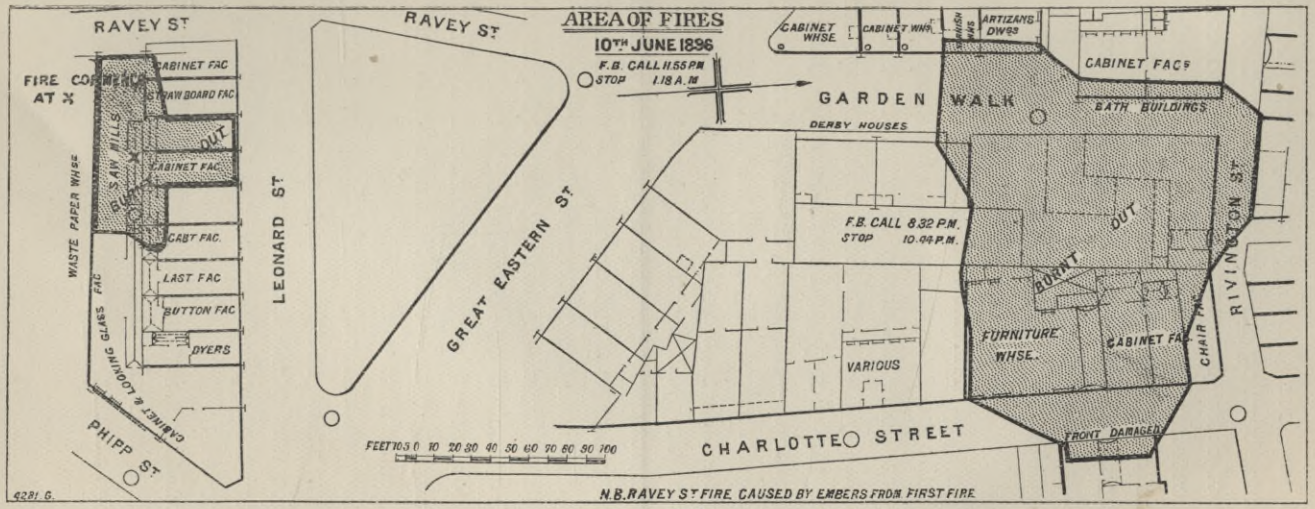

AREA OF FIRES
10TH JUNE 1896
RAVEY ST
FIRE COMMENCED AT X
CABINET FAC
STRAW BOARD FAC
SAW MILLS
BURNT OUT
CABINET FAC.
CABT FAC.
LAST FAC
BUTTON FAC
DYERS
CABINET & LOOKING GLASS FAC
WASTE PAPER WHSE
PHIPP ST
LEONARD ST
RAVEY ST
GREAT EASTERN ST
F.B. CALL 11.55 P.M.
STOP 1.18 A.M.
CABINET WHSE
CABINET WHSE
ARTIZANS DWGS
GARDEN WALK
DERBY HOUSES
CABINET FACS
BATH BUILDINGS
F.B. CALL 8.32 P.M.
STOP 10.04 P.M.
BURNT OUT
FURNITURE WHSE.
CABINET FAC
CHAIR FAC
RIVINGTON ST
VARIOUS
FRONT DAMAGED
CHARLOTTE STREET
FEET 10 0 10 20 30 40 50 60 70 80 90 100
4281 G.
N.B. RAVEY ST FIRE CAUSED BY EMBERS FROM FIRST FIRE

PLATE XV.

seems to have been blowing freshly from the north and carried some burning embers over two blocks of buildings into one of those unfortunate well-holes so common in London, causing the second outbreak, of which the call was timed 23.55, burning out three more factories and damaging six adjoining buildings, the stop for this being 1.18 on the 11th.

Plate XVI.

CRIPPLEGATE.

November 19th, 1897.

One of the most disastrous fires for many years; this district has been the scene of previous conflagrations and has always been considered extremely hazardous, owing to the flimsy and swift-burning nature of the materials stored:—millinery, trimmings, and fancy goods.

The fire started at 12.58, and was not conquered until between 19 and 20 o'clock. There was but very little wind at the time and that from the south-east.

You will notice the peculiar way the fire worked around the place where it commenced, as shown on the plan. You will also note the number of confined spaces covered by one-story buildings with glass skylights for roofs. When fire reached one of these light courts it was impossible for human beings to enter, and the fire had free play to attack from 5 to 20 buildings in the rear without any hindrance whatever.

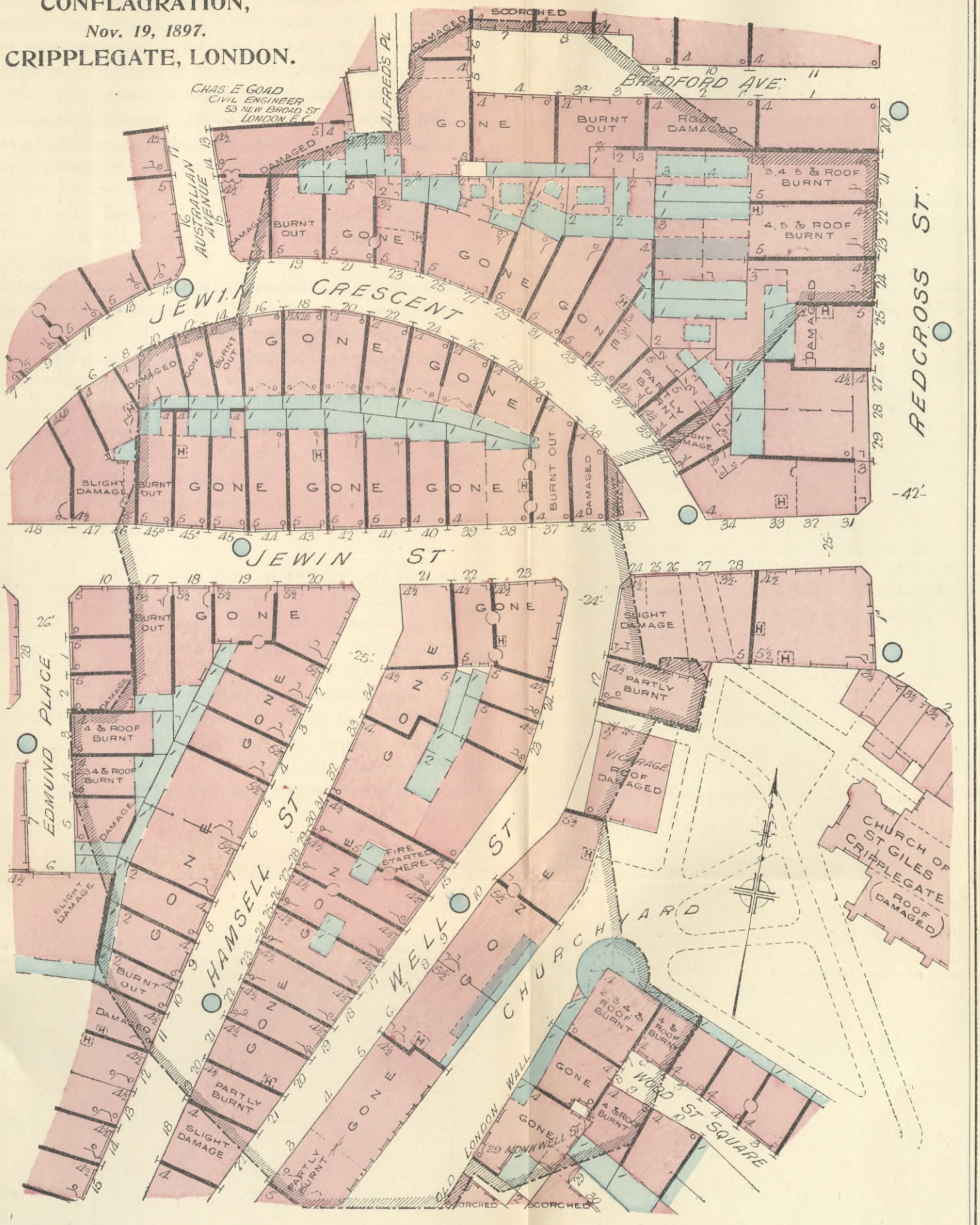
The fire walls, though not of the best construction, would have at least stopped any ordinary fire, but in this instance it was noticed that the spread of the fire took place from the upper floors across the light courts and narrow streets.

The buildings in this district are more uniform in height than is usually to be found, being generally about five stories above the street.

CONFLAGRATION,

Nov. 19, 1897.

CRIPPLEGATE, LONDON.



The inflammable nature of the goods was such that there was but little, if any, black smoke, it being of a light grey colour, and, no wind blowing, there was no distribution of embers to assist the progress of the fire. It must have become suddenly heated, and continued so all through its career. Probably the stops, where they were made, were helped by warehouses containing heavier goods, which did not so readily ignite.

You will notice that the fire spread in a direction parallel with the fire walls; in fact, resembling the spokes of a wheel, it started in the centre, radiating in all directions.

Possibly the largest force ever engaged at one fire was employed to subdue this. There were 51 steam fire engines in use. The brigade present, numbered 294, and enough water to flood the whole of the involved area six feet deep, was poured on the fire during the seven or eight hours before it was under control.

The total amount of water is given by the New River Company as 15,000,000 gallons, enough to cover the whole area, including streets, 17 feet deep, but much of this was used after the fire was rounded in, so to speak; in fact, passing by 17 days after, I saw a stream of water still playing upon the ruins.

As before stated, this fire is worthy of a more extended study than space allows. It is regretable that no improvements were made afterwards by widening the streets. There was much talk about it at the time, and every would-be reformer had an idea of his own. To have made a through thoroughfare would have necessitated the pulling down of many buildings, not embraced in the fire area, and the expense seemed prohibitive. In the area itself nothing could well be done in opening new streets so as to be for the general

benefit of the community; but it does seem a pity that a few widenings could not have been arranged; even the peculiarly-shaped corner at the junction of Hamsell Street and Jewin Street has been rebuilt, although it would be thought possible to have cut this off.

However, there is a distinct improvement in the buildings now in course of erection. While some well-holes have been allowed to continue, yet in many cases they have been done away with; the floors and roofs in the new buildings are largely of concrete construction, which must really improve the hazard.

The total loss by this conflagration has been estimated at £1,250,000, with insurance of £560,000.

There are many other similar hazardous centres in great London city, which sooner or later will give rise to serious trouble in a similar manner.

Proceeding northwards, we find several cities and towns that have suffered during the last ten years.

Plate XVII.

NOTTINGHAM.

November 17th, 1894.

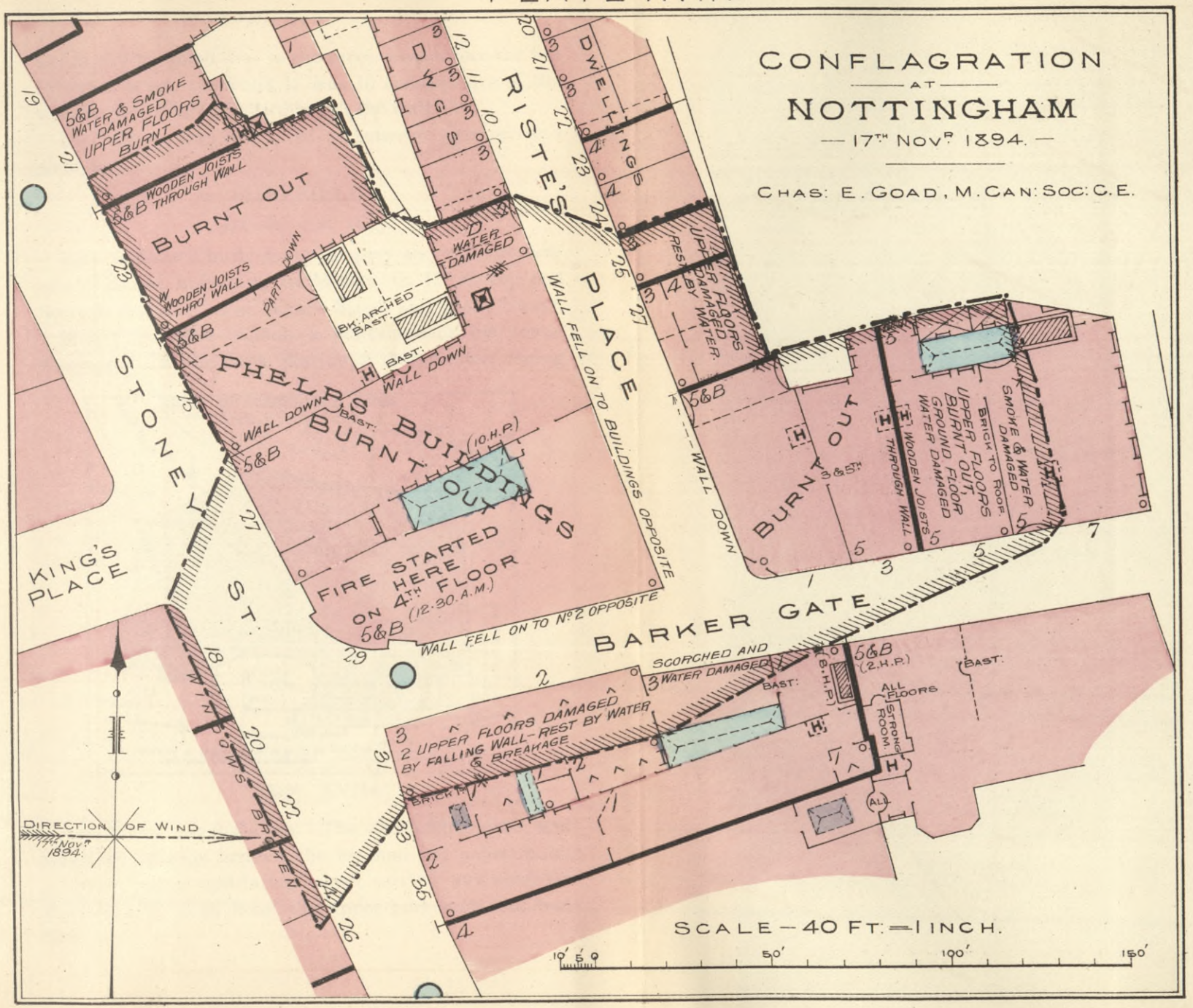
Fire started half an hour after midnight in the building known as Phelp's Buildings, on the corner of Stoney Street and Barker Gate (see Plate XVII.).

For the most part the buildings consumed were occupied by lace manufacturers, and owing to the inflammable nature of the stock, it is surprising that the fire did not extend even further.

Plurality of tenure was a feature; the Phelp's Building being occupied by no less than eleven firms.

There were many wooden partitions in these buildings, which materially assisted the progress of the fire,

PLATE XVII.


CONFLAGRATION
AT
NOTTINGHAM
— 17TH NOVR 1894. —
CHAS: E. GOAD, M. CAN: SOC: C.E.
PHELPS BUILDINGS
BURNT OUT
FIRE STARTED HERE ON 4TH FLOOR (12.30. A.M.)
WALL FELL ON TO BUILDINGS OPPOSITE
WALL FELL ON TO No 2 OPPOSITE
RISE'S PLACE
STONEY ST.
KING'S PLACE
BARKER GATE
BROWN'S
DWELLINGS
BURNT OUT
UPPER FLOORS BURNT OUT, GROUND FLOOR WATER DAMAGED
SMOKE & WATER DAMAGED
BRICK TO ROOF
WOODEN JOISTS THROUGH WALL
WATER & SMOKE DAMAGED UPPER FLOORS BURNT
WOODEN JOISTS THRO' WALL
WATER DAMAGED
SCORCHED AND WATER DAMAGED
2 UPPER FLOORS DAMAGED BY FALLING WALL - REST BY WATER & BREAKAGE
ALL FLOORS
STRONG ROOM
DIRECTION OF WIND
17th Nov.r 1894.
SCALE — 40 FT. = 1 INCH.
10' 5' 0 50' 100' 150'

and it will be noted that in the three cases where the fire spread through the walls, it was in consequence of the wooden joists being built through the wall.

The damage was estimated at between £120,000 and £130,000.

SHEFFIELD.

December 21st, 1893.

This originated in the large drapery and upholsterers' establishment belonging to Messrs. G. H. Hovey and Sons, at the junction of Angel Street and Castle Street.

Shortly before 4 o'clock, a policeman on his round discovered that the inner portion of the premises facing

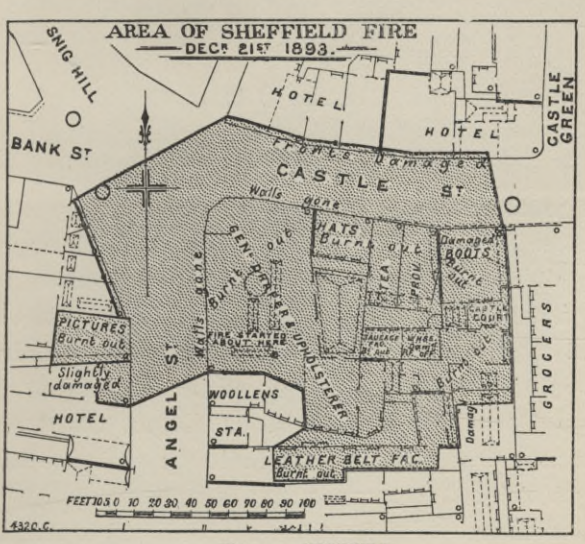


Plate XVIII.

Angel Street was in flames. The alarm was raised, and when the brigade arrived, the fire had got a firm hold, a large wooden ventilating turret serving as a shaft for flames; within an hour the upper part and roof had fallen in.

A strong west wind was blowing, driving the flames to the rear of the Castle Street premises, which were quickly involved and burnt out, owing to the dryness of the woodwork.

Owing to the great heat, the premises on the opposite side of Angel Street (which was 36 feet wide) became ignited at the roof, and quickly burnt down to the ground floor.

The fire brigade were somewhat handicapped, owing to their equipment being deficient, they only having two steam fire engines.

The total damage was estimated at £125,000.

Plate XIX.

BRADFORD.

November 30th, 1896.

The outbreak was discovered about 17.45 o'clock (see Plate XIX.), working its way across and through the upper floors and roofs of several warehouses in a triangular block on Forster Square. The fire was under control by 21.0 o'clock, and the brigade was withdrawn about 23.0 o'clock, but a second outbreak occurred about 2.30, on December 1, in Nos. 10 and 12, Canal Road, causing the destruction of six buildings, this fire lasting until 5.0 o'clock.

The presence of more than the ordinary quantity of joists and many pitch pine uprights aided the spread of this fire, and, as will be seen, the light court in the interior of the block also assisted.

In the area burnt there were at least 32 tenants, and the total damage was estimated at from £280,000 to £300,000.

Plate XX.

SUNDERLAND.

July 18th, 1898.

Fire started about 22.30 o'clock, originating in the basement of Havelock House (one of the largest drapery establishments in the North of England).

It burst out with great suddenness and large volume, and when the fire brigade got to work these premises were practically beyond their powers of saving.

The wind at the time of the outbreak was westerly, but changed about midnight to a northerly direction. The fire spread in all directions, and crossed streets 42, 50 and 57 ft. in width.

A noticeable feature was that the fire burnt upward in Havelock House, but nearly all other places were attacked from the top and burned downward. The Queen's Hotel was separated from Havelock House by a good party wall which undoubtedly saved the hotel from destruction.

That no lives were lost was due to the early notice given to the inmates of Havelock House and to the brick-enclosed staircase leading from the top floor, where the dormitories were situated, to the street.

The water supply was plentiful, but the Brigade were hampered by having no engines to throw the water on from a distance, the heat being too great for them to get near enough to direct the hose to the best advantage. The fire float was of considerable service, but had to wait for the tide to rise before being available, and then had to raise the water about 100 feet to the site of the fire.

Flying embers fired the roof of the Vicarage, in John Street, and some other properties near.

The fire was practically subdued by 4 o'clock on the 20th.

Some 40 men of the North Eastern Railway Fire Brigade, from Sunderland and Tyne Docks, with their apparatus, assisted in the work of extinguishing the flames, and the Volunteer Artillery helped to keep back the crowd, as the police, being the Fire Brigade, were not available for this duty.

The total losses in this fire were, approximately—buildings, £50,000; and contents, £80,000.

Plate XXI.

DUBLIN.

May 4th, 1894.

Here Arnott's great drapery store was the scene of a conflagration.

A large portion of the interior was alight when the brigade arrived, and as the high buildings on Henry and Princes Streets almost enclosed the lower buildings between, there was great difficulty in obtaining access to the fire before it had managed to spread in all directions.

Fire broke out at 1.0, apparently in the rear of Messrs. Arnott's, or in the Mineral Water Works adjoining; the latter being credited with adding largely to the volume of flame, as did also an adjacent Drug Store.

The brigade appears to have turned out quickly, but the fire had obtained such a hold that there was no chance of saving Arnott's, and they had to confine their efforts to limiting the extent of the conflagration.

A high westerly wind was blowing, carrying sparks and embers along the streets on to neighbouring buildings, as far as Northumberland Place.

Within half an hour the first houses attacked in Henry Street were gutted.

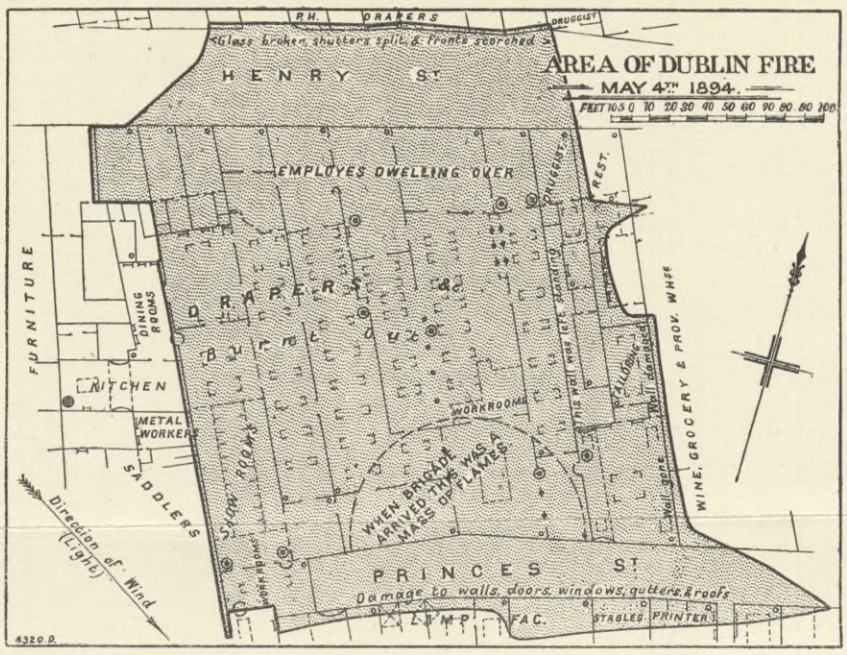


Plate XXI.

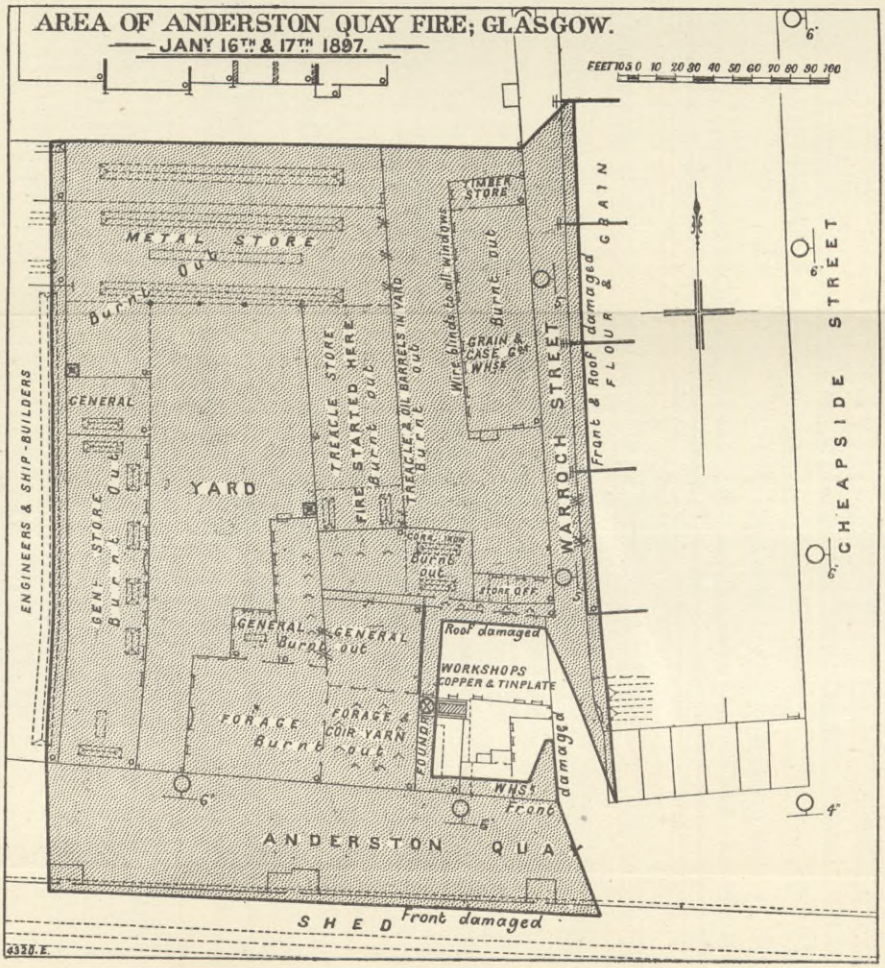


Plate XXII.

The wind moderated after 1.30, and rain fell soon after, which assisted the efforts to limit the area. By 4.0 o'clock the fire was surrounded, and practically under control.

The loss was about £100,000.

Water supply was plentiful, and pressure was so great that occasionally hose was burnt by it.

The fire severed the electric light connections in the basement of Arnott's establishment, and then re-established a current by fusing the wires.

Plate XXII.

GLASGOW—ANDERSTON QUAY.

January 16th, 1897.

Fire started in a large treacle store, spreading across yards to grain, forage and general warehouses. Some of the yards in this instance were blocked by oil and treacle barrels, which assisted the progress of the fire to extend in all directions, not owing so much to defective walls, as to the burning oil, which flowed all over the place.

The copper and tin works in the south-east corner of the block were cleverly saved by the fire brigade, and the wire blinds of the great warehouses on the opposite side of Warroch Street aided in preventing the spread in this direction.

Plate XXIII.

GLASGOW—DUNLOP STREET.

April 25th, 1898.

This fire destroyed the whole of one block and half of another, in both of which plurality of tenure was a feature, there being 39 various factories in what might justly be called 12 buildings, or for insurance purposes, 4 or 5 risks.

An incident was the saving of St. Andrew's Church. The wind was blowing the fire directly on to this church, in fact, the roof was partly burned.

The congregation were kneeling on the pavement outside, when the wind changed to a contrary direction, just in time to save the church from destruction.

Probable total losses £160,000, with insurance of £120,000.

CONCLUSION.

Taking a general review of the past ten years, it must be acknowledged that the Anglo-Saxon race, with its wonderful and rapid progress, has led the van in this matter of conflagration.

Savage races cannot be expected to erect solid and substantial groups of edifices; but one would expect of such a race as ours—in the very forefront of civilization—that we would succeed in holding what we have, and learn to construct our cities, or to modify their construction, so as to prevent the constant repetition of such disasters as those that have been under consideration.

Doubtless the needs of the present age conduce to the crowding together of valuable property; the convenience, and oftentimes the necessity, of using and of storing combustible materials in great quantities outweighs other serious considerations.

When one considers the ease with which the community can command comparative immunity from consequences dreaded by all, we can hardly wonder that the spread of fire insurance sometimes seems to invite the evident want of care that we oftentimes deplore.

During these last ten years there has been a marked growth in the reliance of the public on the well-managed institutions whose names regularly occur in every loss

PLATE XIX.

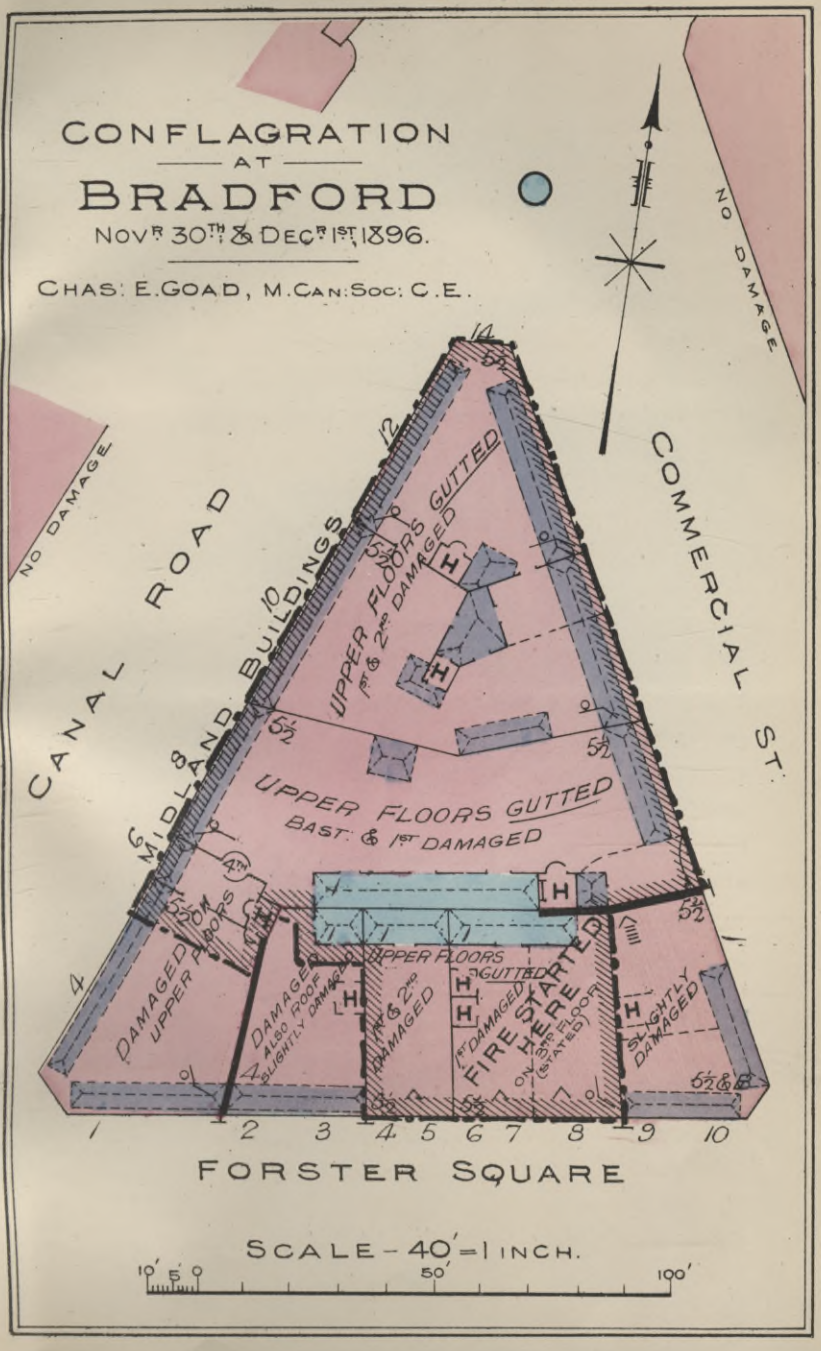

CONFLAGRATION
AT
BRADFORD
NOVR 30TH & DECR 1ST 1896.
CHAS: E. GOAD, M. CAN: SOC: C.E.
NO DAMAGE
NO DAMAGE
CANAL ROAD
MIDLAND BUILDINGS
COMMERCIAL ST.
UPPER FLOORS GUTTED
1ST & 2ND DAMAGED
UPPER FLOORS GUTTED
BAST: & 1ST DAMAGED
DAMAGED UPPER FLOORS
DAMAGED ALSO ROOF SLIGHTLY DAMAGED
UPPER FLOORS GUTTED
1ST & 2ND DAMAGED
1ST DAMAGED
FIRE STARTED HERE
ON 3RD FLOOR (GUTTED)
SLIGHTLY DAMAGED
FORSTER SQUARE
SCALE - 40' = 1 INCH.
10' 5' 0
50'
100'

PLATE XX.

CONFLAGRATION AT SUNDERLAND

18TH & 19TH JULY, 1898.

CHAS. E. GOAD, M. AM. SOC. C.E.; M. CAN. SOC. C.E.
53 NEW BROAD STREET, LONDON, E.C.

DIRECTION OF WIND
FROM WEST
THEN NORTH

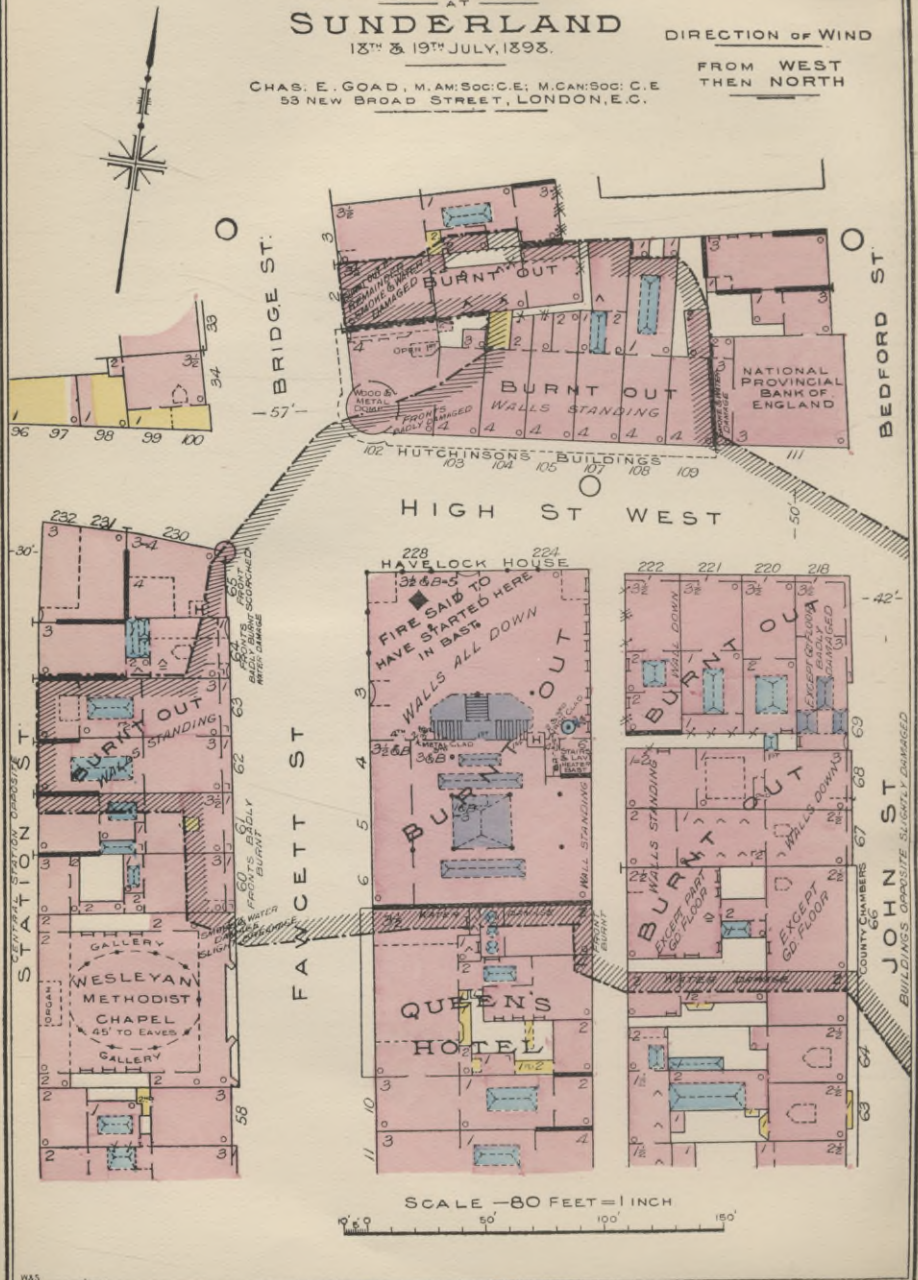
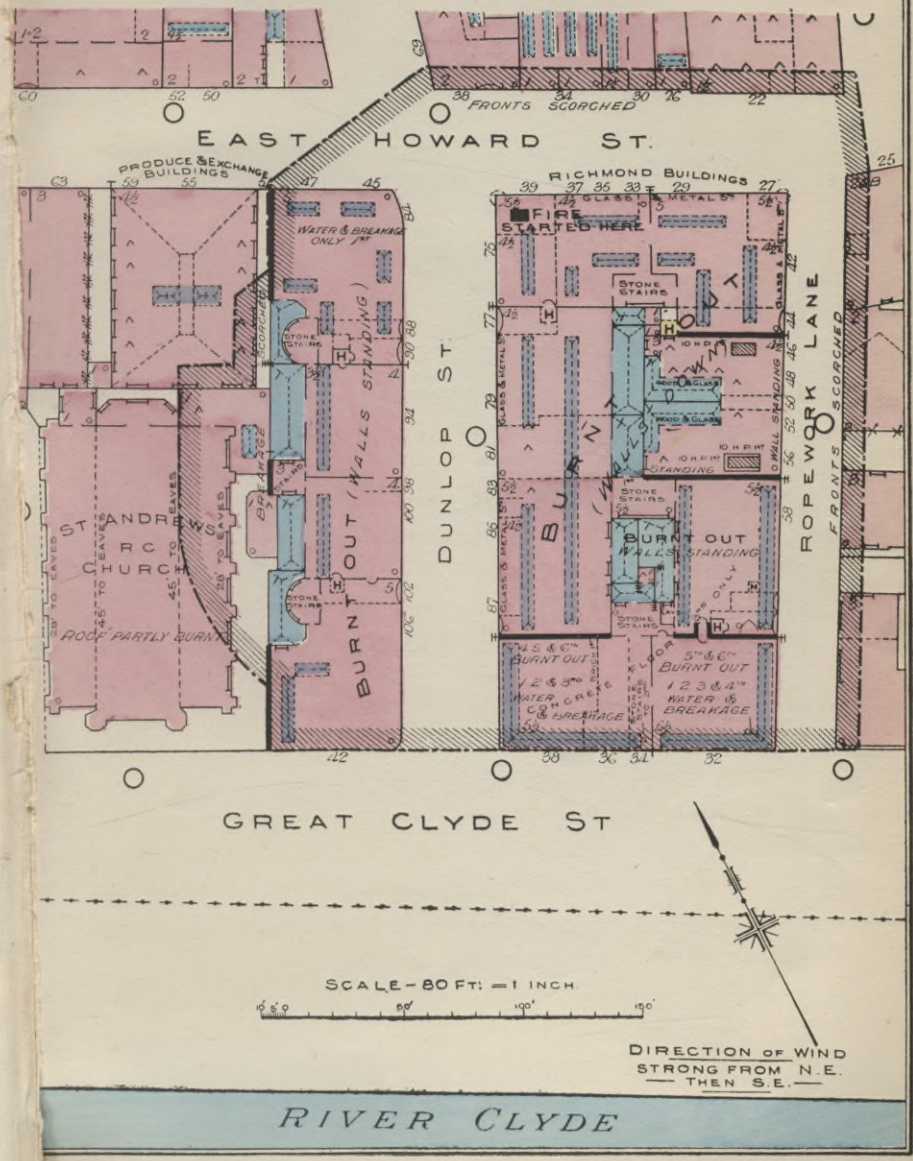
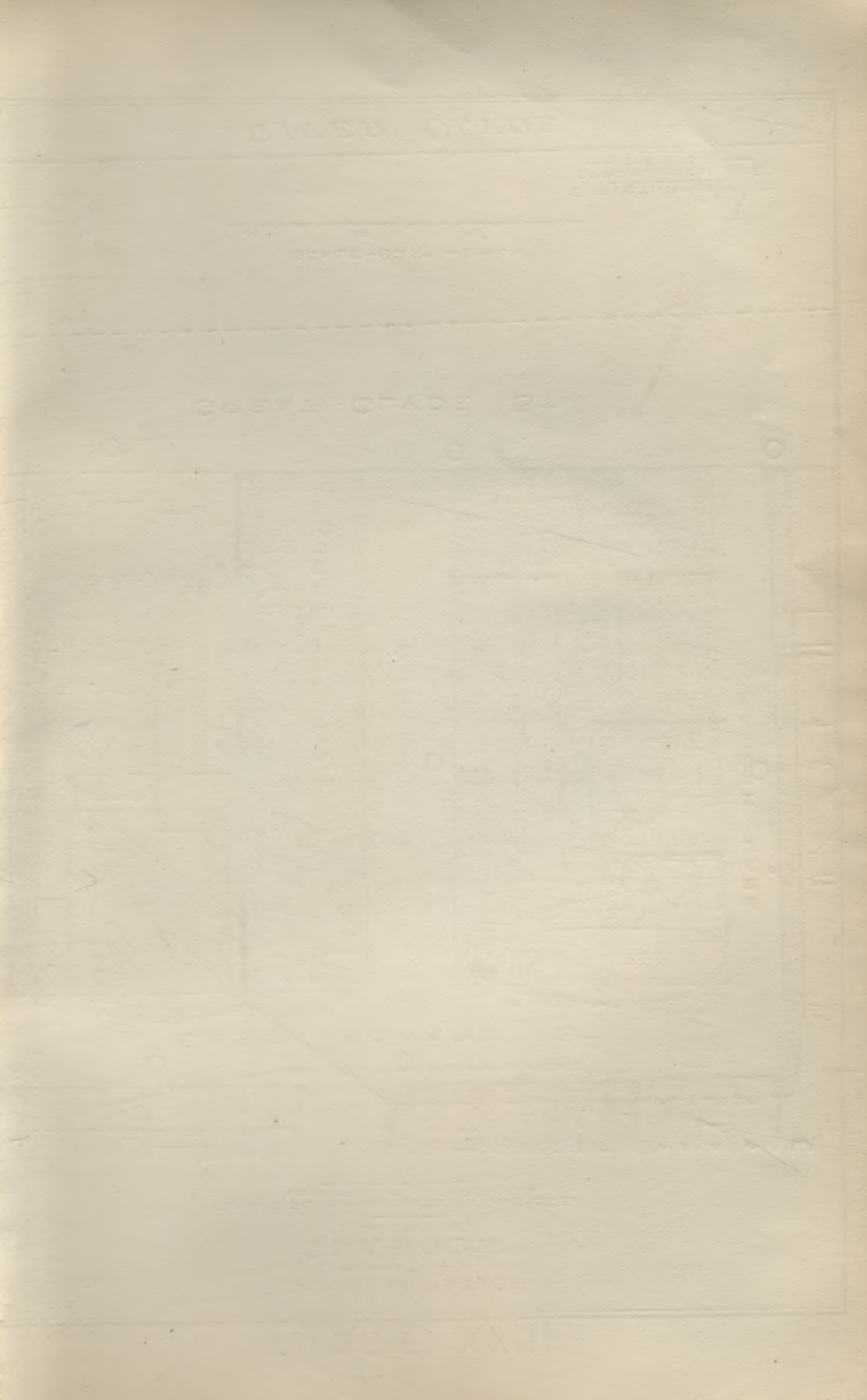


PLATE XXIII.

CONFLAGRATION
AT
GLASGOW
APRIL 25TH 1898.

CHAS: E GOAD, M AM SOC C.E.; M CAN SOC C.E.
53 NEW BROAD ST., LONDON, E.C.





list, and who as regularly pay up, smile, and continue to insure.

One noticeable feature among the loss lists is the usual similar average of each Company; sometimes one Company gets off easily—possibly owing to laziness of agents, or perhaps to the superior wisdom of the management.

Another Company may be heavily hit, but is probably re-insured to a large extent. A branch or general manager *must* encourage a good agent, and even if he should crowd their commitments unduly at times, yet it must be remembered that you cannot always get business just as you may happen to want it, and it may frequently seem wise to accept liberally from a good, reliable agent of what may be considered fair risks at a fair rate, and "wink" at, or guard against, by re-insurance, the heavy congregated liabilities.

In these congested centres you always obtain, or should obtain, higher rates. The possibility of a conflagration is always before you, and must be reckoned on as a legitimate sequence in underwriting.

For instance, in 700 cities, towns and villages in Canada, in a thousand congested centres in the British Isles, and in thousands elsewhere, a certain average must be reckoned on every year for extraordinary losses.

Ceasing to write in certain places, through fear or through wisdom, may mean concentrating your liability in some safe centre, that suddenly proves to be unsafe.

You must not merely sit in your offices and growl at the inefficiency of brigades, the carelessness of officials, or the frailty of construction. Our schoolboy days remind us of the proverb, *Humanum est errare.*

You are here to make good these deficiencies. You exact, or should exact, adequate premiums to allow or

these disasters, that must be expected to recur. But, if you can in any way aid in making them half as frequent and half as disastrous, what a benefit will accrue to your shareholders and your fellow citizens.

It may not be within the province of a fire insurance company, as such, to interfere in these matters, but there is no law written or unwritten to prevent the officers striving, as very many of your profession consistently and persistently do at the present time, individually when not possible to do so unitedly, to induce improvements in construction and in preventive measures, as distinct from protective appliances.

There is no limit to the usefulness of a strong, able, and conciliatory underwriter, should he occasionally move out of the beaten track and assist the efforts of a fire prevention committee.

While you have not the power to insist upon such precautions as your experience knows to be necessary, yet your advice, countenance, and support are invaluable, especially after conflagrations, when communities are thankfully ready to listen to your admonitions.

At such times you must needs exercise patience and not speak harshly to poor stricken sufferers; think of how many previous dangers they may have successfully combatted.

You may walk in your accustomed paths for years and for a thousand times get to and from your office safely, one unlucky day your foot slips, and a sprained ankle is the result, fortunate even then if a rapidly moving vehicle does not coincide with your movement just at the instant.

So, these towns and villages have coped with threatened outbreaks for years, aye tens and even hundreds of years, but at one unlucky time, what may be called a

concatenation of untoward circumstances arrives, and overwhelming disaster is the result. After this, both these towns and others in the vicinity will lend a ready ear to your requests and advice.

The Canadian Underwriters' Association seems to be doing solid work in this direction, one method being the classification of cities and towns in groups from A. to F.

The lowest class—"F"—comprises unprotected villages, and, as a matter of course, is the highest rated of the series; when protective appliances are acquired the town is raised to Class E, D, or C, and eventually, if inspection prove the community to have protective appliances sufficient, and efficiently maintained, and the general construction of the city to have been consistently improved, it may be raised to B class, or even to A, the highest.

In expressing my thanks to friends who have assisted me in obtaining information, and who have cordially placed records at my disposal, the regret has also to be expressed that fuller use could not be made of these records. The subject is too large to be disposed of in one paper.

The lessons to be learnt are obvious: may the next ten years show that mankind, especially Anglo-Saxon mankind, have benefited as much by the counsel of the members of the Insurance Institutes as they will assuredly do by the protection afforded by the Insurance Companies.

THE HOME LIFE BUILDING, NEW YORK, AFTER THE FIRE.