

Building Collapse: The Involvement of Building Professionals and Their Culpability

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Abstract

The research paper focused on the construction industry professionals who are responsible for the incessant building collapse, with the view to awake the professionals to their responsibilities in the construction industry. Continuous occurrences of building collapse around the world, especially in Nigeria is becoming a great concern to every stakeholders. There is a great concern that if the construction industry professionals are performing their duties effectively, occurrence of building collapse should have been reduced to a low level. It is also the major concern of the larger society that any construction industry professionals who fails to perform his duty should be made to face the full wrath of the law, if found liable. This paper investigated the involvement of construction professionals in the building collapse occurrences and how culpable they are.. Relevant literatures were reviewed and through secondary sources of information, relevant case laws of building collapse cases were analyzed through descriptive analysis. It was discovered that most construction industry professionals were culpable for most building collapse incident in Nigeria and in some other part of the world. Consequently, the paper recommends among other things that laws that will stipulate stiffer penalty for the liable professionals should be enacted, and this will serve as a deterrent to other professionals in the building industry and this will also reduce or bring to an end the negligent attitude at which building construction professionals and contractor are carrying out their duties.

Keywords: Building collapse, professionals, Liability, Culpability, Case law.

1. Introduction

The frequency of building collapse in the recent past has become a major concern to all and sundry. The rate at which it is occurring and the magnitude of the losses being recorded in terms of lives and property is becoming worrisome to the government, all the stakeholders in the construction industry and also to the society at large (Alabi 2013).

The human and material waste associated with building collapse is enormous, on June 29th 1995 an estimated figure of about 502 people were feared dead, 937 were categorized as seriously injured, and properties worth 210 billion won (216 million U.S.D.) were destroyed when a five storey departmental store in Seoul, South Korea collapsed.

Furthermore, on 11th of December, 1993, a Highland tower an apartment building collapsed in Tamm Hillview, ulu klang Selangor, Malaysia, leaving 48 people dead. A building also collapsed in Western Norwegian Coastal town of Alesund, on Wednesday 25th march, 2008, in which 15 people were injured and 5 people were confirmed dead. Furthermore, a shopping complex collapsed in Abuja – Nigeria on Tuesday 29th July 2008, where about 100 people were trapped.

On Wednesday 24th April, 2013, at least 1110 people were killed and many others were injured after an eight-storey building housing garment factories collapsed in Savar, Darkar, Bangladesh. Also in Nigeria according to Premium Times on September 12th 2014. The Synagogue church guest house collapse which killed 116 people

Buildings are structure which serve as shelters for man, his properties and activities. They are expected to be properly planned, designed and erected to achieve the desire of the owner. Before a building could be adjudged as safe, strong and stable it must be in conformity to acceptable standard.

There are various parties to a building construction contract, these are: the client, the contractor, the sub-contractors, and the professionals; Architect, Engineer, Builder and Quantity Surveyors. All these parties are stakeholders in the construction of a building. The local authorities are also involved in the supervision to ensure that the construction of the building is in conformity with the necessary laws and regulations.

(Abdul and Adelnaser, 2009) as cited by Alabi, (2013) defined construction professionals as the architect, engineers and quantity surveyor. They are the most responsible persons in project especially when technical works are concerned. They further submitted that the expertise of each construction professionals must be carefully exercised as they are answerable to any act of omission or commission that may occur during the constructions. Negligence in the professional services are serious issue to both professionals and the client, hence the issuance of inappropriate advices and abrogation of duty may result to client's economic loss and endanger public safety.

It is also the responsibility of the professionals to manage the construction processes in order to meet client's desire within a reasonable cost limit. These construction professional has a fiduciary duties to exercise all reasonable skill, care, diligence, demonstrate competence and expertise according to their professional standard and obligation.

This paper investigates the Professionals in the construction industry most especially those that are liable from some previous building collapse occurrences with the view to create the awareness among the construction professionals on the need to be awaked to their responsibilities in making sure that reasonable amount of skill, diligent and carefulness are exhibited in carrying out their duties, so as to ensure clients have value for money and achieved result oriented project execution.

2. Methodology

In order to achieve the objective of this research, a secondary data and legal case laws on building collapse occurrences were used. These cases were selected from 4 countries that are operating common law in their legal system and have some reported cases of building collapse which has been decided in the competent Court of law, namely; Nigeria, Malaysia, Thailand and Singapore. Descriptive analytical techniques were employed to analyze the data.

3. Building Collapse and Professional Culpability

Legal Dictionary defined culpability as; involving the commission of a fault or the breach of a duty imposed by law. Culpability generally implies that an act performed is wrong. This is "subject to legal obligation; or the obligation itself; he who commits a wrong or a break on contract or trust is said to be liable or responsible for it" and a professional is recognized as a person who has a specialized body of knowledge and has received training in a particular field (Siddharaj, 1996).

From the definition above, the word obligation is an important term to be considered because without obligation there cannot be culpability. In law of contract a person may owe the duty to another person by his own will in a contract or by operation of common law of tort. The failure to perform or negligently perform these duties constitute a breach, therefore he will be answerable or accountable to the other party who may suffered as a result of his wrongful act.

Professionals in the construction industry are the most responsible person in a project especially when technical works are concerned. These construction management professionals deal with time, money, equipment, technology, people and materials in managing a construction project. They organize these resources into activities, execute the activities in logical sequences and manage to complete the projects within the stipulated time and budget. They also manage the construction process to meet the needs of clients with legal, cost and environmental constraints (Abdul and Adelnaser 2009).

Other requirements include investigation and determination of soil type through soil tests, establishment of ground water table and drainage to determine foundation type and design. The designer ensures that the structures are stable and also guarantee the safety of occupants and any failure emanating from structural defects and design failure may attract litigations which in many situations may lead to heavy compensations for damages on part of designer (Agbo, Agbonna and Okwoli, 2004) as cited by Ojo, (2013). Therefore, he must carry out his duty with all diligence and care and be sincere enough to take projects that match his professional skill and experience and also operate under the building regulations and code.

The expertise of each construction professionals must be carefully exercised as they are answerable to any act of omission that may occur during the course of their work. A professional person is under a duty to exercise reasonable care and skill. Bolam v Friern Hospital Management Committee (1957)1W.L.R. 582. It was held that, "The duty arises not only as an implied (if not express) term of the contract between the professional man and his client. It may also arise in tort. So a professional may also owe a duty of care to his client running concurrently with the like duty in contract. Breach of the tortious duty gives rise to liability in the tort of negligence"

It is apparent that when a building collapses, the owner (client) as well as the injured third- party, users or tenants may raise an action against the professionals under contract or tort theories.

A British Establishment discovered that out of 510 defects 58% could be attributed to engineering or Architectural faults (Adegbamigbe, 2003) as cited by Ojo (2013). These facts were corroborated by the incident that occurred in Lagos on the Collapse of synagogue church of All Nation guest's house, located in Lagos Nigeria in 2014. The government carried out the investigation and the Coronary was set up by the State Government, found the Engineer and the Contractor on the job culpable, with equal percentage of liability.

Also a pair of walkways in the Hyatt Regency Hotel in Kansas City in USA collapsed, killing 114 people and injuring over 200 (Rubin and Banick, 1987). Roddis (1993) explained that the original design was highly impracticable and the contractor has to modify the detail to use 2 hangers instead of 1 and the engineer approved it without checking it. The change in the designed made the stress exerted on the nut under the fourth floor beam to be doubled. The nut that ought to have supported the weight of 1 walkway now supported 2 and this lead to the collapse. This incident makes the Engineer and the contractor to be liable.

Furthermore, the Collapse of Skyline Plaza at Bailey's Crossroads, Virginia was also traced to the professionals (Schlager 1994; Carper and Feld 1997). The architect and engineer were sued for \$500,000. The suit was successful, and the plaintiff was awarded the \$500,000 at the expense of the engineer and architect. (Franklin 1975). The designers were blamed for not visiting the project site to inspect the construction, (Fairweather 1975). Ojo (2013) warned Building professionals to be more cautioned, diligent and skill in avoiding foreseeable injury or incurred loss from instituted legal action against them for damage suffer by their clients. To ensure value for money and result oriented project execution, Olabintan, (2012) reiterated that developers in both private and public sectors and Governments at all levels should ensure that qualified and experienced professionals are employed. This he said will reduce the spate of quackery and the attendant problems such as project failures and even building collapse.

Table: 1 Building Collapse Occurrences from 1960-2014

NO	Selected Countries	Cou	Data Sources
1	Malaysia		Department of occupational safety and Health, Malaysia. (website)
2	Nigeria		As Deduced from the Published Canadian Center of Science and Education Cited by Fagbenle and Oluwumi Dec. 2010. Premium Times, May, 2015.
3	Singapore		(Netto and Utristudason, 2001).
4	Thailand		(Nanette, 2009) thaiengineering.com.

NO	YEAR	COUNTRY	LOCATION	TYPE OF BUILDING / STRUCTURE	CAUSES OF BUILDING COLLAPSE	CASUALTIES
1	1968	Malaysia	Lot number 503, at Jalan Raja Laut, Kuala Lumpur.	Four storey shop house.	*Poor quality of materials. *Inexperience contractor. *Premature striking of formwork.	7 people killed 11 injured.

2	1974	Nigeria	Mokola, Ibadan, Oyo, state.	Multi-storey Building under construction	Excessive loading/ structural failure	27 people killed
3	1976	Nigeria	O.A.U., Ile-ife	Partial collapse of an Hostel	Structural Failure	Nil
4	1777	Nigeria	Barnawa Housing Kaduna	Residential building	Faulty design	28 killed
5	1977	Nigeria	Government Secondary. Kaduna	School building	Carelessness in usage	7 killed
6	1980	Nigeria	Barnawa Housing, Kaduna	3-Storey Residential building	Faulty structural design	Nil
7	1985	Malaysia	Lot3007, Kemendah. Selangor.	Double story bungalow.	Faulty design and inexperienced contractor	Nil
8	1985	Nigeria	Allen Avenue	Storey Building	Excessive Loading/illegal conversion	Nil
9	1985	Nigeria	Adeniji Adele, Lagos	Residential Building	Excessive Loading	2 killed
10	1985	Nigeria	Ojuelegba Area, Lagos	Residential Building	Rainstorm	Nil
11	1985	Nigeria	Iponri, Lagos	(Uncompleted four Storey Building)	Structural Failure	13 killed
12	1985	Nigeria	Victoria Island	Residential building	Excessive Loading	13 killed
13	1985	Nigeria	Gboko, Benue	Residential building	Carelessness of usage	1 killed
14	1985	Nigeria	Allen Avenue	Residential building	Carelessness of usage	Nil
15	1985	Nigeria	Adeniji Adele	Residential building	Faulty design	2 killed
16	1986	Singapore	Serangoon Road	Hotel New world	Inadequate structural design	33 killed
17	1986	Nigeria	Isala Area, Imo,	High court building	Structural failure	2 killed
18	1986	Nigeria	Oshogbo, Osun	Mosque building	Structural failure	2 killed
19	1986	Nigeria	Ona street, Enugu	Residential building	No investigation	2 killed
20	1987	Nigeria	Agege, Lagos	2-storey building under construction	Faulty design	2 killed
21	1987	Nigeria	Idusagbe Lane, Idumota	Residential Building	No Structural Design	13 killed
22	1987	Nigeria	Ikorodu, Lagos	Commercial Building	Rainstorm	4 killed
23	1987	Nigeria	Calabar,	Residential, Building	Rainstorm	3 killed
24	1988	Malaysia	Butterworth, Penang.	Stadium		Not ascertain
25	1989	Nigeria	Akinwunmi street, Me	6-storey	Faulty design	Nil

			nde Anthony Village, Lagos	Hotel building		
26	1990	Nigeria	Port Harcourt,	Bungalow School Building	Absence of structural design	Nil
27	1993	Nigeria	Okupe Estate Mary land,	6-storey Hotel Complex	Structural Failure	Not Ascertain
28	1993	Malaysia	Kuala Lumpur	Highland Tower (Block 1)	Rubble mud ignited a landslide, as a result of new development around the place.	48 people killed
29	1993	Nigeria	Area 10, Abuja	Multi-purpose Indoor Sports	Structural failure/Poor workmanship	Not Ascertain
30	1993	Nigeria	Karo, abuja	Multi-storey,, NICON-NOG A, House.	Structural failure/use of incompetent Supervisor.	Not Ascertain
31	1993	Thailand	Nakhon Si Thammarat Illegal 137 killed Ratchasima	plaza Hotel building	conversion of structure and faulty design	
32	1995	Nigeria	Abeokuta Ogun State	A Mosque under construction	Structural failure/use of incompetent Supervisor	2 killed
33	1995	Nigeria	Central Lagos	Storey Building (under construction)	Poor workmanship/ structural failure	10 killed
34	1995	Nigeria	Alagbado Area, Ibadan	School Building	Structural failure	Nil
35	1995	Nigeria	Lagos	3-storey Church Building	Poor workmanship	6 killed
36	1995	Nigeria	Oke Igbala Area, Ibadan	3-Storey Building	Structural failure	6 killed
37	1996	Nigeria	Mafoluku,, Oshodi, Lagos	1-storey Building under construction	Structural Weakness	7 killed
38	1996	Nigeria	Lagos State	Storey Building Under Structural failure construction		People injured
39	1996	Nigeria	Lagos State	6-Storey Building under construction	Use of quacks and Structural Failure	1 killed
40	1997	Nigeria	Amu, Mushin, Lagos	2-Storey Building	Use of poor materials/ structural failure	Nil
41	1998	Nigeria	Gwarinpa Abuja	Duplex Building	Structural Failure	2 killed

42	1998	Nigeria	Ibadan, Oyo State	3-Storey Building	Faulty, Design/Poor Workmanship	Several people
43	1998	Nigeria	Akure, Ondo State	4-Storey Church (under construction)	Structural failure/Poor Supervision	8 killed
44	1998	Nigeria	Rd 3, fagun, Abeokuta,	2-Storey Residential Building	Use of Poor materials/ structural failure	Nil
45	1999	Nigeria	Ojuelegba. Lagos	3-Storey Building	Carelessness and use of poor materials	4 killed
46	1999	Nigeria	Adeola Odeku, VI Lagos.	A-storey building	Rainstorm	Not ascertain
47	1999	Nigeria	Oko-Oba, 3-Storey Structure Lagos	Building	Failure	Nil
48	1999	Singapore	Compassvale primary school	Multipurpose hall	Faulty design	7 killed
49	1999	Nigeria	Four-square, 3-Storey Abuja	Residential	Implementation Faulty design	Not ascertain
50	1999	Nigeria	Obawole street, Iju, Lagos	A-Storey Building	Structural Failure	Nil
51	1999	Nigeria	Iju-Isaga, Lagos	3-Storey Building	Structural Faulty	36 killed
52	1999	Nigeria	Dawodu street, Ifo, Ogun	2-Storey Building	Rainstorm	20 killed
53	2000	Nigeria	Idi-Oro, Mushin, Lagos	Residential Building	Faulty Design	Not Ascertain
54	2000	Nigeria	Ajah, Along Lekki Lagos	Estate Building	Structural Failure	Nil
55	2001	Nigeria	21, Buhari Street Mushin,	2-Storey Mosque Building	Unauthorized Conversion Of former Bungalow to 2-Storey Building	27 killed
56	2001	Nigeria	Iwoye-Ijesa, Osun State	1-Storey Building	Structural failure and use of quacks	7 killed
57	2002	Malaysia	Ulu klang, Selango	Bungalow	Structural Failure	8 people killed
58	2007	Nigeria	Ebute-Meta, Lagos	Multi-storey Building	Unauthorized Conversion, poor Supervision and use of poor quality materials.	Several people
59	2007	Nigeria	Kano	Multi-Storey Building	Faulty design/ structural failure	Several people

60	2008	Nigeria	Olomi Area Ibadan.	A Building	Use of poor materials and carelessness	13 pupils
61	2008	Nigeria	Wuse Area, Abuja	5-Storey Building	Structural failure incompetency/bad workmanship	2 people. injured
62	2008	Nigeria	Asero Area, Ogun	2-Storey Building	Contravening the given planning Approval, use of substandard materials incompetency, etc .	2 killed
63	2008	Malaysia	Bukit Antarabanjah, Selangor.	14 Bungalows	Landslide, as a result of water.	4 people killed
64	2009	Nigeria	Ogbomoso, Oyo State	6-Storey LAUTECH	Use of substandard materials & poor Workmanship	5 killed
65	2009	Nigeria	Aghaji Enugu	A wall fence	No proper Drainage	1 killed
S66	2009	Nigeria	Oke Padre, Abeokuta	Uncompleted Building	Use of substandard materials, hasty Construction	3 killed
67	2009	Malaysia	Kuala Terengganu	Sultan Abidin Stadium.	Faulty design	No casualty
68	2009	Malaysia	Petaling Jaya	Jaya supermarket	Contractor Inefficiency	7 persons Killed
69	2010	Nigeria	Isopakodowo Oshodi, Lagos	Building under Construction	Use of Substandard building materials	4 killed
70	2010	Nigeria	Adenike Street off Newmarket, Oniru Estate, VI	Uncompleted Storey building	Use of Substandard building materials, Non-compliance of house-owners and developers with approved building plan and weak structure	1 killed and 2 injured
71	2010	Nigeria	2 Okolie Street, off Gimbiya Street in Abuja	Uncompleted 4-Storey Building	substandard materials and disregard for building regulations	23 killed and 11 injured
72	2010	Nigeria	24 Alli Street off Tinubu, V. I. Lagos.	4 Storey Building	Structural effects/overloading	3 killed

73	2014	Nigeria	Synagogue Church	Guest House	Illegal Conversion	114 killed
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Source: Fagbenle and Oluwumi Dec. 2010 cited by Alabi & Ahmad (2013).

4.0 Data Presentation and Discussion of Findings

Seventy-two (73) Reported Building collapses occurrences were selected from Malaysia, Nigeria, Singapore and Thailand . From 1960-2010. Sixty-seven (68) Cases were investigated, eight (8) out of the reported cases were litigated and up till 2010 Six (6) has got Judicial decision from the court. These five already completed cases were taken as samples for case study and analysed in this research

Table 2 Reported Cases of Building Collapses that are investigated (1960-2014)

N O	COUNTRIES	BUILDING COLLAPSE REPORTED OCCURRENCES	CASES INVESTIGATED	CASES WITHOUT LITIGATION	CASES WITH LITIGATION	CASES COMPLETED IN COURT
1	Malaysia	8	8	4	4	2
2	Nigeria	62	57	55	2	2
3	Singapore	2	2	1	1	1
4	Thailand	1	1	-	1	1
	Total	73	68	60	8	6
	percentage	100%	93%	82%	11%	8%

This study revealed through the review of literature, that when a building collapses, there must be an investigation to ascertain the remote causes of the collapse and subsequently to forestall other occurrences In table 2 above it is obvious that out of 100% of the occurrences of building collapse in the four chosen countries, 93 % were investigated and only 11% of this investigated cases were brought in for litigation in order to be able to know who is liable or culpable for the collapse and only 6% out of 11% cases in court has been completed.. This analysis has seriously revealed that the percentage of building collapse cases that goes to court was very low compared with the rate at which buildings are collapsing and properties are being destroyed in recent times. Furthermore, 82% of the occurrences of building collapse in this four countries were without litigation, this result calls for further study on why greater percentage of the building collapse cases are not being taken to court so as to know who is liable especially in Nigeria.

Table 3 JUDICIAL DECISION ON WHO IS CULPABLE OR LIABLE IN BUILDING COLLAPSE CASES

BUILDING COLLAPSE INCIDENT	CASE TITLE	PROFESSIONAL HELD LIABLE FOR THE COLLAPSE	PERCENTAGE LIABILITY	FINANCIAL IMPLICATION OF LIABILITY
Collapse of Double story bungalow in Lot3007, Kemendah. Selangor. Malaysia	Dr Abdual Hamid Rashid & Anor v Jerusan Malaysia Consultants (sued as a firm) & Ors -(MLJ 546-15 November 1996	*1st and 4th defendant	40% Liability	RM 364,173.00
		The contractor	60% Liability	
Collapse of Highlander Tower in	Steven Phoa Cheng Loon & Orgs v	The developer	15% Liability	
		The architect	10% Liability	

Malaysia.	Highland Properties Snd Bhd & orgs.	The engineer	10% Liability	
		Owner adjoining property	30% Liability	
		Owner and project manager	20% Liability	
Collapse of Royal plaza hotel in Singapore	Royal Plaza Hotel. V Nakhon Ratchasima Municipality & orgs	All professionals and contractor	Jointly Liable	Bt152.023,000.00
collapse of Multipurpose primary school in Thailand	Case law on collapse of Multipurpose primary school Hall in compassvale, (case not yet reported)	The Engineer		\$ 25, 000.00
		Accredited Checker		\$ 50,000.00
		The Contractor.		\$ 30,000,00
collapse of the 8 storey Mount Royal Hotel, Mende Maryland, Lagos, Nigeria.	Case law of the collapse of the 8 storey Mount Royal Hotel, Mende Maryland, Lagos, Nigeria.	The Contractor		# 65,000,000,00
Collapse of Synagogue \ Church of all Nations Guest's house. Lagos Nigeria.	Investigated by the Coronary set up by the State Government.	Engineer	50% Liability	
		Contractor	50% Liability	

The breakdown of the analysis of professionals that are liable in building collapse cases are in Table 2 as follows:

a) Case law 1: The consultants has a liability of 60%

The Contractor has a liability of 40%

b) Case law 2: The developer has a liability of 15%

The architect has a liability of 10%

The engineer has a liability of 10%

The owner of adjoining property has a liability of 30%

The project manager has a liability of 20%

c) Case law 3: Both the professionals and the contractor has a joint

- liability.
- d) Case law 4: The engineer, the accredited checker and the contractor
- Also has a joint liability.
- e) Case law 5: The contractor has a 100% liability
 - f) Case law 6: The Engineer and the Architect has a 100% liability

From the analysis above based on table 2 the liability of the professionals depends on their role in the building collapse. The findings also revealed that some of the professionals are jointly liable such as consultant and contractor or developer, consultant and contractor. And the apportioning of the liabilities ranges from 40 to 100% for individual or 100% jointly. A careful look at the analysis suggests that the professionals in the construction industry have a lot to do to bring to an end the incessant building collapse.

5.0 Conclusion

Based on the findings of this study, Building industry professionals and contractors were relatively liable or culpable for most building collapse incident in Nigeria, Malaysia, Thailand and Singapore

6.0 Recommendation

Following the conclusion of this study, the following were recommended:

- 1) Various professional bodies in the building industry should come out with measure to control and check various professionals in the construction industry.
- 2) The government should come out with legislation to control the operations of various professionals in the construction industry.
- 3) Government should also come with laws to sanction any construction professionals found liable in any building collapse.

7.0 References

- Abdul and Adenesar (2009): Roles of professionals Liability in the construction industry. The international Conference on Administration and Business. 14-15 November, 2009. The faculty of Business and Administration University of Bucharest.
- Alabi O. M (2013) The study of claims arising from building collapse. The published MSc thesis from faculty of built environment, Quantity Surveying dept, University Tekinology Malaysia.
- Alabi O. M & Ahmad R. R (2013). The study of claims arising from building collapses: Case Studies from Malaysia, Nigeria, Singapore & Thailand. Journal of civil and Environmental research. Vol. 3 No 11. Pg. 113~129.
- Carper, K. (2001). "Why buildings fail." National Council of Architectures Registration Boards, Washington, DC.
- Carper, K. L., and Feld, J. (1997). Construction failure, Wiley, New York, 242–245, 271–274.
- Fairweather, V. (1975). "Bailey's Crossroads: A/E liability test." Civil Engrg., 45(11), 58–59.
- Ojo et al. (2013) Design and construction supervision as structurally sustainable tools for Building failure collapse in Nigeria. International Journal of Computer Science and Information Technology & Security (IJCSITS), ISSN: 2249-9555 Vol. 3, No.3,
- Olabintan, O.D. (2012). Project abandonment in Nigerian building Industry: An Appraisal of the causal root and the way forward: Proceedings of EDULEARN12 Conference. Barcelona, Spain. pp. 0118 - 0127.

- Roddis, W. M. K. (1993). "Structural Failures and Engineering Ethics," Journal of Structural Engineering- ASCE, 119(5), 1539-1555.
- Rubin, R. A., and Banick, L. A., (1987) "The Hyatt Regency Decision: One View," pp. 161-167, ASCE Journal of the Performance of Constructed Facilities, August 1987.
- Siddharaj V. S. Param. (1996). Negligence and the Duty of Care in the Construction Industry: A Malaysia Analysis. Workshop Papers. Kuala Lumpur: Institute of Professional Advancement.
- <http://www.history.com/this-day-in-history/seoul-department-store-collapses> >.