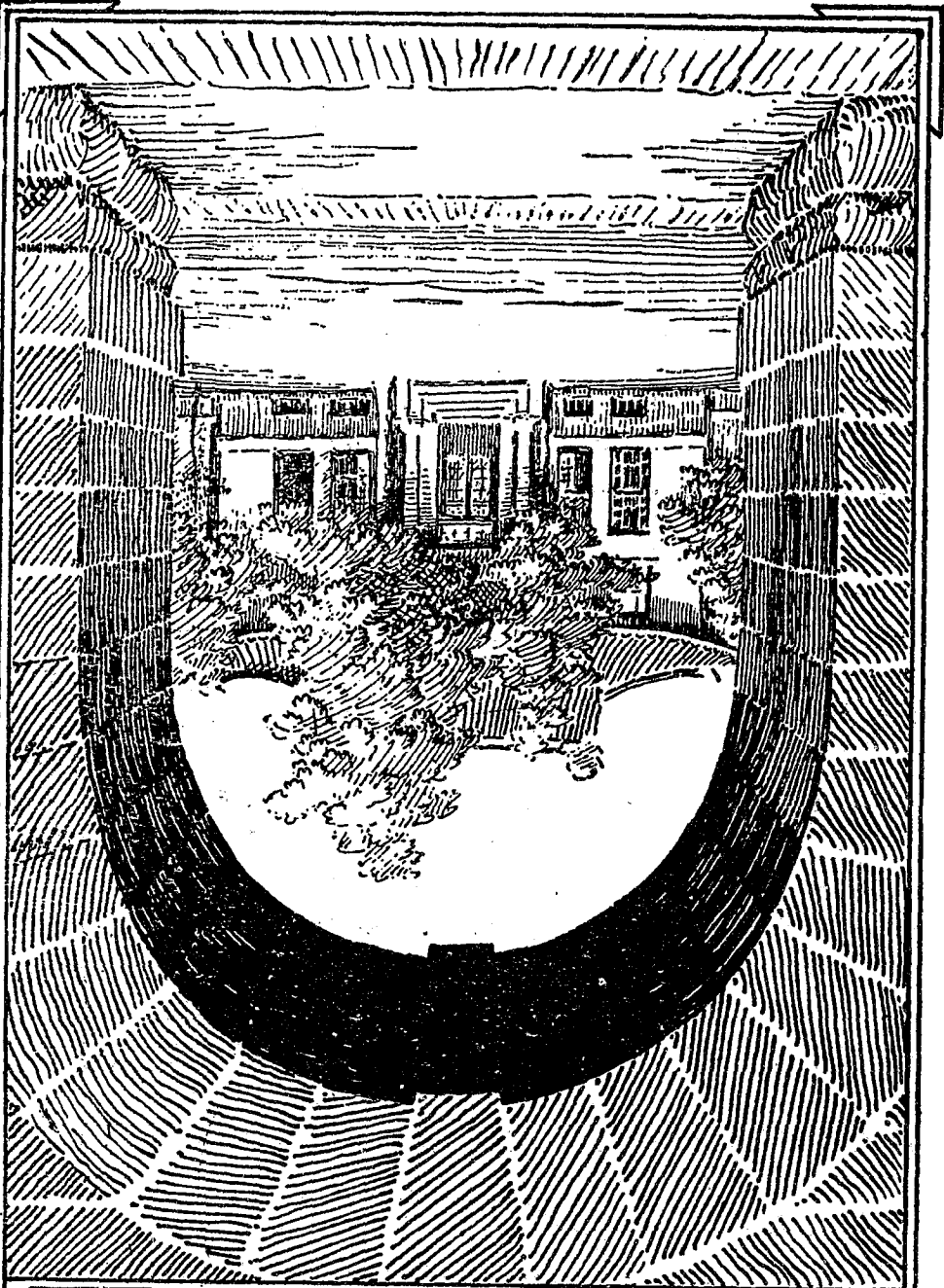


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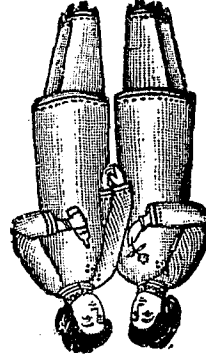
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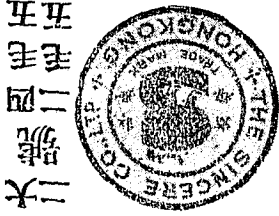
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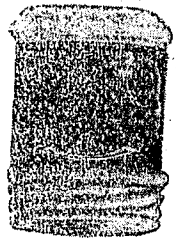
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LAYMAN
AT
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JUNIOR
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- 三 角函數之意義 (三) 王錫恩
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來件照登

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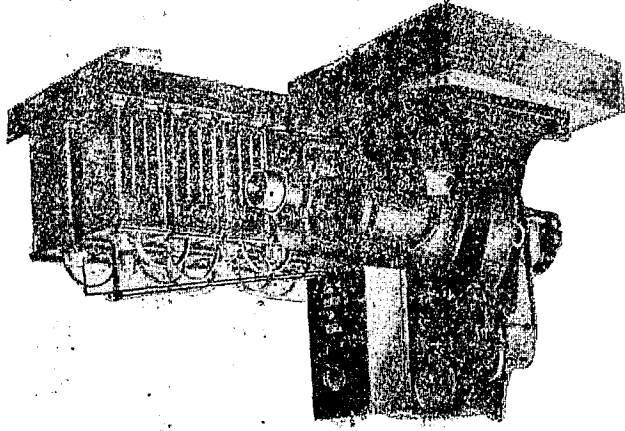
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觀教宗之

則於固深具有此種宗教之精神。因「觀」字隱定世界和平幸福。一補理。並證明其體性之來源。而為美善。共「觀」字隱定一種不私己的熱忱。令「大羣人聯體共」何謂宗教。各異其說。家德Tcky 所定之「觀」字之宗教觀。

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觀字之宗教觀

繼觀甫

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事啟部輯編

本期起，暫且停刊，希閱者注意。

等完全登出。本報對此，無重刊之必要。故畢業生姓名錄一欄，自

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畢業生姓名錄暫停刊佈

觀教宗之子墨

可以使人類認上帝為父，地球人類皆兄弟也。
 為父，地球人類皆兄弟也。『余於墨子，亦敢言其學說
 者，一種宗教，人類從此可以依賴基督之能，而認識上帝
 奧，基督合，其效亦與基督教相若。艾迪有言：『基督教
 墨子雖非宗教，墨家亦不成為宗教。但墨子之宗教，頗
 說，而喪失其宗教之資格。無他，不能直覺，直覺也。
 為，墨子使其進無障礙，無主，不能起人之信，自能自圓其
 疑，有重之位置。但於天，明之，三其美之法，以
 之，有「故」，「行」之「理」，其在「禮」中，固由此
 大，乃以天為象，而生之。墨子學說中一切立論，莫不本
 由，而推其象，一身一象，一國一天，天之量以擴充之，止於至
 愛也。不獨因循入家，主家，愛國，愛國，天子愛天下之心，

十四年五月八日



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 面。為。山。東。通。中。三。國。三。銀。行。之。銀。幣。
 分。至。二。分。五。厘。各。行。銀。行。發。行。紙。幣。發。行。於。濟。南。市
 至。千。餘。不。等。款。存。自。三。厘。至。一。分。三。厘。放。款。利。率。自
 濟。南。所。有。銀。行。共。七。十。二。家。通。行。於。銀。行。公。會。資。本。自。百。萬

濟南地方調查(續) 吳金鼎

金融及財政



馬路三緯三
濟南大

美商價昌洋行

歡迎、倫界有所垂詢、無不竭誠、本行聘有專門技師、富有經驗、各種農業機器、鑿路、築、建、以及各種開礦機器、全部發力廠機器材料、針織、電機、工、

機器、工程、進口

紹介聲心大齊由明聲請

輛人力水車一輛。應車機兩架。大小石礮子各一。皆備為清潔之用。各天濶掃道。凡三次。應內有大水車四輛。小水車三百。其數道旁皆設陰溝。但較坡內寬甚。市政廳設道六尺。舊道不合標準。寬度者。隨街房舍。修時須縮入者。三六尺。在城廂之分路。寬三丈。支路寬二丈。小巷寬一丈。全按新法修築。按商埠各路極寬。度徑路五丈。緯路六丈。常淤塞。頗感困難。因商埠街道。自光緒三年開辦商埠。後。入車司。清潔。街道。兩邊皆有陰溝。排水。惟陰溝。旁於適宜地點。設垃圾箱。及太平水桶。警廳有掃道。隊。夫。以石灰石。長方地。砌成。總長。月四。鑿行。入街之。街道。全。新。式。外。其。餘。皆。舊。式。街。道。既。狹。且。曲。且。暗。不。平。除。警。廳。商。埠。街。道。外。除。西。門。大。街。完。全。歸。警。廳。商。埠。街。道。外。屬。於。市。政。與。警。廳。二。廳。城。內。街。道。一。條。南。街。道。之。管。理。分。屬。於。市。政。廳。與。警。廳。二。廳。城。內。街。道。南。街。道。生。活。狀。况。可。按。下。列。各。項。分。別。述。敘。之。

濟南 卷三 第一節

三

濟市政廳亦頗重視衛生。每值夏日。必申斥小商。勿得多用白米。綠米。青米。於食物之衛生。頗知注意。警廳。南。人。民。大。部。分。食。米。少。部。分。食。米。則。肥。料。

許之大糞場。製成。乾。後。小。荷。運。往。山。東。北。部。各。縣。充。農。民。搬。以。石。灰。未。或。澆。以。水。灰。以。資。消。毒。糞。運。往。城。內。四。里。出。糞。時。間。在。早。五。點。至。六。點。運。糞。用。糞。車。不。加。蓋。糞。所。內。常。日。所。夾。中。間。皆。可。大。便。二。大。便。處。相。距。極。近。無。隔。壁。每。日。且。多。露。天。小。便。皆。無。器。內。凡。拿。糞。者。各。處。皆。可。小。便。且。兼。使。用。者。其。租。金。由。私。人。收。取。官。民。各。廁。所。皆。不。開。門。商。埠。官。廁。十。一。所。年。得。租。金。六。百。元。民。廁。者。即。私。人。所。設。而。歸。警。廳。管。理。商。埠。官。廁。則。歸。市。政。廳。管。理。凡。官。廁。皆。包。租。於。貧。民。計。二。廁。所。南。共。廁。所。分。屬。二。種。城。內。官。廁。歸。警。廳。管。理。及。修。道。路。之。用。他。若。水。桶。及。水。桶。之。布。置。均。與。城。內。同。

濟南 卷三 第一節

一

迴文庫各藏書千餘卷。各圖書館除借書外。又各設閱報室。二萬餘種。山東圖書館。藏書十餘萬卷。通俗圖書館。日。巡。各圖書館。濟南之圖書館。有四。海軍大學圖書館。藏書。本。及。各。種。比。較。圖。表。實。通。民。智。及。常。識。之。機。關。也。第。三。已。第。二。當。推。魯。大。學。附。設。之。廣。智。院。其。內。陳。列。各。種。博。物。主。報。其。費。亦。不。過。五。千。元。其。銷。路。亦。不。過。一。千。餘。份。館。凡。三。十。餘。家。規模最大。而銷路最廣者。為平民報。為。民。校。之。外。有。補。於。濟。南。文。化。之。他。機。關。第。一。當。推。報。館。南。報。學。社。會。服。務。機。關。

學。三。科。教。員。七。十。餘。人。常。年。經。費。三。十。餘。萬。附。設。廣。智。院。以。備。戰。時。可。惜。也。教。會。所。辦。之。大。學。日。濟。魯。大。學。內。分。文。理。醫。學。其。他。各。校。亦。經。營。不。遺。餘。力。惟。迫。於。經。費。困難。不。克。如。之。實。現。當。不。遠。也。六。專。門。中。如。礦。業。學。諸。校。近。來。皆。力。求。日。業。近。年。來。教。育。局。擬。將。六。專。門。合。為。山。東。大。學。計。劃。

濟南 卷三 第一節

一

十七人。濟南中西醫士共計二百三十四人。藥房凡六十五家中。藥目共一百零七。外。加。西。醫。一。百。二。百。濟。大。學。醫。院。一。切。特。形。皆。略。似。濟。南。院。推。規。模。較。小。耳。西。醫。五。十。餘。人。女。看。護。六。十。餘。人。住。院。病。人。三。百。餘。人。日。所。立。建。設。費。百。餘。萬。年。費。五。十。萬。院。內。分。九。科。男。女。醫。生。西。醫。凡。九。其。中。設。備。較。完。善。者。有。一。二。日。濟。南。醫。院。本。未。免。過。於。放。任。也。

備有文憑者。始得行醫。對於西醫。既不加考試。亦不檢驗。文憑。售藥。醫藥。亦不檢驗。惟對於中醫。近年來。加以考試。及格。而。警。廳。對。於。醫。院。及。中。西。藥。房。之。開。設。未。加。以。限。制。各。藥。房。所。醫。藥。及。衛生。

警廳第五當推青年會及其他宗教服務機關。雜誌。供。入。閱。覽。第。四。當。推。各。校。研。究。之。中。民。學。校。及。平。民。講。堂。

船價隨時令而異大抵自一角至三角之譜二千佛山又名
欲遊大明湖者可隨意至明華橋可家碼頭或新西門內雇
公租公祠鐵公祠北極廟孤亭諸勝最為遊人所稱
徐來一葉扁舟往來蘆葦煙波中悠悠應俗之外湖中
四分一湖水游可數每值夏季黃昏陽光四射風
濟南之名勝有三大明湖在城北其大小佔據面積
外遊覽名勝與參觀樂場二途

二十日交假期一日於假期中市民娛樂之法不
九日約一日至三日之假期至八日之假期一月八日
三日之假期七月十五日中秋假期三日九月
三日之假期五月五日之假期五月十五日
濟南市民娛樂之機會以五月一日至五月十五日為最長
部居民應安適亦不外其入然較之濟南人口總數則寥寥矣

娛樂

濟

通俗講濟西為茶東為石橋泉之附近設有茶園書場
十餘萬其盛況可知矣三日泉一日燒泉又名龍泉在
黃河歷歷在日每值夏季九月山上有香大會遊人
上植松柏蒼翠怡人登絕頂北望濟南城大開湖小
歷山或曰舜耕山在城西南三里許西望馬鞍山東接開元山

本園每日遊覽時間自上午八點至下午六點六月間延長

內有新舊戲園大戲園及其他遊藝門票兩角每日收入
濟南之娛樂場規模最大設備最完善首推商場之遊藝團
能助遊人興趣

接上海最近之生活程度每人每月之進款至少為十一元八
所鋪石炭以燒毒菌
對於居民飲食居住等衛生亦加以相當之警告並設於街道側
每覺時疫發生即派專員往各車站各渡口等處認真檢查
中洗澡衣服不潔宜
濟南尤為清潔在南關居民多飲之惟居民有時亦在河
泉水南泉凡七有二三皆發濁可作飲料三曰河水
水既淺易引水入商埠公井較深其水亦較清潔二曰
服甚提地數尺可以及泉故坡內之井鮮有深過一丈者惟
實(四)飲料濟南市所飲之水可分三種一曰井水坡內水
販賣生貨品如汽水之類西瓜不加沙量之禁止皆其
濟大心學 第三卷 第一冊

濟

此軍中產下之人民而言至於中產以上之人民衣服

第大半無讀書求學之機會有疾病者亦難得醫治之藥
於小室屋往往數人集一室中或以草席為床或以
青間食雜布衣料則為粗布染以青色或藍色
蒸以日菜為主飲則為粥或湯水較富格之家則食饅
粗粉粉之在其鍋中烙熟故餅餅價值每斤大洋一角
貧食品以餅為主其形正圓徑約尺許厚約一寸半以
菜生之者食之者生之因難可想見矣

有剩餘者有千七百人之或生者有八萬人為無職
之民常有若干不獲知而僅知有七萬九千人為自給而稍
口之家約需十五元之譜吾人現在所謂香濟生最廉
一角五分方能食無缺若為五口之家其每月進款必須二十

商場之樂戶海狗區北關于城內之南灣九曲港，德化巷，原二十元之收入方能生活也。

無定額其各月生活之費約計之每日至少須有二三元至約銀五十枚至五百枚其餘條子費，捧場費，(團客禮)等皆容館之進款隨等次而增，計宿費約自元至十元，茶費妓館而令親女為妓者，亦有之。
誘而為娼者亦有之，至於家庭貧困送女館中，或父母自開妓女之來源，以貧賣而為妓者居多，數被拐帶或被月一等二元，二等三元，三等五角，四等二角。
共一千零八十八名，私娼數目無從調查，可得而知，指類：每二、四、等三百三十五元，共五百三十五元，民國三十四年(妓十、南妓館分四等：一等一百零六元，二等二十七元，三等六十元)半公館之組織多不能如此之完備。

樂先生教導妓學女習歌唱者也，妓館之組織大體如此，私娼

齊

南

將變為淫惡濁之城市矣。
頭詳有地方之責者，尚不預籌禁絕之法，十年後之濟南亦始效制度，實為社會道德及公共衛生之剝奪，人所知之民有「牛」城官條娼妓館之「不認」也。

房舍

登于佛山北望，可見城內與商埠之房舍顯然分為兩種顏色。城內之房舍為灰色，而城內則有紅色，蓋屋頂多係舊式灰色之瓦也。商埠之房舍為紅色，蓋屋頂多係新式紅色之瓦也。城中房舍之式樣亦較城內之房舍為新。

賣淫業

迎。國內有傳風化之機關多，近年間中國影片頗受歡迎。電影凡三家，其中有一所立，所照影片多來自美國，中國影片頗受歡迎。

南

齊

來亦漸形發達，將來亦將變為市民之娛樂場。
美但較之賣場，相去遠矣。他若商埠北關于城內之新市場，近年業館等，更次為因美南之勸業場，內有高廳一座，小商多，化妝品，及兒童玩具之類，場內附設茶室，大鼓，幻術，打球，夜十二點，是為夜遊，再為公園，西園之表賣場，場之建築

「先生」曰：「管中可見，先生可謂中出入無項者也。」
等事。女僕可兼洗衣及服事，妓女等事，僕之外又有所接者，也。館中有男僕及女僕，男僕可兼守門及護送茶分二種：一、名紅妓，已接者，也。一、名青妓，年約十歲，館之外，妓館內，則統於女總理(老媽子)之手。館中無娼，娼妓館之組織與他城無異。館之總理率皆為母子，論者只第一種，即真正以賣淫為專業者。
並非以賣淫為專業，不得列入賣淫業一節。姑置之不論。所無以自愛，乃與他日，懷若夫，懷若夫，此四種中，未二種，夫，或「打」，乃與夫之青年婦女，或夫出外不歸，妻迫，應「打」，如業之婦女，失業之婦女，四等。曰：露水警廳，註册及稅務等。三、曰：警廳，由於性慾衝動，由於經濟草率，稅開業等。二、曰：半公館，一、曰：營業與公館，同惟未濟南之賣淫者，可概分四種：第一曰：公館，即經過警廳註冊，按

基督教青年會。在普利門外。創始於民國五年。成立於民國八年。南隊在緯一隊。北隊在會家橋。軍官十餘人。教徒一百八十人。救世軍。創始於民國十年。分南、西、北三隊。西隊在二馬路四處。各隊九十九人。附設佈道臺三所。閱書室一處。小學人。美信會。在龍驤街。創始於民國十年。職員十餘人。美華小學。附設佈道室二所。工藝學校一所。三十餘人。安島日會。在商埠緯一路。創始於民國五年。職員七人。女工會。十餘人。教徒三百四十四人。佈道室三所。男女中學各一所。男女學校。婦女學校。幼稚園。醫院。各長老會。在東關。美國人所立。近來。漸入華人。之手。附設廣智院。今已併入齊魯大學。英授禮會。在德市街。有佈道室一所。牧師一人。所辦事業有

部在天齊廟(四道院)南關上新街。創始於民國十年。以如火神廟。玉皇廟。齊天廟等。諸道士聯合。為濟南道教總會。總及教徒數百。皆未詳。(三)道教。道教之根據地。多為廟宇。依媽祖。二尊。三尊。等。教。二(二)佛。教。總機關。凡三處。餘戶。一萬二千餘人。教中。職員六十餘人。分。為。鄉。老。回。教。長。回教。總部。在西關。真。寺。附。設。小。寺。數。處。回。教。徒。共。四。千。以上。所。述。皆。為。基。督。教。機關。今。再。略。述。其。他。宗。教。機。關。(一)際。部。曰。勞。工。服。務。部。曰。房。舍。部。曰。政。治。部。曰。學。生。部。三。人。會。員。百。餘。人。中。分。七。部。曰。宗。教。部。曰。智。育。部。曰。交。三。正。式。會。所。辦。公。室。及。閱。覽。室。等。設。於。總。幹。事。之。住。宅。職。員。無。算。教。婦。女。青。年。會。在。南。關。南。新。街。成。立。於。民。國。二。十。二。年。日。體。育。部。曰。童。子。部。二。十。八。會。中。分。六。部。曰。德。育。部。曰。智。育。部。曰。工。部。曰。學。生。部。二。年。今。方。建。造。新。會。所。建。費。十。餘。萬。元。職。員。十。餘。人。約。十。餘。元。職。員。十。餘。人。教。徒。四。百。六。十。餘。人。

房屋之租價既高。市民常聚集而居。往往有一院而後三家。要為矮小。租價每月自十元至十五元。其他各區之房屋。皆較寬。商埠房舍。以二大馬路。及三大馬路。為最高。除亦較寬。空。知。推。知。商。埠。之。草。棚。較。之。城。內。為。多。城。內。房。舍。以。西。大。街。為。最。大。市。政。司。街。為。最。高。大。蓋。商。業。區。域。之。所。在。也。租。價。每。月。自。十。元。至。三。十。元。不。等。其。餘。各。區。及。東。西。兩。關。之。房。屋。除。官。廳。及。學。校。外。每。間。租。價。一。元。至。五。元。不。等。至。十。元。不。下。

千餘元。職。員。十。餘。人。教。徒。四。百。六。十。餘。人。後。全。體。華。人。辦。理。一。切。經。費。皆。由。當。地。教。徒。供。給。常。年。經。費。南。關。教。會。原。為。禮。拜。會。與。長。老。會。合。辦。之。教。會。自。民。國。六。年。安。老。會。中。教。徒。二。百。四。十。餘。人。職。員。七。十。餘。人。四。百。餘。間。於。是。規。模。完。備。內。設。男。女。中。學。小。學。幼。稚。園。及。歌。作。為。會。址。至。民。國。四。年。建。造。竣。至。民。國。八。年。又。建。造。樓。房。十。餘。間。並。捐。洋。萬。元。充。開。辦。費。由。周。自。齊。劃。給。商。埠。地。二。十。餘。畝。中。華。基。督。教。會。在。商。埠。西。關。西。民。國。二。年。由。青。島。教。徒。展。速。度。為。最。大。茲。先。擇。要。分。述。之。

宗教機關

於。勞。適。宜。之。處。開。一。小。門。頂。部。開。一。小。孔。以。通。煙。及。空。氣。凡。於。其。旁。頂。部。掩。以。草。席。或。草。席。之。類。外。部。塗。之。以。泥。以。避。風。雨。以。燒。老。小。其。支。木。椽。若。干。條。為。梁。附。高。梁。或。他。種。草。葦。葦。於。勞。適。宜。之。處。開。一。小。門。頂。部。開。一。小。孔。以。通。煙。及。空。氣。凡。於。其。旁。頂。部。掩。以。草。席。或。草。席。之。類。外。部。塗。之。以。泥。以。避。風。雨。以。燒。老。小。其。支。木。椽。若。干。條。為。梁。附。高。梁。或。他。種。草。葦。葦。於。勞。適。宜。之。處。開。一。小。門。頂。部。開。一。小。孔。以。通。煙。及。空。氣。凡。於。其。旁。頂。部。掩。以。草。席。或。草。席。之。類。外。部。塗。之。以。泥。以。避。風。雨。以。燒。老。小。其。支。木。椽。若。干。條。為。梁。附。高。梁。或。他。種。草。葦。葦。

身體其精神。直接間接所受之損害。可以不言而喻也。其禍害。無。論。矣。即。無。災。病。之。流。行。入。民。處。此。惡。濁。環。境。之。中。其。四。家。人。口。既。對。於。衛生。諸。端。又。漠。不。關。心。且。時。疫。發。生。

南

七十餘元。二日。中華藥工。在商埠公園。餘元。三日。平民工廠。在商埠對山街。餘元。餘。常年經費。北三。地。十。八。五。元。現。有。工。徒。一。七。百。五。萬。七。千。餘。元。內。有。孤。兒。百。餘。人。日。厚。德。實。民。工。廠。在。私。創。辦。者。一。日。普。濟。孤。兒。院。在。濟。北。地。基。二。十。餘。畝。施。米。粥。

濟

日。底。漢。明。道。院。所。辦。一。部。份。在。坡。內。一。部。份。在。商。埠。過。道。則。三。其。數。所。辦。在。南。關。內。有。自。置。十。餘。人。現。正。籌。備。擴。充。學。員。十。餘。人。總。入。八。十。餘。人。常。年。費。用。四。千。餘。元。二。日。普。濟。地。約。八。畝。建。費。一。萬。九。千。餘。元。基。本。金。三。萬。四。千。餘。元。內。有。宗。教。關。所。創。辦。者。一。日。慶。慶。院。道。院。所。辦。在。佛。山。下。佔。公。所。常。年。費。用。二。萬。餘。元。

9) 臨時慈善機關。如粥場、賑災會等。

8) 掩骨所。在公所內。施捨棺木及掩埋棺骨。

濟大心學

學。早。飯。在。上。午。七。點。半。晚。飯。在。五。點。半。所。食。為。糧。米。類。頭。類。金。炊。事。房。瓦。工。掃。地。種。植。藥。料。每。日。工。作。時。間。約。八。點。鐘。入。在。廠。內。之。工。作。石。印。工。鉛。工。鐵。工。毛。織。工。紙。工。如。好。邪。等。本。均。犯。人。之。年。齡。約。在。十。歲。左。右。廠。內。分。男。女。二。區。男。犯。多。為。盜。竊。私。運。等。女。犯。多。為。守。婦。室。無。不。俱。備。計。房。屋。共。二。百。餘。間。以。高。牆。大。門。派。兵。守。守。獄。內。凡。辦。公。室。風。室。工。廠。工。廠。存。在。兩。之。機。器。約。有。二。其。一。在。專。利。門。外。地。基。十。五。畝。二。在。廠。內。機。器。均。備。無。不。具。備。諸。機。關。之。理。亦。未。得。其。法。有。以。致。之。也。總。觀。諸。善。事。業。而。言。除。一。二。機。關。外。幸。皆。覺。得。用。大。而。收。無。從。圖。查。

十四名。此外尚有香干粥場。施舍處。諸機關之類。其時辦費時後。地。基。約。五。畝。房。屋。二。十。餘。間。常。年。經。費。二。千。餘。元。內。有。童。

南

房。屋。七。十。餘。間。經。道。所。陳。列。所。備。存。在。焉。全。廠。職。員。五。十。餘。人。大。共。有。男。房。屋。二。百。餘。間。及。售。賣。皆。在。焉。南。廠。共。有。中。間。專。為。十。二。五。十。四。歲。之。貧。民。而。設。內。分。二。北。廠。北。廠。為。政。府。指。地。方。政。府。言。所。創。辦。者。一。日。教。養。局。在。正。覺。寺。街。者。宗。教。機。關。所。創。辦。者。與。私。人。所。創。辦。者。南。善。事。業。就。其。可。分。三。類。一。即。政。府。所。創。辦。者。二。即。善。事。業。三。即。工。業。等。

一。善。事。業。二。工。業。等。二。日。普。濟。孤。兒。院。在。佛。山。下。佔。公。所。常。年。費。用。二。萬。餘。元。

7) 貧兒學校。現已開辦者有二處。

6) 育嬰堂。正在籌備。擬附設於孤兒院內。

5) 濟良所。在縣東。專收難姪之婦。妓而設。內有女。無。定。額。平。均。三。十。四。人。

4) 恤養所。在縣東。專收貧苦之婦。而設。內有女。無。定。額。平。均。三。十。四。人。

3) 全。部。至。無。一。定。地。點。專。為。救。濟。貧。苦。之。婦。而。設。每。月。發。給。金。一。元。或。二。元。四。角。計。受。津。貼。者。八。十。餘。人。

2) 孤兒院。附設公所內。現有男。童。七。十八。名。女。童。三。十六。名。

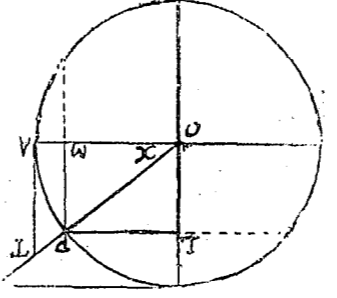
1) 養老院。在三皇廟。房。屋。七。十。餘。間。所。養。老。人。男。三。十。餘。人。每。日。發。給。銅。子。十。枚。每。年。發。給。棉。衣。一。套。

十。善。局。改。而。成。所。辦。事。業。有。下。列。九。種。

東。門。內。發。育。院。內。創。於。民。國。二。年。奉。省。署。分。發。原。有。之。廣。餘。工。人。約。三。百。人。常。年。經。費。二。萬。餘。元。二。日。普。濟。公。所。在。佛。

三角函數之數圖角三

$\sin X = PM$ 圖一
 知以測高。頭知以測遠。獲知以測深。三角比列之。諸古
 已用之。後世學入。藉以。圓立。成入。線表。以。三。角。形。邊。
 角。互。求。之。用。又。創。製。以。查。乘。除。之。繁。二。角。一。學。至。今。日。可。謂。
 發。達。矣。惟。好。問。三。角。書。皆。直。三。角。三。角。形。之。理。之。理。
 為。某。角。正。弦。今。讓。者。察。察。不。解。其。義。甚。有。謂。無。三。角。形。之。理。
 於。切。失。物。皆。因。不。知。其。本。誰。究。其。未。詳。竟。切。對。失。
 高。賢。明。其。妙。余。不。能。圖。乃。海。外。切。失。切。失。切。失。切。失。切。
 請。知。切。失。切。失。切。失。切。失。切。失。切。失。切。失。切。失。切。
 正。弦。取。半。徑。為。一。作。 $\triangle ABA'$ 圓。圖。按。 $\triangle ABA'$ 圓。圖。按。
 圓。其。正。弦。之。圖。心。角。水。角。水。角。水。角。水。角。水。角。水。角。水。角。水。
 又。以。其。正。弦。之。圖。心。角。水。角。水。角。水。角。水。角。水。角。水。角。水。
 受。以。其。正。弦。之。圖。心。角。水。角。水。角。水。角。水。角。水。角。水。角。水。



圖一 $\sin X = PM$

三角函數之圖解

圖一

約須資本二百餘萬。何能廣告成功。尚無把握。
 濟南之飲料。次前。已述之矣。近來。年。方。有。自。來。水。公。司。之。籌。備。

電水業

濟南電燈。私家。辦理。近年。各。機關。各。商店。及。中。產。以上。之。
 住戶。皆。用。電。燈。價。約。每。單。位。三。角。
 電。亦。歸。私。家。辦理。至。今。用。電。者。僅。二。千。餘。家。蓋。每。一。單。位。回。
 租。費。六。七。元。索。價。太。高。非。大。機。關。無。電。獨。裝。電。燈。之。
 能。力。也。
 濟。須。資。本。二。百。餘。萬。何。能。告。成。功。尚。無。把。握。
 濟。南。之。飲。料。次。前。已。述。之。矣。近。來。年。方。有。自。來。水。公。司。之。籌。備。

商

濟

名。專。入。其。目。擊。之。
 近。年。來。前。進。之。速。度。推。測。之。二。十。年。後。實。能。與。天。南。京。海。
 但。為。政。治。中。心。西。面。著。之。中。心。時。又。為。文。化。之。中。心。也。技。術。
 以。變。度。之。濟。南。在。於。上。之。濟。南。為。東。部。之。中。心。也。不。
 之。於。北。東。西。通。入。通。之。圖。四。通。八。達。之。圖。也。
 都。市。日。趨。發。達。之。際。二。日。東。之。濟。南。二。日。東。之。濟。南。二。日。東。之。濟。南。
 作。者。請。問。天。南。京。海。與。濟。南。之。間。有。何。前。途。與。未。來。之。限。量。

十四年八月五日號於濟南。

附錄

$OT = OT$ 故 $\sec X = OT$

$AM = OM$ 故 $\csc X = OC$

$BL = OM$ 故 $\sec X = OM$

$OT = BL$ 故 $\csc X = BL$

$AM = OM$ 故 $\csc X = AM$

$OT = BL$ 故 $\csc X = OT$

三 角 函 數 之 性 質

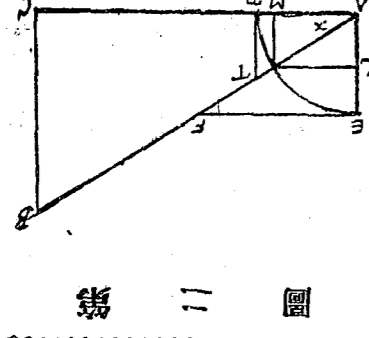


圖 11

$AP : AB :: PM : BC$ 即

1 : 斜 :: 正弦 X : 高

故 正弦 $X = \frac{\text{高}}{\text{斜}}$

又 ABC 三角形與 ADT 三角形亦同式。則有

$AP : AB :: PL : AC$ 即

1 : 斜 :: 餘弦 X : 底

故 餘弦 $X = \frac{\text{底}}{\text{斜}}$

又 ABC 三角形與 ADT 三角形亦同式。則有

$AD : AC :: DT : BC$ 即 1 : 底 :: 正切 X : 高

故 正切 $X = \frac{\text{高}}{\text{底}}$

又 ABC 三角形與 AEF 三角形亦同式。則有

$AE : BC :: EF : BC$ 即 1 : 高 :: 餘切 X : 底

故 餘切 $X = \frac{\text{底}}{\text{高}}$

又 ABC 三角形與 ADT 三角形亦同式。則有

$AD : AC :: AT : AB$ 即 1 : 底 :: 正割 X : 斜

故 正割 $X = \frac{\text{斜}}{\text{底}}$

又 ABC 三角形與 AEF 三角形亦同式。則有

$AE : BC :: AF : AB$ 即 1 : 高 :: 餘割 X : 斜

故 餘割 $X = \frac{\text{斜}}{\text{高}}$

正矢 $X = AD - AM = 1 - \frac{\text{斜}}{\text{底}}$ 餘弦 $X = 1 - \frac{\text{斜}}{\text{底}}$

餘矢 $X = AE - AL = 1 - \frac{\text{斜}}{\text{高}}$ 正弦 $X = 1 - \frac{\text{斜}}{\text{高}}$

來 件 照

本會及各界人士如蒙惠顧請向本會經理人接洽。本會辦事處設在廣州西關第十甫路。電話號碼為一二三四五。本會宗旨為推廣教育。凡我同胞如有志於教育者請速來會。本會必當竭誠歡迎。此致。各界人士。

第一大卷 第三卷 第一册

本會及各界人士如蒙惠顧請向本會經理人接洽。本會辦事處設在廣州西關第十甫路。電話號碼為一二三四五。本會宗旨為推廣教育。凡我同胞如有志於教育者請速來會。本會必當竭誠歡迎。此致。各界人士。

國中與爭競的濟經

係一。家自然沒有你，我，彼此之分。所謂「有數大家吃」，便是這這。自古之民，幾族而居，水草，以爲生。因係本族，同風，全族乃

一。經濟競爭之發源時地

他的邊疆，且長，我個分作三期略論之。

原來，經濟的競爭，非肇始於廿世紀，也不會中於廿世紀。世

經濟的競爭之歷史

先講者先注意——

「爲什麼單單講這經濟競爭呢？這個問題還沒有回答之

經濟競爭所講的「禮讓」之道。

「競爭」嗎？「真失掉中華」天朝「的體面。真對不起我國聖

講了也。無入肯聽。今我天我緊要講「競爭」且是單講「經濟

不「會講」這「經濟」的侵略。所以這「競爭」二字我國人都不肯講。

我國素稱文明禮讓之邦。對於外人口會講「王道」的感化。

吳金鼎

但「是」人「口」這種東西，正如物理學中所講的氣體一樣，是

「走來」。

用不盡。所以無須和異族的無味的無意識的競爭。

地廣人稀，天產豐饒，的爭的多，也是「取之不

之五，却人類，是稀世罕有的寶，所以人都想得到手裏。古

東西，所以人都不肯爲他，而引起競爭。至於麗水之金，

如，江上之清風，這都是取之不盡，用之不竭的

這種競爭，因爲競爭的主，原因是因爲經濟品的「缺乏」。

當時，不但本族內，不會有經濟的競爭，即異族間，也不會有

沒有法律，和法庭，就不會有競爭。一

時，既沒有「所有權」三，字，當然就不會發生經濟的競爭。正如

或自己所有的土地，也不肯擅自認作自己的私產。總之，當

說，競爭，爲「真」的，當時，既以遊徙爲生，自然不會有固定的財產。休

略考圖全與地華中

學界之價值。此即「中華地與全圖」的一。段沿革簡史。

之「中國地理圖」無不以「全圖」爲本。可知此圖在地理

共。故近今各印書局——尤其是商務印書館，所刊行

號，亦隨附附添了。乃更顧各日「中華地與全圖」以示五族

辛亥年，革命起，雖備符應位，民國成立，而皇與全圖的標

精采，詳。

全圖因得隨時校正，黃黃潤色，而山水，城，商，境，更爲

其後，「國年」海關，泰西之學，亦漸漸輸入，而皇與

廣，美，日，俄，德，法，各國，命之「日」，「皇」，「全圖」，



國中與爭競的經濟

讀者請看上表「發財之道」就可知道現在經濟競爭的方...

經濟的競爭對於中國有何關係

有回答之先，請讀者再注意——

我自從開放海禁以來，也加入二十世紀經濟競爭的戰...

的，確是一條真理！

至少我可以說，在二十世紀經濟競爭之場，這是一條真理...

敗者存，敗者亡，我雖不敢說，這是由經濟競爭的條件...

有回答之先，請讀者再注意——

那末，你談這經濟競爭究竟有什麼用意呢？這個問題沒...

其今日他的演化，現在正是「方興未艾」將來尚不知如何哩！

乃是人類社會中免不掉的一件事實，既已有其當初，必要有...

現在把經濟競爭的歷史已敘述完畢，總之經濟的競爭...

多，經濟的方性，所以現在的經濟競爭可謂極其激烈了。

的，方性，真是無奇不有，除了「非經濟的方性之外，還加上許...

據孫中山先生的估計，中國每年因經濟競爭的失敗所受...

一、洋貨輸入每年約我五萬萬元。

二、外國銀行事業，每年約我一萬萬元。

三、出口貨運費之增加，約我數千萬至一萬萬元。

四、租界與租地之租地租，每年約我四萬萬至五萬萬元。

五、外人之特權營業，每年約我一萬萬元。

六、投資事業及其他種種之剝奪，當在數千萬至一萬萬元之譜。

總計 至少每年約二十萬萬元，至多每年約一百二十萬萬元。

那末，每年損失二萬萬至十萬萬，十年損失二十萬萬至一百二十萬萬，百年損失二百萬萬至一千萬萬，這損失的損失呢？

二百萬萬，我國有大多力量能夠供給這種巨大的損失呢？

那末，每年損失二萬萬至十萬萬，十年損失二十萬萬至一百二十萬萬，百年損失二百萬萬至一千萬萬，這損失的損失呢？

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國中與爭競的經濟

Table with 3 columns: Item (e.g., 土地, 房屋), Value, and another value. Includes a note '中國富力表(日本高橋秀次氏)'.

供給十餘年之損失，到那時才稱得起「民窮財盡」...

戰事之餘，濟南各校已停課。而本校仍照常上課。班無

(三)上課

與之秋莫不胆壯氣直。熱心服務云。

權為團長。團員二百餘人。於每夜分班輪流巡邏。雖風聲鶴唳。特發起保衛團。以防宵小。乘機潛入。擾亂秩序。並公推曹君仲於戰事未發之前。召集校中教職員。為維持學校安全起見。

(二)保衛團

更復招待。至其誠懇。是以外來來賓。無不感發萬分。雲。甲里。雖事。激烈之時。外來來賓。總不絕。而救濟會。專。組織。非指定。物理。辦。公。部。科。等。機。為。婦。孺。時。收。所。故。若。朝。不。保。夕。者。本。校。教。職。員。有。見。於。此。因。自。備。救。濟。會。當。備。有。風。暴。之。際。濟。南。社。會。不。時。之。能。入。心。懷。恐。

(一)編排救濟會

茲將當時本校所經過之情形。列於左。以供閱者之鑒。

是役也。吾校雖處於紛亂擁擠之中。而秩序井然。一如平日。皆。

不敵。遂行敗退。與馬鞍山。復為魯軍所佔據矣。火。隆隆。接連不斷。直至翌日下午。兩點始止。而魯軍。因。軍。局。遂。派。隊。往。抵。德。前。在。德。兩。軍。相。遇。於。八。里。窪。左。右。即。行。開。槍。三。千。餘。人。由。泰安。間。道。而。來。當。由。魯。軍。兵。士。悉。悉。報。魯。軍。於。十。月。二十九。日。晚。九。點。鐘。濟。南。南。城。與。德。山。一帶。突。有。

八里窪中本校之情形

已落成。不即行開幕矣。

十餘間。除宏麗光潔。充足。如。癩。瘋。病。者。好。濟。養。處。也。刻。

之。捐。助。在。校。南。附。近。地。建。築。一。漸。瘋。癩。養。院。計。五。男。四。女。回。本。校。同。人。有。見。於。此。特。聯合。英。美。猶。太。社。復。經。省。政。府。撥。一。萬。美。金。難。治。者。有。相。當。地。點。及。手。續。亦。未。嘗。不。可。

癩瘋癩養院落成

現正在籌畫中。

本校附屬中學。自一九二六年秋季起。招收高級中學。第二

本校附屬中學招生

極美社會人士所歡迎云。

家休養時。考一書。內詳中國近來之遭遇。書出。紙貴。一時。國。來。華。者。無。不。頂。禮。膜。拜。三。月。間。可。到。校。又。校。長。在。速。赴。北。京。以。備。修。改。條。約。會。議。英。美。代。表。團。之。請。詢。已。取。道。美。有。所。謂。於。一。月。間。復。經。英。國。教。育。大。會。常。駐。委。員。會。請。其。即。如。何。課。本。校。之。發。展。與。英。國。政。界。名。流。對。中。國。一。切。問。題。先。休。數。月。外。並。到。各。地。拜。晤。本。校。有。關。條。約。之。請。要。入。商。酌。本。校。校。長。巴。慕。德。先。生。自。回。國。至。今。一。年。之。內。除。與。英。美。屬。

巴慕德回校



校聞

年。一。年。級。者。須。與。其。他。中。學。畢。業。生。受。同。等。之。考。試。但。成。績。最。優。者。不。在。此。例。又。凡。願。入。本。校。中。學。者。須。經。入。學。考。試。考。試。日。期。與。本。校。大。學。考。試。日。期。同。報。名。考。試。須。交。志。願。書。驗。體。格。書。書。最近。年。身。四。寸。像。片。以。及。報。名。費。一。元。至。欲。得。空。白。志。願。書。者。可。向。附。屬。中。學。校。長。函。索。云。

共合醫院擴充計劃

共合醫院擴充計劃

已與工程師訂合同。至交通恢復之後。即行開工云。

社會服務應改組

郭金南先生主理。郭先生已他校。本校亦將該服務處改組。由

物質文明之發達，在於人心。時學考，究其新，奇，從風而靡。祖
 宗，所殷，期，望，其，學，其，學，大，端，則，在，正，人，心，厚，風，俗，自
 入，將，來，本，其，所，學，以，為，社，會，利，權，利，家，國，前途，實，深，利，權，而
 已。諸，生，既，學，業，於，最，高，學，府，受，有，相，當，教，育，即，是，社，會，中，危
 人，才，輩，出，而，國，家，不，富，強，者，亦，未，有，入，才，缺，乏，而，國，家，不，危
 也。誠，也。國，於，天，地，必，有，與，立，者，何，人，才，是，也。自，古，及，今，未
 嘗，不，言，者，則，以，諸，生，學，業，之，任，重，大，不，得，不，諄，諄，已
 猶，得，與，幸，學，于，一，時，一，空，私，衷，快，非，可，言，喻，願，有，不，能，已
 日，為，諸，生，學，行，學，業，禮，節，尊，嚴，之，餘，宗，旨，治，軍，餘，暇，
 齊，大，學，學，生，學，業，訓，詞

校

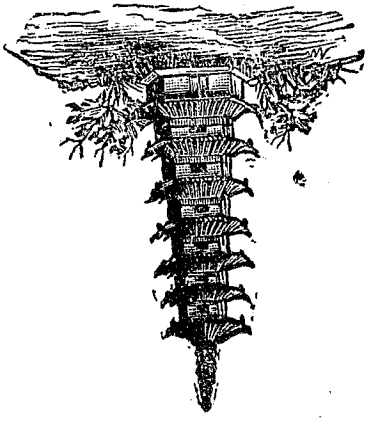
賜，進，勿，懈，本，屆，學，業，講，學，弟，九，切，諸，位，將，研，究，所，得，隨，時
 神，教，訓，學，同，吟，愛，國，歌，由，神，科，科，長，鄭，義，節，視，禮，散，會。
 有，者，上，之，真，傳，尤，當，注，意，校，中，刊，物，已，有，者，務，發，揮，而，光，大，之，未

明，達，之，士，嘗，以，移，風，易，俗，為，己，任，重，而，入，教，品，行，力，竭，未
 子，兄，弟，友，更，無，足，輕，重，如，是，則，人，道，幾，乎，息，矣。諸，生，不，之
 之，防，備，則，夫，婦，之，倫，遂，廢，夫，婦，之，倫，則，大，本，不，端，舉，凡，女
 遂，一，信，和，諧，非，此，非，此，自，由，愛，四，字，生，出，無，數，罪，惡，男，女
 權，自，由，愛，諸，說，一，般，昔，年，學，子，幾，其，說，之，便，於，已，私，也，亦
 者，引，為，深，憂，而，憂，心，病，在，者，流，竟，復，推，波，助，瀾，力，借，男，女，平
 輩，風，俗，誠，難，強，且，富，不，救，於，知，而，亡，近，今，風，俗，幾，有，亂
 忠，之，言，曰，道，誠，誠，深，風，俗，誠，厚，且，窮，不，害，於，長，而，存，德
 心，者，也，夫，人，之，壽，天，在，元，氣，國，之，存，亡，在，風，俗，乎，宋，文
 曰，能，言，理，學，者，聖，人，之，徒，也，諸，生，其，有，意，乎，宗，旨，所，謂，正，人
 生，耳，聞，其，說，思，而，解，之，孔，子，攻，乎，異，端，斯，害，也，至，子
 而，九，流，禮，節，而，冠，履，宗，天，知，良，知，惡，至，此，真，堪，哭，諸
 輩，行，學，民，之，事，制，法，於，水，流，於，火，流，於，氣，於，其，於，士，二，難，倫
 狂，悖，七，習，因，之，變，自，平，等，不，以，法，律，為，範，圍，均，應，公，義，美

於，北，臨，黃，河，顧，禮，貴，如，泰，山，之，繼，繼，登，高，如，黃，河，之，源，源，流
 貴，校，之，光，輝，價，亦，增，貴，校，建，於，禮，禮，之，聖，人，之，邦，兩，聖，泰
 建，禮，又，得，書，字，於，其，上，一，尊，大，學，校，一，字，本，好，但，假
 原，即，詳，於，本，人，之，禮，(縣)後，三，科，全，併，於，此，校，大，門
 但，覺，其，本，人，有，特，別，關，係，貴，校，之，文，理，科，一，廣，大，學
 訓，略，貴，校，開，創，六，十，餘，年，(影)王，長，自，稱，長，十，餘，年
 省，訓，由，教，育，廳，長，王，長，代，(訓)附，後，(教)育，廳，長，致，訓
 學，位，之，第，一，次，當，此，致，馬，倉，之，秋，得，此，佳，績，實，堪，慶，賀，督，辦
 在，文，神，三，科，俱，有，學，業，生，一，今，本，校，開，創，以，來，頒，發
 長，思，培，士，致，開，會，略，今，次，舉，禮，所，與，於，他，次，者，一
 室，十，句，鐘，開，會，由，校，友，會，長，致，詞，收，師，所，代，理
 民，國，十，五，年，一，月，廿，八，日，本，校，舉，行，學，業，於，廣，智，院，大，禮
 畢，往，省，(下)

切，友，誼，學，校，之，美，諸，生，活，學，生，學，力，發，揚，學，校，之，精，神，文
 忠，母，校，同，學，力，前，捷，外，且，繼，繼，於，學，之，際
 美，評，君，我，我，除，向，長，官，來，賢，同，學，師，長，致，謝，並，自，毒，致
 之，西，文，化，在，在，可，觀，誠，歷，史，上，不，可，湮，沒，之，事，實，畢業，生，代
 學，校，之，中，國，實，有，其，價值，與，地位，所，造，就，之，人，才，與，所，介，紹
 張，維，新，君，陳，延，炳，君，後，山，東，交，涉，員，徐，君，張，君，賈，君，賈，君，會
 帶，今，次，畢業，生，得，者，為，張，君，君，張，君，山，二，年，生，得，者，為
 於，西，施，欽，仁，張，宜，山，王，君，王，君，王，君，王，君，王，君，王，君，王，君，
 建，田，武，張，景，山，王，君，王，君，王，君，王，君，王，君，王，君，王，君，
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 張，田，張，紀，張，景，山，王，君，王，君，王，君，王，君，王，君，王，君，
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 校，長，顏，文，煥，授，學，位，文，科，畢，業，生，丁，承，宗，張，泰，宗，張，泰，宗，
 長，安，安，安，安，安，安，安，安，安，安，安，安，安，安，安，安，安，安，

開 變國果一旦凡別之者無不潸然下仰天長吁足見
 逐國歸天享年六十九歲與東人相處四十六年情真意洽
 於天津休養不意噩耗傳來於一千九百二十六年一月十七日
 歸 牧師心慈善性和藹際際禮和吉耐勞致身團體初曹
 在經營計畫進行中遠望社會之目的不幸身罹手而先
 於 牧師建築一大規模之禮堂及次禮堂禮堂之確實不能
 後 日發還每屆期及俱樂會時而禮堂常為之滿實不
 以補助教育之不及並藉以聯絡中西職員良好感情院事
 一千九百一十七年復將該院并入齊魯大學社會教育科
 其 愛國心 牧師之遺我山東我中華可謂無微不至矣於
 年 更廣置軍界院于軍入正當消遣俾增進其道德發
 學 之巨工暨書院 牧師與有力焉於一千九百一十二
 建 設醫院以救人之疾苦倡辦大學以增進文化建築齊大
 無 醫院服毒果 牧師全活者一百三十三餘人因而歸地
 秦日愛人之深焉



遊者

廣智院無疆恩光牧師略史

不 正英之輩出世見無疆
 寶 曰 廣智院聖人之鄉人文萃地綿綿長當此撥救歌
 幸 願者每講生其難與歸
 學 行聖業多學子縱道有成將來建大功立大業為中華
 善 久為各行大舉取法是以聖日隆入林日盛也此大
 身 自開辦以來學子蒸蒸日上進規於規則無不盡善盡
 實 學業長觀齊大舉舉行畢業禮詞
 兼 善天下 自有 有 風 望焉
 以 正風俗之所以厚各責任切實做去發則猶善其身善則
 時 諸生一舉一動悉分予將來出世而應世其於入心之所
 厚 於 者此也以上兩端雖老生所難言而在今日則切切中
 於 聖風也 聖人自不難操操世而反之正 聖言

開 運風氣宜植真道為功 具 牧師移駐濟南是時濟南尚
 蒙 也 一千四百零四年在濟南創設廣智院以聯絡中西友誼
 三 概全 活者約數萬人艱苦備嘗不以為悔 牧師之
 年 山東荒旱為災 牧師親赴博興等縣賑濟 廣濟 幸
 年 先快親得見聞 牧師之智育也一千八百八十九
 年 復在青州創設博物院 莊嚴宏壯設備完全 各界人
 年 入 際通 學人文蔚起 牧師之教澤也一千八百
 年 在青州創設神道學校 牧師自任校長至一千七百
 年 山東青州府一千八百八十八年結婚上海一千八百
 年 自幼年植其基一千八百八十八年 初來華時二年
 行 事務公餘即研究道書將來佈道之預備 今日之功
 十 年 比 於英國倫敦大學神學博士 大學 曾任
 於 世界佈道之責盡力搜羅 中國 書籍於一千八百七十
 博 學 牧師 字 德 華 英 國 人 十四歲時即立外國外傳道凡關

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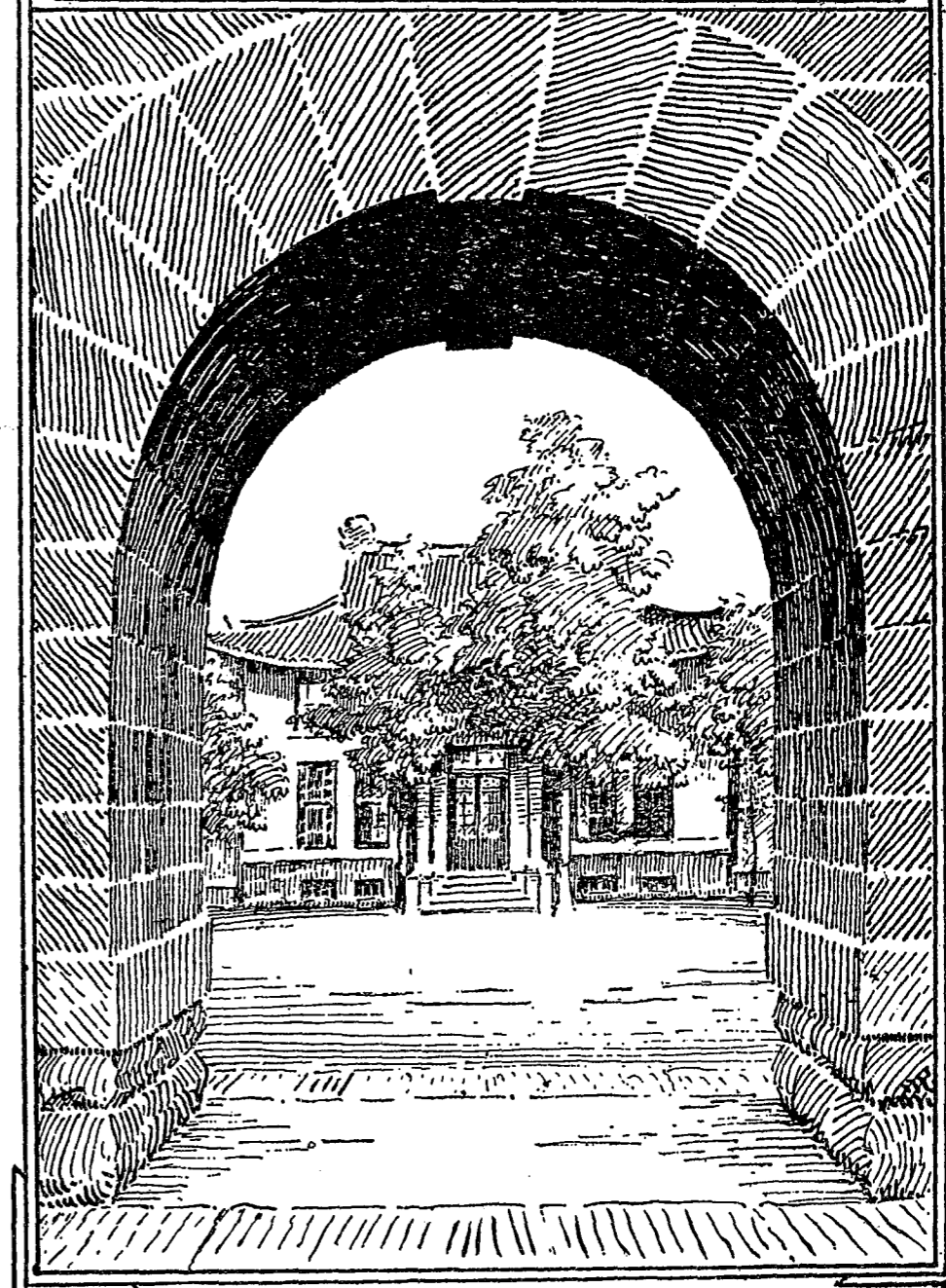
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MARCH, 1926.

No. 1

WITH THE EDITORS

The Aim of Christian Education

IN these days when there is so much interest in the formulation of the aim of Christian education in China there is danger lest, in the midst of abstract and profound definitions, we may lose sight of the simple fact that after all the primary objective of all Christian work is service to all those it can reach with its ministrations. Each generation of Christ's followers has found anew the truth of His teaching that if one would render service to God he can do so only through rendering service in His name to the children of earth. If Christian education in China is to give the most acceptable service to the Kingdom of God, it must consciously and deliberately strive to contribute a maximum of service to the people of China.

The realization of such a purpose calls for broad vision, which builds for the future as well as the present. Not all types of education are alike in the quickness and concreteness of their results. Some contribute to the physical well-being of the people, some to their material prosperity, and some to the spiritual ideals and attitudes upon which men's relations with one another ultimately depend. The last-named type of education, though most difficult to accomplish or to measure objectively, is in the final analysis the most important con-

tribution which the Christian schools can give. It is noteworthy that least criticism is met in carrying on those types of education where results are most concrete and material, and that greatest opposition arises in connection with the endeavour to build into human lives and social organizations the ideals of Christ. And here the most lasting service to China can be rendered by Christian schools only as they hold fast to their purpose in spite of passing criticism and opposition.

Whatever the Christian school has meant to the popular mind in the past, it must in future come more and more to embody the spirit of service. Alike in the class-room work and the extra-curriculum activities, the school must keep ever before it the needs of the immediate community and the wider needs of the country as a whole. Instead of being a dissociated unit having little relationship with its surroundings, and often ignorant and careless of all that goes on outside its walls, the school must ever seek to establish new points of contact, new avenues of service, new ways of transmuting pedantic learning and abstract maxims into concrete forms of constructive activity.

The teacher of the Christian school has not fulfilled his duty when he has completed his class-room work and maintained his contacts with the students. Whatever his special department, his knowledge can be made to serve needs outside the narrow confines of the school, and it behooves him to find, and to lead his students in finding, what those needs are and how they can be met. The student of the Christian school is under even greater necessity of maintaining his spirit of service. His stay in school is but temporary; from the community which the school serves he has but recently come, and to it he must shortly return. For him the school is but a place for training in service; the world about him is his best laboratory. Most important of all, the graduate of the Christian school must be able and willing to put service above every other consideration. When to him there comes the challenge—as how inevitably it does come—to choose between self-seeking and self-giving, to turn his back on the easier and more lucrative tasks that he may choose a more needy work which offers less of money or comforts or distinction but holds the greater opportunity to serve, then comes the test by which the success of his whole training is weighed, and the worth of his Christian education is tried in the balance. Only as the Christian schools of China—both in their corporate spirit and organization, and in the life and activities of their teachers, students, and alumni—seek to maintain and to extend the range and the depth of their service to the people of China, will they justify either the sacrifices by which they are established and maintained, or the good-will of the Chinese people without which they cannot continue.

B. A. G.

The Ministry of the Christian Teacher

M. GARDNER TEWKSBURY

IT seems presumptuous for one who strictly speaking is neither teacher nor pupil to add anything to the mass of material on the subject of the mission of the teacher to the student. And yet any one who is in touch with the youth of this generation makes certain observations and develops certain convictions, and it is of a few of these that I want to ask your indulgence. If I seem somewhat critical it is entirely with a deep personal regard for the members of this profession and a genuine concern that their calling may daily gain in the esteem of youth and in the influence exerted.

One day back in my college life in Nanking I saw a fellow-student walking about the campus with slow steady strides, head erect and with an air of dignity and self-possession. I called to him and asked him what it all meant. He said, "Don't you recognize him?" And surely enough, it was Mr. X, an esteemed foreign teacher whose walk was being reproduced before me! Would I want my daily "walk" thus minutely reproduced? Considering the fact that students are confined during the most sensitive period of their lives to an atmosphere largely created and dominated by faculty and school-mates, do I dare let my individual contribution in knowledge and character be anything less than the highest? For whether I like it or not, as a faculty member and resident of the campus, I exert an influence which either pulls down and corrupts or lifts up and ennobles.

"The teacher is ultimately responsible for the final product of a school or college. There is an incident in the life of Horace Bushnell, related by his biographer, which every teacher would do well to take to heart. In the winter of 1831, the most powerful spiritual awakening which had ever visited Yale started in the college. Bushnell was an instructor, and according to the custom of the time taught all five subjects to his special division of men. But he was not at the time a professed Christian. 'What then in this great revival,' writes Dr. McEwen, 'was this man to do, and what was to become of him? Here he was in the glow of his ambition for the future, tasting keenly of a new success—his fine passage at arms in the editorial chair of a New York daily—ready to be admitted to the bar, successful and popular as a college instructor; but all at sea in doubt, and default religiously. That baptism of the Holy Ghost and of fire compassed him all about. When the work was at its height, he and his division of students, who fairly worshiped him, stood unmoved apparently when all beside were in a glow. The band of tutors had established a daily meeting of their own, and all were united in it but Bushnell. What days of travail and wondering those were over him! None dared approach him. Only Henry Durant tried carefully and cautiously to hit some joint in the

armor. But even he, though free in his confidence, seemed to make no advance. When, all at once, the advance came boldly and voluntarily from Bushnell himself. Said he to Durant, 'I must get out of this woe. Here am I what am, and these young men hanging to me in their indifference amidst this universal earnestness on every side.' And we were told what he said he was going to do—to invite these young men to meet him some evening in the week, when he would lay bare his position and their own, and declare to them his determination and the decision they ought with him to make for themselves. Perhaps there never was pride more lofty laid down voluntarily in the dust than when Horace Bushnell thus met those worshipers of his. The result was overwhelming."*

When we consider the untold influence for good possible to the Christian and then attach that adjective to 'teacher' and 'professor' we have a combination of 高智 and 厚德, of 嚴 and 慈, of 溫 and 厲 which controls moral forces and operates spiritual laws at the same time that it stimulates intellectual growth and creative thinking. And the 'non-professionally Christian' teacher can not escape the implications of that word Christian. He is the first to recommend the need for experts in the field of Religious Education and the first to agitate for a person so trained to join the faculty of his institution. But he should be the last to forget that not only does such an expert need the support and counsel of every Christian teacher, but to be true to the adjective he bears he is pledged to do his share in the accomplishment of God's plan to redeem the world through Jesus Christ. It was stated during the Great War that it took eight men behind the lines to support the one man who went over the top, and that the ammunition worker and trench digger were as essential to the winning of the war as those who carried guns and hand-grenades in the front line trenches. A recent magazine article had it that Thomas Edison in reality won the War through his invention of a receiving instrument used below the water-line on vessels to detect the presence and whereabouts of enemy submarines. True or not true, the fact remains that no division of the military organization, no matter how obscure or far removed from the scene of fiercest fighting, could shift or shirk its responsibility. Not long ago in a port city in China I lunched with a returned student, a friend of furlough days in New York. When I broached the question of his present relationship to Jesus Christ he remarked, "My, when you get onto that topic I have much to say. Oh, that there was some one in this city to guide our feet in the path of spiritual power and peace, directing us in prayer and Bible study and linking us up with the churches! Many of us returned

*Personal Evangelism among Students, Stewart—Wright, pages 78-79.

students who want to keep straight would thus be saved to higher and better things." I replied, "If you wait ten years for such a man he may not appear. How about you yourself making a small beginning?" The Christian teacher refuses to let the religious work director perform his spiritual service for him.

It is often argued that the sphere of the teacher is narrowly circumscribed for him and that he would have to slight his work if he gave time or attention to the religious side of school life. He points out moreover other limitations of his position—that he is a representative of a superimposed authority and it falls to him to maintain order and discipline; that he must be dignified and reserved in the performance of his task and not too intimate with his students; that he must uphold the tradition of his profession and avoid religious discussions with his pupils lest he lend undue weight to his appeal by virtue of his temporal power. He fears favoritism and too often fails to cultivate any in an honest effort to be perfectly just to all. Then there are the usual pleas of over-work, rush of administrative duties, burdens of family and finance, distance between teachers' homes and the dormitories, and numerous other limitations which so often dampen the enthusiasm of even the best of Christian teachers.

And yet—and in little words like this lies the genius of our Master's Gospel—and yet in the midst of all these untoward circumstances the truly Christian teacher finds within him the purpose which filled the Lord's heart, who "taught because He wanted to. No one drove Him forth, no one pressed His duty upon Him. No one ever said, 'You ought to'. He said, 'I must'." "The real problem," says Henry B. Wright, "in surmounting the difficulties of rendering Christian service to one's pupils under the limitations of specialization and in official relationship, is not whether one can render this service, but whether one wants to." A well-known Chinese saying conveys the same idea: 挾泰山以超北海。語人曰。我不能。實不能也。為長者折枝。語人曰。我不能。是不為也。非不能也。

I would ask therefore that we lay aside the consideration of teaching as a livelihood or a duty or even a sacred responsibility, and view it from the angle of privilege and love-service in which we become ministers of love, "keepers of brothers", servants and friends of those we teach, remembering that it was in our incompetency and inefficiency that He first served and befriended us, promising to lead us to 'perceive all truth and understand all mysteries.

THE CLASSROOM MINISTRY—The Christian teacher thrills at the thought that today he has classes to teach! He regards it his "rare privilege to make every recitation an event in the lives of his pupils."

He loves his subject and is absolutely honest in his work. His first concern is for scholarship. He regards it his primary duty to teach his subject well and allows no intellectual slovenliness or laziness to nullify his Christian message. He is advocate of the open mind and unlike many advocates practices it. He will not distort truth for the sake of a pet prejudice. A Chinese student in New York told me that three of his six professors took every opportunity and often went out of their way to throw mud at the Christian movement and its sponsors. A Christian teacher wants facts alone and without passion or prejudice presents those facts which bear directly upon the subject in hand. His habits of study and conduct of the class hour will be an inspiration and example to his students. He regards his opportunity as that of a moulder of character and builder of men, not merely as an imparter of information. He does not rest content therefore till the truths he teaches bear fruit in transformed habits and purposes. When opportunities arise in his English or history courses, he welcomes the chance to witness to the fact and significance of the life and teachings of Jesus Christ, even though he can not use his class room as a place for evangelistic appeals. At such times he will not only provoke discussion but will wisely present his deepest convictions. Dr. Shailer Matthews deplors the habit of putting "interrogation points into our faculty chairs and then expecting our students to be exclamation points." "A God under investigation", he declares, "is not a God over whom one can be enthusiastic." "The reason", says Margaret Slattery, "there is so much mechanical, empty, forced teaching today (speaking more particularly of specialized religious teaching, but applicable here) is just because men and women have nothing to teach. No vital life-giving belief, no personal knowledge of the thing to be taught thrills their souls until it must be said."

The Christian teacher in the classroom (as well as on the campus and in the home) is always a gentleman. He never forgets that the memory of his own school days is one of personalities and not of courses. With Confucius he is 溫而厲。威而不猛。remembering that it has been said 畏友勝於嚴師 ("a respected friend is worth more to you than an austere teacher,") and elsewhere 尋師不如訪友 ("when seeking a teacher it is far better to search for a friend.") The common saying that 'what a man is speaks so loud that we can not hear what he says' is no mere jingle of words to him. The Christian teacher is careful of the background and setting of his brief classroom ministry. To the student he is 先生, but he wants this to connote more than seniority in years, he would have it also imply priority in spiritual things (先重生).

THE CAMPUS MINISTRY—No law governs how much time and thought a teacher shall contribute to the extra-curriculum activities of his school. No environment is quite so favorable for the practice of Christian friendship as that of a boarding school or college, and yet no rule or regulation can awaken a teacher's interest or demand his attention to other than stated hours of curriculum teaching. But despite the numerous limitations mentioned above the Christian teacher appreciates the truth of what a student told me the other day. He said, "Even student initiative and participation and self-government depend in the final analysis upon the attitude and interest of the faculty." I have seen many 'Y' cabinets die a slow but sure death just because the 顧問 for various reasons 不顧也不問. And after all it is not so much a matter of time as of attitude and interest. I remember describing to a teacher something of the moral condition existing among us students in the dormitory (where most of youth's lessons are learned). I spoke particularly of impurity in word and thought. He said, to my despair, "Don't worry about it, the boys will outgrow it as they develop into manhood." The truly Christian teacher is concerned (though he may not worry) about such a situation and will do all that is within his power to cleanse and enrich campus life.

First of all he realizes to his embarrassment that a school is the last place where any lack of harmony between classroom theory and campus practice goes by unnoticed. A Chinese college student volunteered to me the opinion that one of the most serious obstacles to the development of Christian discipleship in his institution lay in the shortcomings of teachers at this point. I asked two college men what they would place as the first requisite characteristic of a Christian teacher. The words 同情 (sym-pathy, 'feeling with' the students) came out first, followed immediately by Wang Yang-ming's phrase 知行合一. I asked for a concrete example of where teachers fail in the latter respect. They said, "Take this, for example. They talk a great deal about the Christianizing of industry and labor conditions, and yet they have not solved the problem of the servants in their own back yards, where often long hours, low wages and seven days a week prevail." The Christian teacher is careful to speak within the circumference of his experience in matters religious, at the same time expanding that circumference so as to have more of which to testify.

Christian teachers realize that the fellowship between teacher and taught involves much more than the occasional inviting of students to their homes for tea and informal good times. It means an intensive personal ministry, seeking in the midst of modern tendencies to mass production in education the establishment of the simple home relation-

ships—what T. C. Chao has called 家人父子式的教育。 Lowiy Davis, Principal of the Kashing High School, writes, "The school with the family system may be represented by concentric circles, inner and outer, with ball-bearing equipment. The teachers would be the outer circle, the pupils the inner, each in his own sphere, but delicately balanced on ball-bearings of love, loyalty, tact and mutual recognition of each others' rights and duties." If I were to characterize in one word the ideal teacher, I think I would use the word accessibility. Blessed is that teacher who has been able to establish among his students "the tradition of accessibility," who "welcomes their interruptions as opportunities," who prays for them and follows them out into the wider and more varied experiences of post-school years. Blessed is that school which can without compulsion create and sustain an atmosphere genuinely Christian, by which I mean not "an atmosphere of Christian ideas to which non-Christians have no objection," but one "in the sense that Christ, the Person of Christ, the Name of Christ, the faith of Christ dominate and control the life of the place."



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How Can a Christian College Library Help the Middle Schools With Travelling Libraries?

JOHN C. B. KWEE

IN view of the present library movement in China, the task of the Christian College libraries is not yet finished. There is still a great opportunity before them, and an unique chance to add a new page to the history of college libraries in China. The outstanding question today is whether they will continue to serve and to lead China in the growing demand for libraries, or will remain content with what they have already achieved. It is my understanding that as yet travelling libraries have been started by very few of our Christian College libraries, the most notable exception being the library of Boone University, which has been directing travelling libraries since 1914. Hence the present is an appropriate time for a frank and constructive discussion of this important problem. Let us face the subject with Abraham's faith, Solomon's wisdom, and Carnegie's inspiration.

To discover, to formulate, and to diffuse knowledge, are the methods of human progress. The first two of these have received greatest emphasis in the past, leaving stress on the third for the Twentieth Century. The present century is clearly distinguished by a growing spirit of democracy. Education may be considered the only means to make this spirit effectively felt. The two fundamental principles of modern education are; first, that all education is self-education, and second, that education is the product of experience during the entire twenty-four hours of the day. For reasons I will mention later, nothing can better help make education self-education and the product of daily experience than can the library.

The modern tendency of the library is to aim at two things,—larger collection and better circulation. From the standpoint of circulation, the travelling library is the highest form of extension work which can be undertaken by the college library. This plan was originated in 1816 by Samuel Brown, a chemist and physician of Scotland. Following in part the methods of London booksellers, he established a system of free itinerating libraries, lending without cost packages of fifty books to villages and neighbourhoods. This may be considered the beginning of modern travelling libraries. Later the plan was adopted in America in the form of school district libraries, which were started in the state of New York in 1835, and which within a few years thereafter were in successful operation in several New England states, in Ohio, in Michigan, and in a number of other states further west. Similar plans are now in use practically everywhere in the civilized world.

One of the most important portions of the school system of China is the middle school, which lies between the elementary grades and the

college, and which has charge of young men and young women during four or six of their most impressionable years. Particularly do the Christian middle schools influence young people at the time when they are making life decisions, choosing vocations, and fixing personal habits and social attitudes. Since collegiate institutions are few, and the general illiteracy is appalling, the middle school in China holds a position for good or evil incomparable to similar schools in other countries.

According to statistics given in the China Yearbook for 1925, there are about seven million students in Chinese schools of all grades and types. Of these about one hundred thousand study in the middle schools, and thirty thousand in colleges and universities—government, missionary, and private institutions all being included. Thus, among four hundred million people, only seven out of four hundred are in school, and but thirty percent of the middle school students go on to college. The remaining seventy percent of middle school students have therefore but a few years of training. Though in some cases it may be lack of aptitude for study, I believe that in most instances it is the positive command of duty which draws or drives the students from the schools. Is this short school training sufficient for their needs? Is it sufficient to make them good citizens? Does it meet the requirements of democracy, which we emphasize so much these days? There is but one reply to these questions, and that answer is, no. Economically, with that amount of training and that only, they are doomed as wage-earners to routine tasks that can only bring happiness and contentment through the deadening of their ambitions. Educationally, with that amount of training alone, and without the incentive and the means to carry on their mental development, they inevitably come to suffer from intellectual stagnation. As men, they are disappointed, unhappy, and discontented. As citizens, they are liable to become the prey of agitators, and the blind followers of modern "isms", without any fixed purpose in life.

One of the possible ways to check the evil consequences of such limited training is to create some sort of a travelling library in each middle school which has any connection at all with a university. The first direct result of this is that the students of the different middle schools will be greatly benefited in their school work, because the library will supplement the necessary narrowness of a text-book. "One-book" education is apt to mean pedantry, shallowness, lack of interest, and limited mental development. A second benefit of the travelling library is that the middle school students can find in it an excellent form of recreation. What is there of value in art, in science, in religion, and in history, that is not to be found in the printed page?

Through books the students can visit other worlds in company with Newton and Herschel, discover new lands with Columbus, seek the counsel of Christ, and understand the accomplishments and failures of many generations of men. Thirdly, a study of the statistics of our Christian colleges shows that seventy-eight percent of our students come from the Christian middle schools. I think we will all agree that our Christian middle schools and colleges should maintain the closest relationship. There is nothing which tends to promote better cooperation between the two than does the travelling library. A fourth result, the most important of all, is that in the travelling library the students have a means for acquiring a taste for good reading. If they have once enjoyed the companionship of books, they will continue to be patrons of the library long after their school days are over. In case no library is available, they will help promote the movement to establish such institutions. One of the reasons why our present library movement has not yet taken its rightful place in the reconstruction of China is the fact that there is only a small number of people who really understand and are interested in this movement. To most of our people the word "library" represents a hobby for the book-worms, a place for the book-diggers, without any serious concern to the average person. To guard against this erroneous impression, we have to properly train the middle school students when they are young and their minds plastic.

So much for the theoretical side. Let us now glance at the difficulties in the way of carrying such a scheme into operation. First of all, there are not many duplicate copies of the books in any individual college library. If any, they are needed for the school's own use. It may seem unreasonable to expect a college library to procure books merely to help the middle school students, since the college library funds are a trust for the benefit of the institution; yet one wonders whether the legitimate needs of the middle schools would not justify a little sacrifice on the part of the college students.

In the second place, it may be thought that it is not only difficult to start a travelling library, but there is the added danger of losing the books in transportation or while they are in use in schools. To this, I have the following suggestion to make. At present, each middle school has some money to buy books, even though in some cases the amount is very small. If there is no money available in the college library it should be possible for each middle school to send half of its library funds to the college library, and to spend the other half for general reference books, selected with the aid of the college librarian, since the school should not expect reference books to

be sent in the travelling library. The college library should use the money thus received from the middle schools for the building up of a travelling library for circulation among the schools. If preferred, books may be sent to the different schools in proportion to the amount of money they have contributed to this sort of library. It is needless to state that there should be chosen such books as have a direct bearing on all subjects taught in the schools and foster a feeling of love for China, for all humanity, and for God.

With reference to the possibility of losing books, we must keep in mind that there are dangers everywhere. To use a Chinese expression, "we do not stop eating on account of having the hiccoughs." The manager of a motion-picture company will not close his business simply because he has an occasional unwelcome guest. Of course we must try to avoid dangers as much as possible, but they need not and must not hinder the development of travelling libraries for our affiliated middle schools, for this system provides the highest form of library extension work, and is one of the most effective means whereby we can as members of a Christian college, render assistance to middle school-students.

Let us broaden our sphere of influence, outline possible plans for forming travelling libraries, secure the help of the different school authorities, and try to conduct travelling libraries in as efficient a manner as possible. Having caught the vision, and set ourselves the task, who shall say we shall not succeed?

A Laboratory Guide for Middle School Teachers of Physics

DWAN REN DEH

AND

HAROLD W. HARKNESS

PART III.

Subject XI. Reflection of Light

Introduction. This introduction might be given at a special class arranged to meet in the evening, as some of the demonstrations require the laboratory to be dark.

Set up a piece of apparatus as shown (Fig. 35.). Adjust the opaque cylinder L, about the lamp until an inverted image of the lamp flame is seen on the apertured screen, B, and over the small aperture. A slight adjustment of the cylinder will bring one corner of the flame image over the aperture. The light from that point will pass through and strike screen A and form on it an image of the aperture in screen B. Trace the outline of this image upon the screen with a pencil. Now move the cylinder so that light from a second point of the flame is tested.

The point tested is always the one marked by the part of the image that is over the aperture in screen B. Any point can be brought there by judiciously moving the cylinder, L. Take in succession points in the perimeter of the flame and outline in each case the image on screen A. Trace a line through the center of these images. Now remove the cylinder from the lamp and outline the image seen on a screen A.

光之反射 題十一

概論：此概論最好在晚間特別開班教授，以其內之示例，必須黑暗之實驗室。

安置儀器如圖三十五所示。對正不透明圓筒 L 於燈周，以至燈焰之倒像見於 B 屏上，且透過小孔。少校正圓柱使火焰像之一角透過小孔，而出自彼點之光將透過小孔而影 B 屏小孔之像於 A 屏上。用鉛筆描寫此像之外形於屏上。再移圓筒試燈焰之他點。

被試之點恆為透過 B 屏小孔像之一份。任一點皆可以移動圓筒 L 而得之。依序續試各點於 A 屏畫一線經過各像之中心。移圓筒離燈再畫其見於 A 屏之像。此二畫跡將相合或近於平行。顯示燈焰之像成於小孔者為小孔之像之集合。

These two tracings will either coincide or be nearly parallel, showing that the image of the lamp flame formed by the small aperture is a collection of images of the aperture.

The screens A and B must not be moved during the marking of images. A lamp with a flat wick is necessary, and the flame must be set parallel to the screens.

Draw all the lessons possible about the propagation of light from this simple demonstration.

Discuss shadows in general and what they teach us about the propagation of light.

Set up a simple shadow photometer and establish approximately by means of a demonstration, the relation between the distance from the source and the intensity.

Discuss plane mirrors in general. The students might be asked each to bring a mirror to class. Discuss what we mean by images.

Show that in order to see bodies there must be light coming from them, and since, by the first demonstration, the rectilinear propagation of light has been established it will be seen that if we can see an object from all sides, then it must send out light, of itself or reflected, in every direction. These ideas will be useful later.

After the experiments in this section have all been done and discussed, the teacher should show how we may determine the nature, size and position of an image by using the laws of reflection, the definition of focal length, the idea of rectilinear propagation of light and simple geometry.

A屏與B屏當畫像時不可移動。一扁燈蕊之燈為必須者，且燈焰必須安置與屏平行。

自此簡單示例上提起一切論及光之傳播之教訓。

再略研究陰影並其對於光之傳播上，有何訓示。

安置一簡單陰影光度計，並用示例略定光源距離與其強度之關係。

略研究平面鏡，令每學生帶一平面鏡來班上，研究像之意義。

顯示必有光發自物體此物體方能見。如此既然依第一示例光之直線傳播，已經成立。故如吾能見一物之各方面，必彼物放光於各方，或為其自身之光，或為反射之光。此意義以後有用。

此節之實驗皆作完皆研究以後教員可顯明如何吾可以用反射之定律，焦點長度之界說，光之直線傳播與單簡幾何。定明像之性質，大小，與位置。

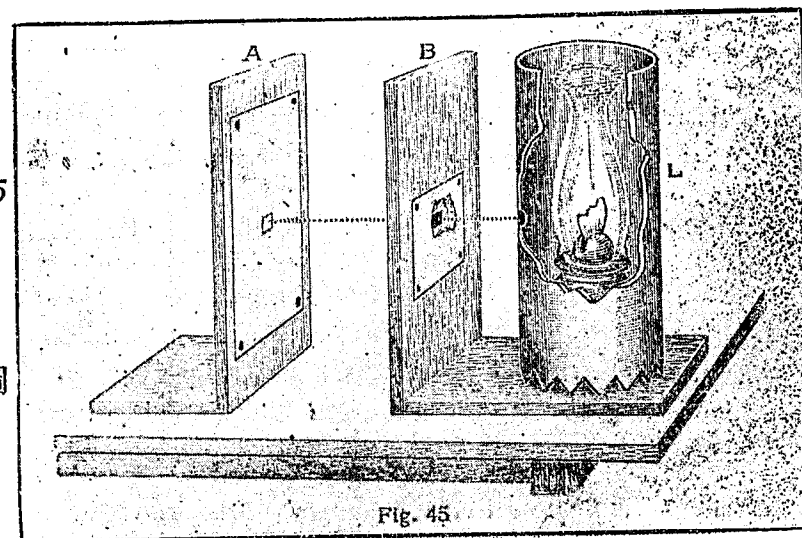


Figure No. 35

第三十五圖

Experiment 1.

Object: To Verify the Law of Reflection of Light.

Apparatus: Plane mirror mounted on block of wood, pins, paper and thumb tacks, protractor.

Method: Fasten the paper with thumb tacks to the top of the laboratory table. Draw a straight line, MN (Fig. 36) and with the protractor erect a perpendicular OP near its mid-point. Set the mirror with its reflecting surface upon this line. Draw the oblique line OA. In this line set two pins, A and B, as nearly vertical as possible. Then set two pins C and D, in line with the images of A and B seen in the mirror. Remove the mirror and draw the straight line CD. It will pass very nearly through O and will mark the reflection of the line AB, in the mirror. Measure the angles AOP and DOP. Make several trials, varying the size of the angle AOP. The nearness of equality of the angles in each case measures the accurateness of the work. A very sharp pencil must be used. Tabulate your records clearly.

實驗一。

目的：證實光之反射定律。

儀器：平面鏡釘於木塊上，釘，紙與尖短釘，半圓規。

方法：用尖短釘釘紙於實驗桌面上。繪一直線MN（圖三十六）用半圓規作一垂線OP近於線之中點。置鏡使鏡面順此線上。畫OA斜線，線上安A與B二釘，愈垂直愈好。再安C與D二釘在AB二釘在鏡中像之線上。移去鏡，畫CD直線。彼大概能經過O，且能號出AB線在鏡內之反射。計量AOP角與DOP角。試數次，更變AOP角之大小。在各種境況上以角之近似相等，計量事功之準確。必須用尖銳之鉛筆。將記錄清楚列表於下。

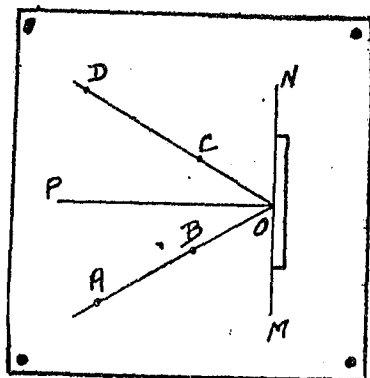


Figure No. 36 第三十六圖

Experiment 2.

Object: To Show that a Beam of Light Incident upon a Revolving Mirror is Displaced by Reflection through an Angle Twice that through which the Mirror is Turned.

Apparatus: Same as in above experiment.

Method: Fasten a piece of paper upon the laboratory table by means of thumb tacks. Draw a straight line MN (Fig. 37) upon it and at O draw the oblique line OA. Place the mirror on MN, and as in the previous exercise locate the line OD. Draw through O the line M'N' making with NM some definite angle, say 10° . Place the mirror on M'N' and locate C'D' as the reflection of OA in the mirror. Measure the angle DOD' and compare it with the angle NON'. Make a second trial giving NON' a value of 20° . Tabulate the records clearly.

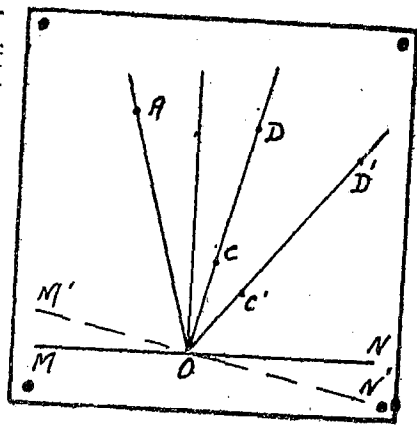


Figure No. 37 第三十七圖

實驗二.

目的: 顯示射於轉鏡上之光線被鏡反射,其反射角二倍於鏡轉之角。

儀器: 同於上試。

方法: 用尖短釘釘紙於實驗桌上,畫MN直線於其上,於O點畫OA斜線。置鏡於MN線上,(圖三十七)如上試尋求OD線之部位。畫M'N'線過O點與MN線作成 10° 之角,置鏡於M'N'上,尋求C'D'之部位,即鏡內OA之反射。計量DOD'角與NON'角比較之,作第二次試,使NON'為 20° 角。將記錄清楚列表於下。

Experiment 3.

Object: To Locate the Position of the Image in a Plane Mirror.

Apparatus: Plane mirror as in above experiments, pins, paper and thumb tacks.

Method: Fasten the paper to the laboratory table. Draw on it a straight line MN (Fig. 38) Place the mirror on MN and set a pin, A, normally to the paper and about 5 cm. in front of the mirror. Now set a pin B, in line with A and its image in the mirror. In the same way set two pins C and D, exactly in line with the image of A. Remove the mirror and draw BA and DC, producing them until they meet at I. Measure the distances AE and EI. Make at least two trials. In the first, set C and D so that the angle BID is about 30° . In the second, make the angle BID larger, about 60° . Make a clear record of the work.

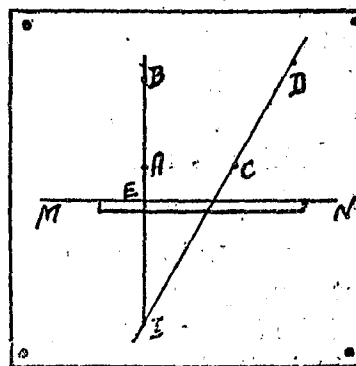


Figure No. 38 第三十八圖

Experiment 4.

Object: To Find the Principal Focus of a Concave Mirror and to Study the Nature of the Images Formed by it.

Apparatus: Concave mirror mounted, meter stick, paper screen, candle. (Figs. 39 & 40)

實驗三.

目的: 尋求像在平面鏡中之部位。

儀器: 平面鏡如上實驗,釘,紙,尖短釘。

方法: 釘紙於實驗桌面上,畫MN線於其上,置鏡於MN上,並置A釘於鏡前五厘米處,垂直於紙。置B釘於A與A在鏡中之像之線上,如此置C與D二釘恰與A像在一線上,移去鏡,畫BA與DC二線,引長相遇於I,計量AE與EI之距離。至少試二次。第一步置C與D使BID角約 30° 第二步,使BID角較大,約 60° 作一清楚記錄。

實驗四.

目的: 求凹面鏡之主焦點,並研究其成像之性質。

儀器: 帶柄凹面鏡,尺桿,紙屏,燭(圖三十九與四十)

Method: Place the mirror to face out the open window and adjust the screen so that it receives a clear image of some distant object. Measure the distance from mirror to screen. This by definition is the focal length.

Set up the candle at some point outside of the focal point, and obtain its image upon the screen. Using the relation,

$$1/p + 1/q = 1/f$$

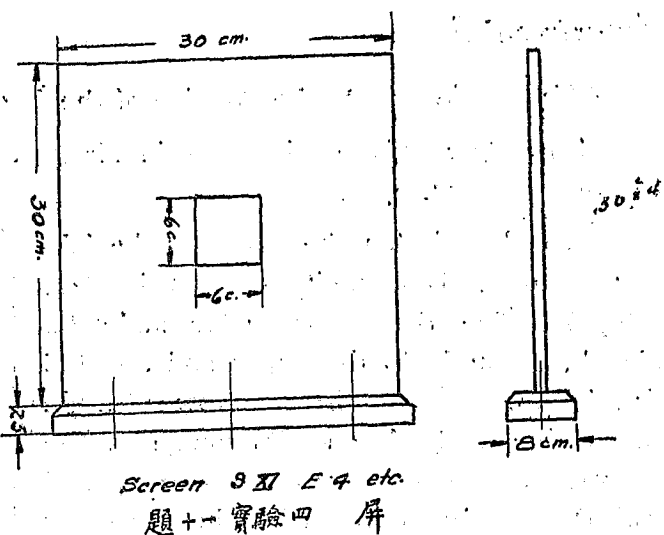


Figure No. 39 第三十九圖

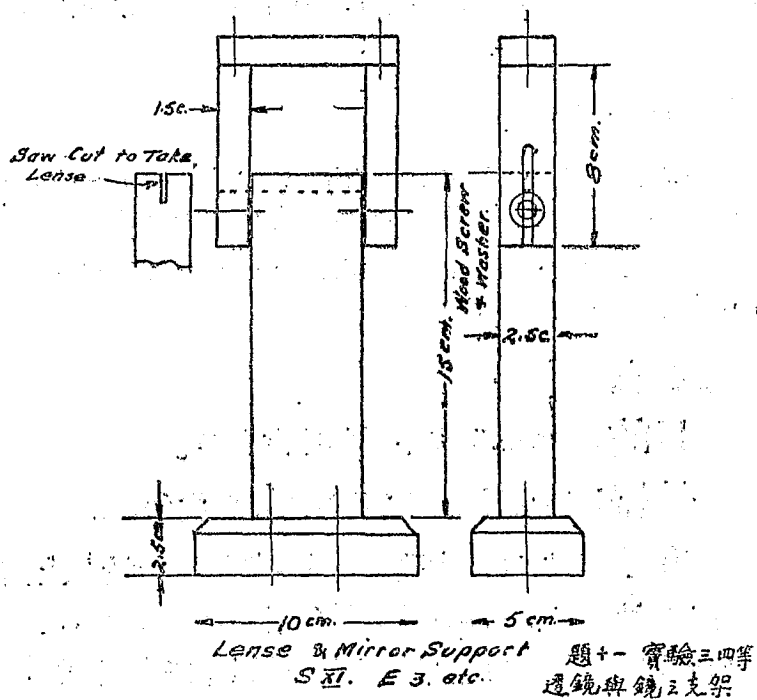


Figure No. 40

第四十圖

方法: 置凹面鏡對窗, 對正紙屏, 以至接受一清楚遠物之像, 計量鏡至屏之距離, 依界說此即其焦點距離。

置燭於焦點外之某處, 得其像於屏上, 用下關係,

$$\frac{1}{P} + \frac{1}{Q} = \frac{1}{F}$$

calculate the focal length and compare this with the first result. Repeat these several times until consistent results are obtained.

Now place the candle at the following points; (1) well outside the center of curvature of the mirror, (2) at the center of curvature, (3) between the center of curvature and the focal point, (4) at the focus, and (5) within the focus, and observe the nature of the image in each case, i.e. its size, whether it is erect or inverted and whether it is a real image or a virtual image.

Experiment 5.

Object: To Find the Principal Focus of a Convex Mirror and to Study the Nature of the Images Formed by it.

Apparatus: As in Exp. 4, but a convex mirror replaces the concave mirror.

Method: Place the mirror to face the window and set up a pin (or a pencil or other marking device) behind the mirror and by the method of parallax locate the image of some distant object. Measure the distance from this point to the mirror. This will be the Focal Length. Set up a candle at a point outside the center of curvature of the mirror and by the method of parallax find the position of the image. Using the relation used in the above experiment, remembering that now q is negative, find the focal length. Compare with the result obtained by the first method. Repeat until consistent results are obtained.

In the same way measure the other angles of the prism. Measure each angle twice. The sum of the angles should equal 180°.

計算焦點長度與以上結果比較之, 重試數次, 以至得到一致之結果。

再置燭於(一)鏡曲率心以外, (二)鏡曲率心, (三)曲率心與焦點中間, (四)焦點上, (五)焦點以內, 觀察每次像之性質, 即其大小, 倒立或正立, 實像或虛像。

實驗五。

目的: 求凸面鏡之正焦點, 並研究其成像之性質。

儀器: 如實驗四, 不過易凹面鏡為凸面鏡而已。

方法: 置凸面鏡面窗, 更置一釘 (或鉛筆尖, 或其他種記號物) 於鏡後, 以視差方法尋求遠物成像之部位, 此即鏡之焦點距離。置一燭於鏡曲率心以外之某點, 用視差法求成像之位置。用上實驗之關係,

但記e為負 $\frac{1}{P} + \frac{1}{-Q} = \frac{1}{F}$ 求焦點長度。與以上實驗所得結果比較之, 重作之直至得到一致之結果。

以此法計量三稜鏡之餘二角, 每角計量二次, 角之總度數必等180°。

Now placing the candle in the positions indicated in Experiment 4, observe the nature and position of the image in each case.

Make a tabulated record of observations.

Experiment 6.

Object: Measure the Angles of a Triangular Prism of Glass.

Apparatus: Prism, protractor, paper and pins.

Method: Fasten the paper to the laboratory table. Stand the prism upon the table and trace the outline of the base, ABC (Fig 41) Draw two parallel straight lines, DE and FL, about 1 cm. apart, with the angle A between them. In DE set two pins, D and E, vertically. Now place the prism on the outline ABC. The face, BA, of the prism will act as a mirror, and the pins, E and D, can be seen in this face by reflection. Set two pins, K and H, in line with the images of D and E. In the same way, the pins, F and L, can be seen by reflection in the face AC, of the prism. Set the pins, M and N in line with the images of F and L. Remove the prism and draw the lines HK and MN, intersecting at P. Measure the angle HPN. Now AB may be considered as a mirror, and in revolving on A as an axis to the position AC, it generates the angle BAC. The reflection HK, or the ray of light DE, may be considered as deviated by this revolution through the angle HPN. Hence the angle HPN is twice the angle BAC (Ref. Exp. 2 above).

再置鏡於上實驗所置之各位置。觀察每次成像之性質與位置。

作一觀察之記錄表。

實驗六。

目的: 計量玻璃三角三稜鏡之角。

儀器: 三稜鏡, 半圓規, 紙, 釘。

方法: 釘紙於實驗室桌上, 立鏡於紙上, 描畫鏡底 ABC 之形, (圖四十一) 畫二直線 DE 與 FL 約距一厘米, 夾 A 角於其間。於 DE 線上直釘 D 與 E 二釘, 再置三稜鏡於 ABC 畫跡上, 三稜鏡之 BA 面將作用如面鏡同。E 與 D 二釘被反射能見於此面。釘二釘 K 與 H 於 DE 像之線上。如此 F 與 L 二點反射能自鏡之 AC 面見之。釘 M 與 N 二釘於 FL 像之線上, 移去三稜鏡作 HK 與 MN 二線相遇於 P 點, 計量 HPN 角。可以 AB 為面鏡, 如繞 A 轉動之於 AC 位置。其自身轉角為 BAC 而光線之轉角則視為 HPN, 因此 HPN 角必二倍於 BAC 角。

以此法計量三稜鏡之餘二角, 每角計量二次, 三角之總度數必等 180°

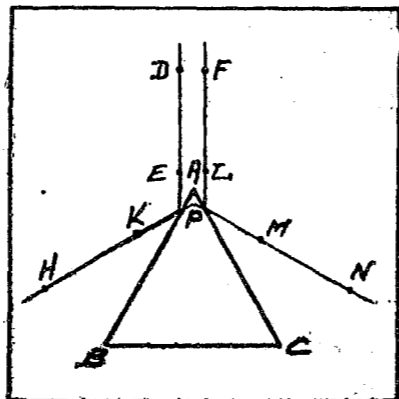


Figure No. 41 第四十一圖

Subject XII. Refraction of Light.

Introduction. Refer to such familiar phenomena as the displacement of an object under water when looked at from above the surface, the blurring of objects when looked at through a pane of bad glass, the curious movement of objects when viewed through hot vapor over a fire, etc.

Have each student at home do a little experiment to locate the apparent height of the bottom of a cup filled with water, and from the result get an approximation to the ratio of the velocity of light in air to that in water—the index of refraction of water.

Have each student observe for himself and report upon an experiment by which he observes a coin placed in a cup of water, whereas at the same angle the coin is invisible if the water is removed from the cup.

When the experiments in this section have been done and reported upon, the teacher may introduce the method of estimating the position and nature of images formed in lenses using the ideas learned by the experiments and simple geometry.

Experiment 1.

Object: To Find the Index of Refraction of Air and Water.

Apparatus: Bottle of rectangular cross section, paper, pins, and scale.

光之屈折 題十二

概論: 援引習見之現象如: 自水面上下看水底一物, 則見其變位。隔粗糙玻璃看物, 則見其模糊。隔火上熱汽看物, 則見其奇異運動, 等。

令每學生在家中作一小實驗以尋求盛滿水之玻璃杯底之實高。自此結果得光行於水與行於空氣速度之大概比例。——水之屈折率。

每學自生行觀察並回報——實驗藉以觀察杯水內一錢, 在同一之角度如傾出其水, 錢即不能見。

當此節之試驗已經作完並已回報後, 教員可提及計量透鏡成像之位置及性質之方法, 用學過之實驗之意義與簡單幾何。

實驗一。

目的: 求空氣與水之屈折率。

儀器: 橫截面為方形之瓶, 紙, 釘, 尺。

Method: Draw a circle and place the bottle, which is full of water, so that one edge lies along a diameter of the circle (Fig. 42). The diameter XX' makes an angle of ninety degrees with the edge of the bottle. At O , the centre of the circle set up a pin which should be touching the edge of the bottle and at points E, E' & G place pins vertically. Now with the eye at the bottom right hand of the figure look at the pins O , and E, F & G and set up pins a, b , & c in such a position that cOG, bOF and aOE seem to be straight lines. Now remove the bottle and project the lines Oa, Ob , & Oc until they meet the circumference of the circle at E', F' & G' .

Drop perpendiculars from E', F' & G' to the diameter XX' . Similarly drop the perpendiculars E_1, F_2 & G_3 . The ratios, $E_1/E'_1, F_2/F'_2$ and G_3/G'_3 , should all be equal, and this constant ratio is called the index of refraction of air and water.

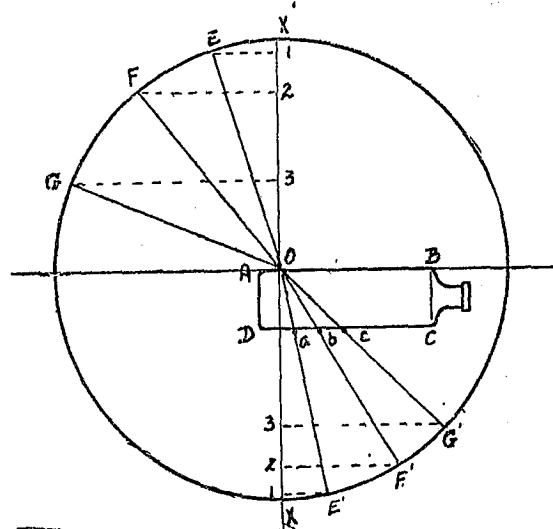


Figure No. 42 第四十二圖

Experiment 2.

Object: To Study the Way in which a Beam of Light Passes through a Prism.

Apparatus: Prism, paper, pins.

方法: 畫一圓如圖四十二所示, 並置盛滿水之瓶於圓內, 使其一邊順圓之徑, 圓徑 XX' 與瓶邊作九十度角。於圓心 O 上安一釘切於瓶邊, 並於 E, F , 與 G 三點上直釘以釘。用眼自瓶底圖之右邊看 O 與 E 點, F 與 G 點, 安 a, b, c , 三釘於 $G'OG, F'OF$ 及 $E'OE$ 似為直線之位置。再移去瓶, 引長 Oa, Ob 與 Oc 三線, 以至切於圓周 E', F' 與 G' 三點。

自 E', F' 與 G' 三點作 XX' 徑之垂線, 如此再作 E_1, F_2 與 G_3 三垂線。下比例 $E_1/E'_1, F_2/F'_2$ 及 G_3/G'_3 必俱相等, 而此恆比數即各為空氣與玻璃之屈折率。

實驗二.

目的: 研究光線經過三稜鏡之形勢。

儀器: 三稜鏡, 紙, 釘。

Method: Place the sheet of paper upon the table and fasten it with tacks. Place the prism upon the paper and trace its outline ABC (Fig. 43). Now draw three lines aO, bO and cO at any three arbitrary angles and meeting the prism trace in the common point O . Set up pins at a, b , and c . Also set up a pin at O as close to the prism as possible. Set the prism upon its trace and observe the pins a, b and c through the prism. Set up pins $a'd$ to be in line with the images of a and $O, b'e$ to be in line with the images of b and O and $c'f$ to be in line with the images of c and O . Remove the prism and draw the lines $a'd, b'e$ and $c'f$ until they meet the face AC of the prism, at the three points, O_1, O_2 and O_3 . Study the resulting three light paths aOO_3da', bOO_2eb' and cOO_1fc' and deduce from them, in general the path which any light ray will take through a prism.

Again set up the prism upon a new sheet of paper. Draw a line DO making any arbitrary angle with the face AB of the prism. (Fig. 44). Set pins up at a and O and now slowly rotate the prism about O , and note the change which takes place in the line DO as observed through the prism. Starting with the angle DOE , quite acute, rotate the prism in the direction indicated. The refracted beam

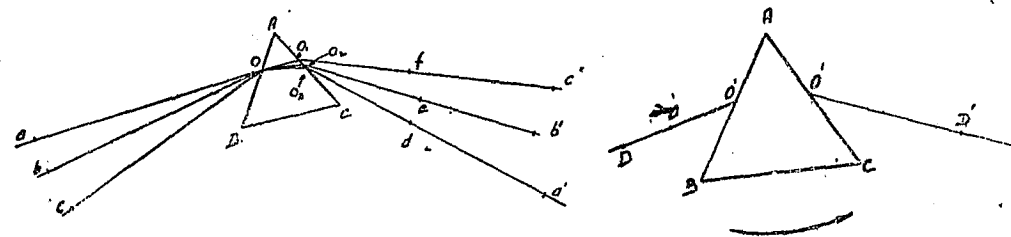


Figure No. 43 第四十三圖 Figure No. 44 第四十四圖

方法: 用尖短釘釘紙放桌面上, 置三稜鏡於紙上, 描畫其外形 ABC (圖四十三) 並畫 ao, bo 與 co 三線與鏡面 AB 成任何不同之角度, 相遇於 O 點, 直釘釘於 O 與 a, b, c , 四點, 置三稜鏡於畫跡上, 隔鏡看三線, 置釘於 d 與 a' 二點, 使與 ao 看似直線, 再置釘於 e 與 b', f 與 c' 四點, 使與 bo, co 看似直線, 移去三稜鏡, 畫 da', eb', fc' 三線與鏡面 AC 相遇於 O_1, O_2, O_3 三點, 研究光線之行程 $aoo_3da', bOO_2eb', coo_1fc'$, 從此對於光線經過三稜鏡形勢作一定論。

再置三稜鏡於另一張紙上, 畫 DO 線與三稜鏡之 AB 面任作一角 (圖四十四) 釘釘於 a 與 O 點, 再慢轉三稜鏡繞 O 點, 隔三稜鏡看 DO 線所經之變化, 起自 DOB 小銳角轉三稜鏡如圖示之方向, 其屈折線 $O'D'$ 必見隨轉向而轉, 到某定點即反回。某點之差角恰在屈折線變其方向者, 謂之「最小差角」。

O'D' will be seen to follow the direction of rotation to a certain point and then retreat. The angle of deviation at the point where the refracted beam changes direction is called the "Minimum Deviation"

Experiment 3.

Object: To Find the Principal Focal Point of a Convex Lens and to Study the Nature and Position of Images formed by it.

Apparatus: Lens and support, screen, meter stick, and candle.

Method: Set up the lens to face the open window and behind it arrange the screen until a clear image of a distant object is formed upon it. This will be the principal focal point.

Set up a candle well outside the focus as found by the above method, and find the image upon a screen. Measure the distances, candle to lens, and lens to image, and using the relation k ,

$$1/p + 1/q = 1/f$$

find the focal length. Compare the result with the method. Repeat several times until consistent results are obtained.

Set the candle in the following positions; (1) well outside the center of curvature of the lens, (2) at the center of curvature, (3) between the center of curvature and the principal focus, (4) at the principal focus, and (5) within the principal focus. In each case locate the image by a screen or by the method of parallax if it is a virtual image, and observe its size, and whether it is erect, inverted, virtual or real.

實驗三。

目的: 求凸透鏡之主焦點,並研究其成像之性質與位置。

儀器: 凸透鏡與架,屏,枱桿,燭。

方法: 安置凸透鏡使其對開窗,鏡後置屏,以至遠物清楚成像於屏上,此即其主焦點。

置燭於以上所得焦點以外,尋求屏上之像,計量燭至鏡,像至鏡之距離。用下關係,

$$\frac{I}{P} + \frac{I}{Q} = \frac{I}{F}$$

求焦點之長度。以其結果與上法所得者比較之。重試數次以至得到一致之結果。

置燭於(一)鏡曲率心以外,(二)鏡曲率心,(三)鏡曲率心與主焦點間,(四)主焦點,(五)主焦點內,每次以屏尋求其像之部位。如為虛像或用視差法尋之。觀察像之大小,正立或倒立,實像或虛像。

Experiment 4.

Object: To find the Principal Focus of a Concave Lens and to Study the Nature of the Images Formed by it.

Apparatus: Lens and support, meter stick, candle.

Method: As in the above experiment set up the lens and observe the image of a very distant object. Locate this, since it is a virtual image, by the method of parallax, using for the purpose a pin or pencil. (Notice that an image by reflection will also be seen. Do not confuse this with the image by refraction.)

Set up the candle well outside of the center of curvature and locate its image by the method of parallax. Using the formula find the focal length and compare with the above result. Repeat until consistent results are obtained.

Set the candle in the five positions suggested in experiment 3, and locate the image, taking the observations suggested in Ex. 3.

Experiment 5.

Object: To Study the Way in which a Beam of Light Passes through Glass (or Water) whose Sides are Parallel.

Apparatus: Rectangular glass prism, paper, pins, scale. (If the laboratory has no rectangular glass prism, a bottle of water as in Experiment 1 may be substituted.)

實驗四。

目的: 求凹透鏡之主焦點,並研究其成像之性質。

儀器: 凹透鏡與架,枱桿,燭。

方法: 如上試驗,安置凹透鏡,觀察遠物之像。既為虛像,尋求之可藉視差法,用釘或鉛筆(注意反射所成之像,亦必能見,但不可與屈折所成之像相混)。

置燭於鏡曲率心以外,用視差法尋求像之部位。用上公式求其焦點長度,與以上結果比較之,重作以至得到一致之結果。

置燭於實驗三所述之五位置,尋求像之部位,並依實驗三所建議者作觀察。

實驗五。

目的: 研究光線經過平行邊玻璃(或水)之形勢。

儀器: 長方玻璃磚,紙,枱,尺,(實驗室如無玻璃磚。可用實驗一所用之瓶以代之)。

Method: Set the glass prism upon the paper, which has been fastened with thumb tacks to the laboratory table, and with a sharp pencil outline the parallel edges of the glass prism. Draw an oblique line AB and in this line set two vertical pins P and P₁ (Fig. 45) Observe these two pins through the glass prism and set up two pins P₂ and P₃ so that all four pins appear to be in line. Now remove the prism, connect the points P₂ and P₃ until the line joining them intersects the face RS of the prism. Join B and C.

Observe the characteristics of the path of light ABCD through the prism. If the prism was very thin what would this line be like?

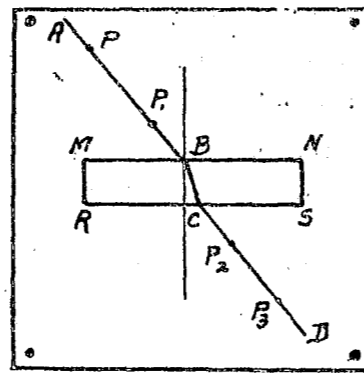


Figure No. 45 第四十五圖

方法：置玻璃磚於紙上，紙用尖短釘釘於實驗室桌上。用尖鉛筆描畫磚之平行邊，畫AB斜線，線上直釘P與P₁二釘，(圖四十五)隔磚看此二釘，更置P₂與P₃二釘使四釘看似在一直線上，移去玻璃磚，作線連P與P₁二點，以至線交於磚之RS邊C點上，作BC連線觀察光經磚之行徑ABCD。如磚極薄此線將何似？



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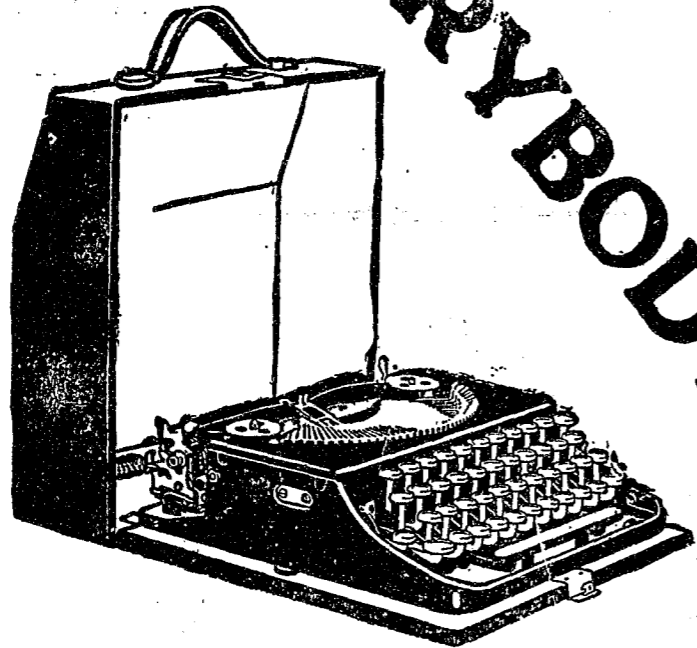
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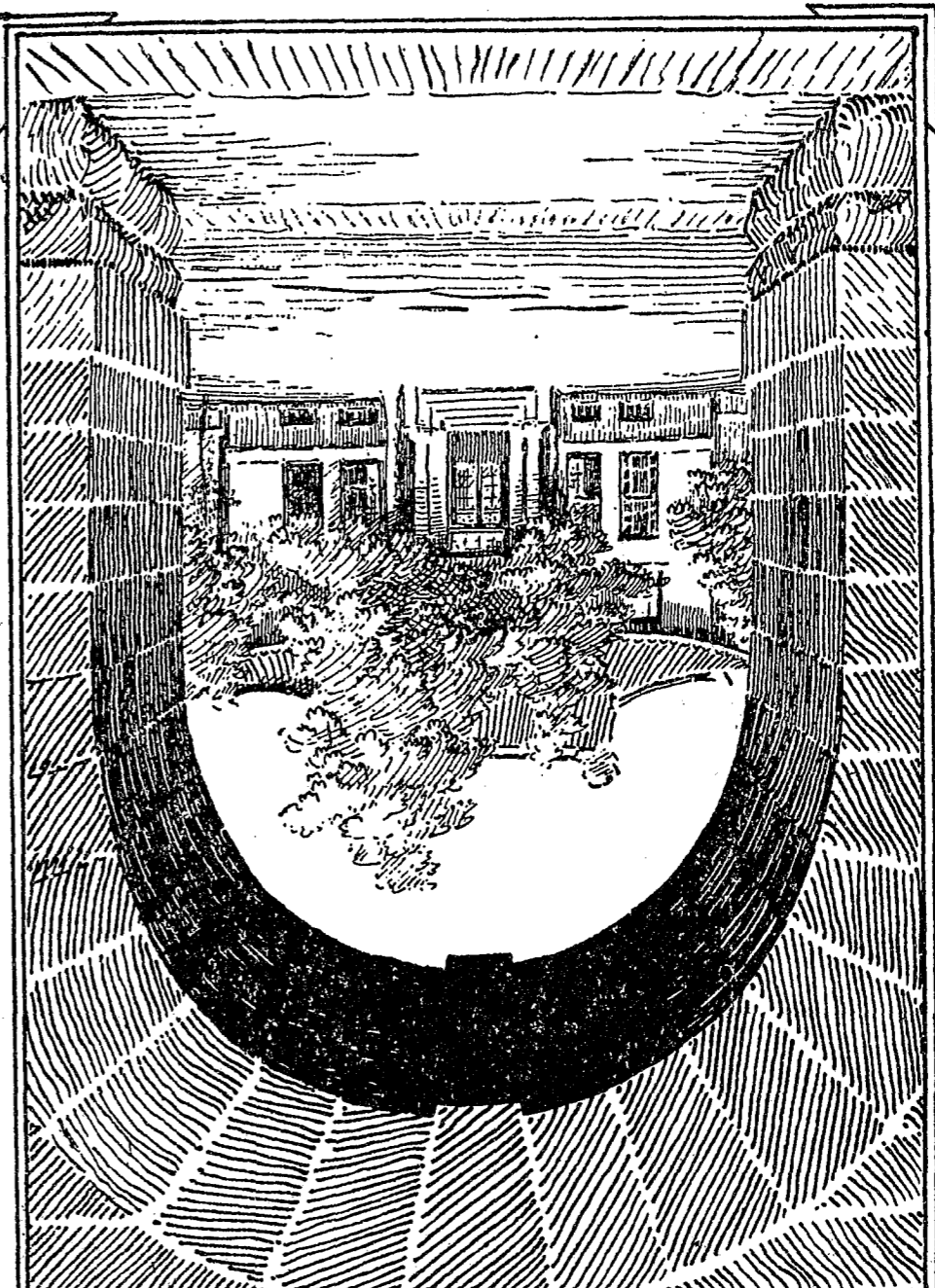
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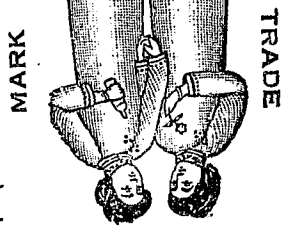
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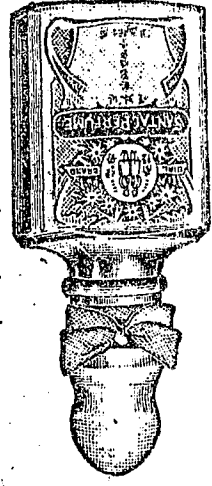
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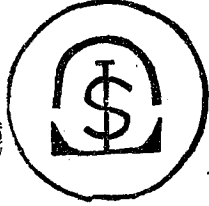
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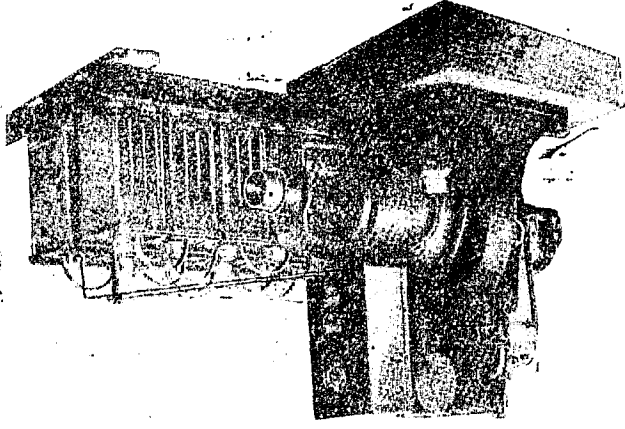
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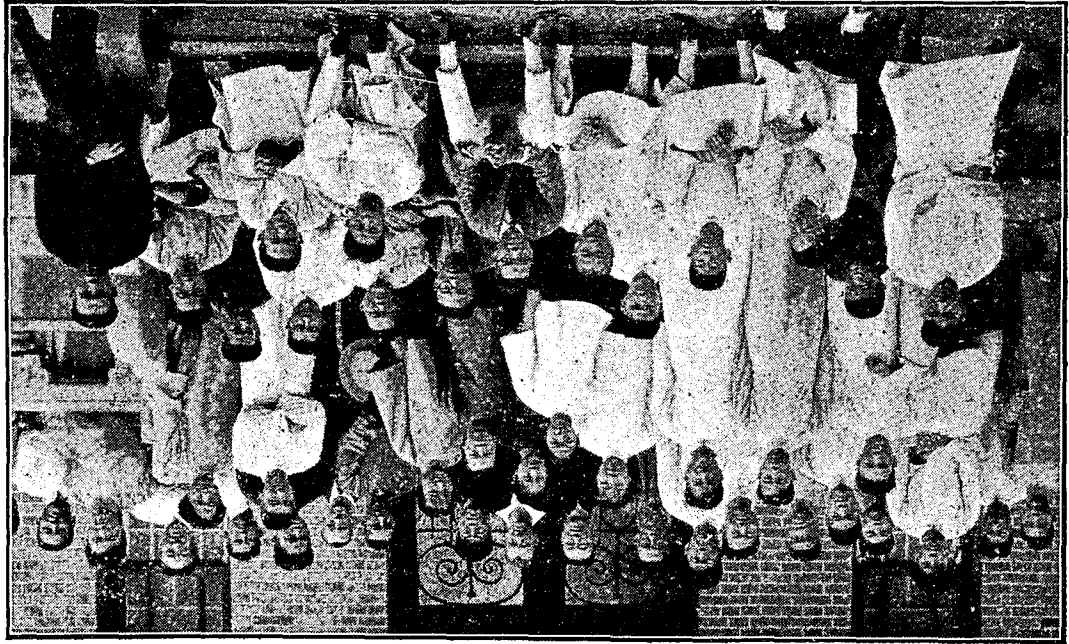
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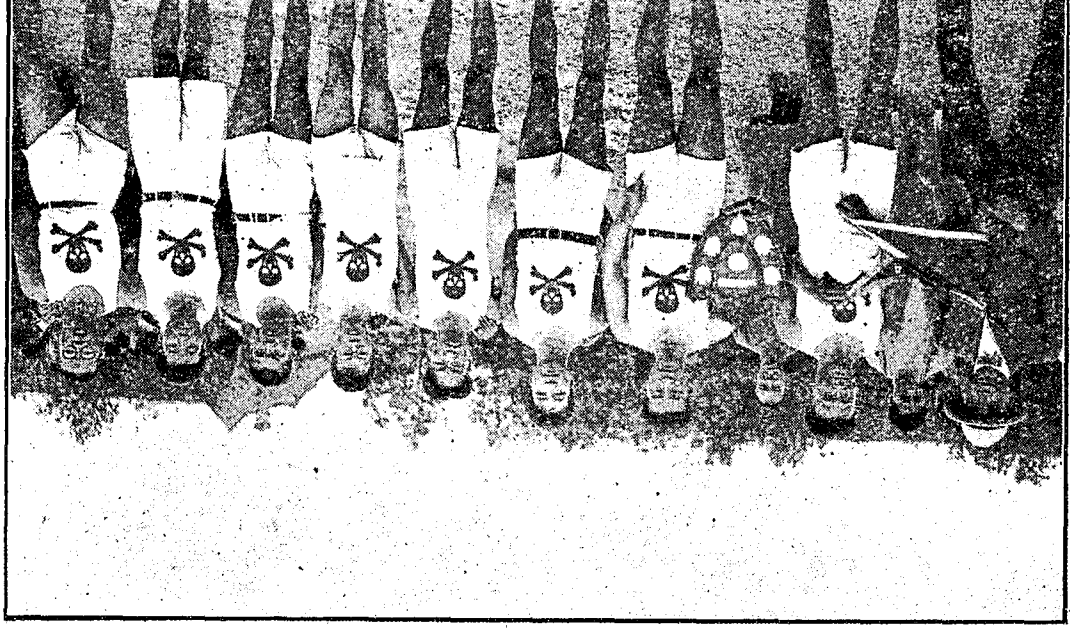
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講演

實業和平的基礎

人類歷史上有好多樣的革命。如理性的革命，革命的實業，當第十五、十六世紀的時候，在歐洲有理性的革命，或稱文藝復興與（Renaissance）是於歐洲的思想，有極大的影響。現科學的學，也是文藝復興立下的基礎。在第十六世紀的時候，又有宗教革命發生，就是宗教的革。對於歐洲以後的歷史，也有莫大的影響。第十世紀的時候，法國人民把他們的政府推翻，提倡自由，平等，和博愛。是謂政治的革命。以後歐洲各國的政治，都受他的影響。在第十八世紀還有一個革命，是社會學大的，就是實業的革命（Industrial Revolution）。把從前家庭的或是小舖子的實業，搬到工廠裏去。因為第十八世紀中葉的時候，是實業的革命。

歷史 政治 哲學 博士 愛爾蘭 講員



有病或受意外之傷，大夫等可立來救治。他說着新式的工廠，人可往看戲，並有一小醫院，其中有大夫，護士數人。工人隨工可隨意去買牛奶咖啡，且附設戲園，每晚午飯一點鐘，工夫暇，主為他們預備的午飯，並有一小亭，多坐在特于，每半天有一刻鐘的工夫休息。每上午，除日報，各種書籍，並音樂器具，工人進齊雅潔，室內甚寬闊，充足空氣，新式桌椅，桌凳齊雅潔，觀者初至大門，見其房舍，像工廠，似學校，或圖書館。既入廠，我們上，一次回國的時候，有一天到一新式工廠裏去參觀。

知道廠內的空氣太壞，新鮮空氣太少，彼妨害工人身體的健康。火柴公司去參觀，一看見其中工作小孩臉上的顏色，就作的能率，或者於不能工作，比如我們到濟南（濟南內不是新鮮空氣，工人易於受病，或因而生病，因而減少健康。

「使人入睡的人，有福了，因為他們必被稱為上帝兒子。」
「吹罷工呢？那幫助那提倡實業的和呢？那那『爭，像樣的態度呢？』是要作馬克司的信徒，提倡『爭，學，都是教育界，是局外中立的人，我們對於實業問題，持戰爭是免不了的，『有幾分不對了。我們在歷的是，和實實在在的和平的基礎。也可以知道馬克司所說『階級』就以上所說的，就可以知道實業和平，是很自希望的原因，對於工人的衛生，是何等的留意呢！」

講

廣

道，也必加多紅利也必加大。所以增加勞工的工資，他維持幾百萬勞工，同時也是消費的買物，的自然，主所銷售的，不單買必需品，且要買便利品，或者奢侈品。若一國中多，三，是奢侈品。勞工的費，他所能買的東西也極多。按人類所用的東西，分為三類，一，是必需品，二，是便利其他書籍，或音樂器具，及美術品等，所以勞工必定滿意。且可使女子入學，讀書，教育，也可以訂購日報，並生活程度，他身體可以健壯，工作的效率也必大。生產也必須，另一方面，討論勞工的費，增加，可以維持適當的工資。另一方面，勞工的費，已從一方面，討論到工資，但還是相當的工資，相當的時間，相當的衛生狀況。分於：勞動問題。一，討論工人佔當的位置，三件事，應當注意。現在有國際勞動局等機關，專門研究，調查，應付各種國際

與人類身體的健康，有莫大的關係。若工廠的窗戶大小，小，適當的衛生狀況，我們知道，日光和新鮮空氣，或到娛樂場遊藝，使他的生活格外美。

(丙)相當的衛生狀況，我們知道，日光和新鮮空氣，練習，就格外強健，有能力的勞工，或可以到圖書館讀書，且勞工工作的時間，雖然減少，就有較多的工夫休息，或練習。

實行每日八小時工作制度的了，因為他沒有考慮，或者時候，多，若主知道，這樣的一個情形，必定十分願有，就知，八小時工作的小時，和十小時工作的小時，或，比較，會實，每日工作八小時，和每日十小時，把結果合起來，比較，查出來，知道到一定的限度，是不對的。在德國有幾個工廠，入工作的時間，越來越長，製造物件也必越多。但是現在漸漸的，(乙)相當的時間，問，接，從前的舊法，以為每天令工人，相當的衛生，留，不單於備主無辜，而且有益。

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 至秦(B. C. 2852—B. C. 221) 為中國文化完成時期春秋戰
 國之時代文化性質可分為三期第一期自太古伏羲
 至國史比較實兩利之道。元——即西曆紀元。既易推知距今之遠近尤易與他
 公事比較先後又須費手續。他國皆用西曆紀元故最好用
 現今的遠近。故有以國民國紀元而前計算者。然與世界他國
 我國舊史多用各代帝王年紀事學。不見計算各事距
 者時以改正為盼。
 小助。不過因竭力『訓練熟讀』每一海『萬』在所不免。望識
 者除去一部分的困難。知各代要事。總可為溫習時之一

特

著

第一章 引言

先後傳入而有中國現今之新文化。
 期自一五七一年葡商揭國旗來華以後。以西洋科學及基督
 中葉至今(1517—1922) 為吾國文化與歐洲文化融時
 按世界最顯著而有系統之文化凡三。即中國文化、歐洲文
 化、印度文化。三者各有其特色。中國將各文化中之優秀精
 華合為已有。而成為全世界之模範文化。金于堅之。
 民國十五年五月四日編者謹識

之影響較少。而演成特殊之文化。遂成『守自守』
 三、中國因所處天然孤立地位。直至近代所受他種人民
 狀。應西人所謂 (arrested development) 是。
 二、中國文化於千餘年前。已達其甚高程度。後即呈停滯
 一、世界最古而繼續存在之國之歷史。

(甲) 中國歷史之特點

本目錄即本『借已往事實而了解現今』而作可助教學
 史圖。機型古蹟。及地圖等。使已往史事。活顯於學。者目。
 的。教育。和經濟的等史事。和現有文化。相關的。更利用。歷
 身的傳記。及軍事行動。更詳於其他社會。的宗教。的實業
 的。選擇。當於別情。重。應於各朝。的世系。家。和帝王。自
 現。在。的。文化。是。怎樣。發生。出來。的。為。要。到。這。個。目的。對。於。更
 了。歷史。乃。是。一。種。公。民。的。常識。已。往。的。歷史。為。要。明。白
 中。所。載。史。事。乃。要。得。其。文。章。的。詞。意。詞。意。為。文。章。的。資料。在。却。不
 把。史。學。和。文。學。連。成。一。氣。如。司。馬。遷。的。史。記。不。是。要。明。瞭。其
 因。為。現今。教授。歷史。的目的。和。從。前。大。同。了。從。前。多。半
 宜。

員。就是。富有。歷史。及其他。社會。科學。知識。能。施。用最。新。教授。歷
 者。已。經。得。到。了。滿。意的。課。本。第二。個。困難。就是。好。史。學。教
 了。
 非。『美。善。』。然。而。較。之。向。來。所。用。課。本。已。改。良。進。步。得。多
 現。代。中。國。史。制。高。中。本。國。史。及。新。制。高。中。西。洋。史。等。雖
 覺。問。題。等。可。幸。的。現。在。已。有。數。種。較。善。的。歷史。課。本。出版。如
 並。插。有。重要。歷史。圖。畫。及。地圖。每。章。後。也。列。有。參。考。各。書。及。溫
 不。容。易。得。一。種。課。本。其中。史料。皆。經過。極。慎。重。的。選擇。和。佈。置。
 教。授。歷史。普通。有。兩。種。大。困難。第一。是。苦。無。良。善。課。本。就是
 言。

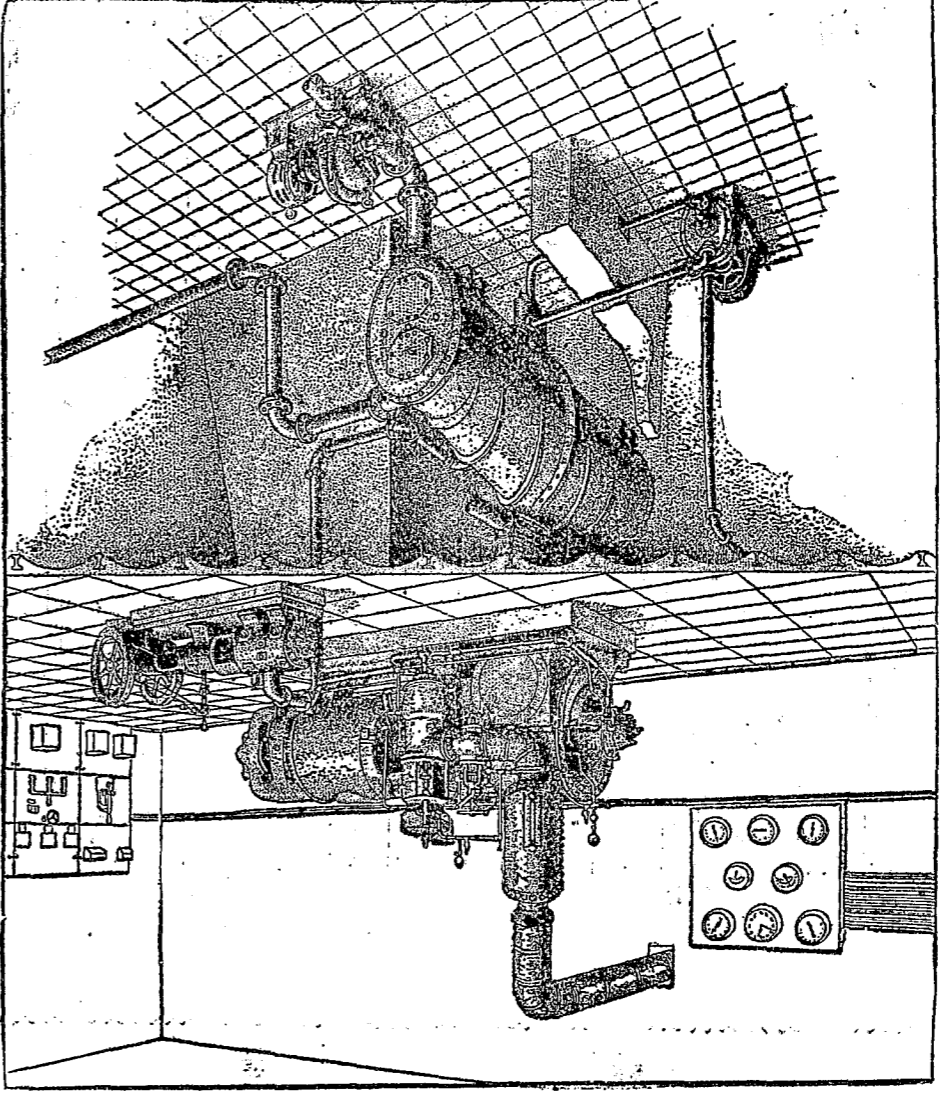
著

特

中國歷史目錄

教學歷史小助

時著



美商慎昌洋行

馬路緯三
濟南 三天

歡迎

各界有所垂詢、無不竭誠、本行聘有專門技師、富有經驗

並各種農業機器、鑿、築、路、以及各種開礦機器、全部發力廠機器材料、針織、電機、工

機器工程進口

紹介聲心大齊由明聲請

特

一、中華民族由發源而散居原住民抑移住民、諸族混合之蹟如何？

二、中華民族最初之動、以中國為根據其後歷代之風之程序如何？

三、中國文化所受外緣之影響如何？中國勢力影響於域外所生之變化如何？

四、歷代政治之組織、其分合迭易之蹟如何？

五、社會階級何時生？何時滅？其影響政治者如何？

六、自初民時代以現今、現狀之進化大變如何？

七、國內各宗教、民族及職業團體、其發展如何？政治

（乙）研究中國歷史宜注意之事項

四、農業之發源、常與牧畜之北族入爭鬪。『夜郎自大』之名即一徵也。

五、漢族之富有同化性及本位思想、其一大特色。

七、歷代分布之種類

一、平原——即古代巴比倫所在地——越、帕、米、爾、高、西、來、說——以西方史書為依據。自言自幼發拉底河、子、東、來、說——以中國古書山海經、述異記等為根據。

二、諸民族之來源、其說各異、主要者有二：一、漢、爾、回、藏、苗、苗、是、也。二、韓、成、回、藏、苗、苗、是、也。

三、韓、成、回、藏、苗、苗、是、也。

四、韓、成、回、藏、苗、苗、是、也。

五、韓、成、回、藏、苗、苗、是、也。

六、韓、成、回、藏、苗、苗、是、也。

七、韓、成、回、藏、苗、苗、是、也。

八、韓、成、回、藏、苗、苗、是、也。

九、韓、成、回、藏、苗、苗、是、也。

十、韓、成、回、藏、苗、苗、是、也。

子。漢族——即華族。中華民族之主要部分。初繁殖於黃河流域。次拓展佔有中國本部。立一大帝國。

他族。侵入者多被同化。

丑。滿族——又稱東胡族。周初長白山。地名梅里山。

慎。秦末。其別部。侵入匈奴之。其後裔。居朝鮮。卑山。故亦稱甲寅。時秦。容入。居中原。其後。契丹。女真人。入

中。建國。有遼。金。明。宋。元。滿。清。人。滿。洲。關。而。建。清。朝。

實。蒙古。族。——生息於蒙古。新疆。一帶。以遊牧爲生。往返

無定。初。勢甚。微。宋。代。成吉思汗。起。統。一。蒙古。乘。京。回。歐。西。入。歐。南。渡。金。入。主。中原。而。立。元。朝。

卯。回。族。——歷。代。名。稱。不。同。上。古。稱。氐。周。稱。獯。鬻。漢。初。漢。梅。奴。隨。唐。突。厥。回。纥。初。據。蒙古。新疆。

一。波斯。——漢。梅。奴。隨。唐。突。厥。回。纥。初。據。蒙古。新疆。

西。侵。東。羅。馬。陷。吾。士。坦。丁。堡。其。帝。國。隳。滅。分。割。

後。蒙古。——(公元一二一四至一二三五)年。一

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西。侵。東。羅。馬。陷。吾。士。坦。丁。堡。其。帝。國。隳。滅。分。割。

晨。族。——西藏人。稱爲吐蕃 (Tibetans) 即華之部。

現。居。西。藏。青。海。及。川。邊。等。地。古。稱羌。氏。羌。氏。氏。氏。

日。韓。族。——自古與中國關係甚切。稱東夷。周稱獯。夏。

人。漢。時。三。韓。沃。沮。音。韓。休。忍。再。羅。毗。一。九。〇。年。爲。日。本。所。吞。

午。苗。族。——初。蕃。息。於。江。淮。之。間。後。漢。族。僞。入。發。通。南。

子。而。至。西。南。山。地。即。今雲。貴。廣。西。等。省。

第一。期 古 史 (B. C. 2852—B. C. 221)

中國文化發展時期

第二章 史前時代關於社會進化之學說

甲) 史前時代——自天地初開至伏羲氏 (B. C. 2852)

一。燧人氏——以前有火。始。教。人。食。食。並。結。繩。

二。有巢氏——以前有穴。居。野。鹿。氏。始。教。人。爲。巢。

三。天皇氏——天皇地皇入皇。繼。續。鑽。燧。之。功。業。

四。伏羲氏——以前有如。毛。飲。血。氏。始。教。人。火。食。並。結。繩。

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三。天皇氏——天皇地皇入皇。繼。續。鑽。燧。之。功。業。

四。伏羲氏——以前有如。毛。飲。血。氏。始。教。人。火。食。並。結。繩。

一。伏羲氏——以前有如。毛。飲。血。氏。始。教。人。火。食。並。結。繩。

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三。天皇氏——天皇地皇入皇。繼。續。鑽。燧。之。功。業。

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三。天皇氏——天皇地皇入皇。繼。續。鑽。燧。之。功。業。

四。伏羲氏——以前有如。毛。飲。血。氏。始。教。人。火。食。並。結。繩。

神權政治。

第三章 部落酋長與帝王時期

(B.C.1766—1122)

(甲) 商朝——以繼承位繼承，是時不但是位

世及即百官，亦多世襲。崇本敬祖，「以與而神權政治確定。」

一、大旱——七年無雨，罪己祈於森林，而立降。

二、助法——照井田制度，分六百三十畝，分九中，為公

田。

三、伊尹為相。

(乙) 周朝——凡五與五美。

一、大祭——伊尹放之三年，悔過，伊尹復奉之，諸侯咸歸。

四、伊尹羅已，繼紀，諸侯不至。

二、大任——賢天下，大平。三、伊尹、河、黃、甲、復。養。

三、祖乙繼位，以巫賢相，復治。陽、甲、陽、子、相、爭、又。

養。

四、盤庚因黃河泛濫，遷都於陽，因改國號。修德，勸政，諸侯

來朝。第小，李，立，復，養。

五、丁、相、傅、說、與、李、即、位、重、興、說、龍、如、已、罷、在、無、道、；

四、政治之頌——商朝諸君，漸由部落酋長，進為皇帝。

五、日、攝、政、權、自、大、且、神、權、治、日、益、鞏、固、而、有、「天」

名。

第四章 封建制度與家族主義

(B.C.1122—255)

(甲) 周之興——與 (B.C.1400) ——先朝受封於世，為屬官。

後，始失職，遂居於間，傳至公劉，後修，而後之，業立國。

於。至古，公賈，受時，狄人，侵，辱，乃遷於，岐，立，國，號，曰，周。

其孫文王，昌，發，政，施，仁，救，老，幼，民，心，歸，之。

(乙) 周之建——設——紂王暴虐，日甚，文王之子，發，會，諸，侯，於

紂，敗，紂，兵，於，野，立，周，朝，奠，於，鎬。

(丙) 封建制度——武王總，商，大，宗，親，弟，臣，以，屏，藩，周，室。

是，家，主，參，於，政，治，中，而，中，央，政，府，與，同，姓，諸，國，便，形。

成，大，規，模，之，大，家，族，其，要，列，後：

一、封，城——封，之，目，有，五，實，即，三，畿，公，侯，甸，男，采，衛，七，十

里，十，五，十，里，各，君，其，國，各，子，其，民。

二、畿——分，五，等，王，諸，侯，大，夫，士，庶，入，是，也。庶，入，又，分

五，等，下，尊，卑，分，辨，甚，精，果。

子，待，遇，不，平——貴，族，有，特，享，權，利，如，教，育，刑，罰，等。

五、官，職，世，襲——貴，族，分，據，仕，途，中，民，無，發，展，機，會。

十、周公略——武王崩，子成王，立，年，尚，幼，周，公，攝，政。

一、平，叔，察，規，及，武，庚，之，龜。

二、多，封，同，姓，於，要，地，以，隱，為，王，室，屏，藩。

三、禮，法，定，禮，樂，之，節。

四、厲，王，國，人，襲，王，王，出，奔，周，召，二，公，理，國，事，十，四，年。

號，稱，共，邦。

庚，徵，法——鄉，遂，用，貢，法，郡，用，助，法，故，曰，徵。

(己) 兵，制——六，十，四，井，為，一，甸，每，甸，出，戎，馬，四，匹，車，一，乘。

甲，士，入，步，卒，七，十，二，人，總，計，百，人。

(庚) 職，官——中，央，政，府，保，天，地，春，夏，秋，冬，六，官，總，政，各，有，專

司。

(辛) 教，育——天，子，畿，內，有，東，膠，州，序，黨，序，及，國，學，等，諸，侯，之

國，亦，有，大，學，及，小，學。

(壬) 周，之，衰，——周，之，亡，——周，王 (B.C.791—770) 廢

禮，祭，樂，燔，火，失，信，於，諸，侯，為，大，政，刑，廢。

我對於母以從人乃從於人的見解

請衆位當一驚聽聽這話是兄弟所非說的。

兄弟今日說衆位說這話句話不算是頂話話不算是教說衆位當一驚聽聽這話是兄弟所非說的。

衆位當一驚聽聽這話是兄弟所非說的。這話是兄弟所非說的。這話是兄弟所非說的。這話是兄弟所非說的。

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著

特

破壞了「人」的快活平安。但是「人」都有「一個」他。不「會」「人」的快活平安。但是「人」都有「一個」他。

「人」的快活平安。但是「人」都有「一個」他。不「會」「人」的快活平安。但是「人」都有「一個」他。

特

著

桌上，弄得難看其餘的東西，小勝其說，都是得保護愛惜的。我爲愛惜桌子，吃茶後，把碗放在當放之地，不肯放在白熱水並怕熱碗才盛熱水，把他放在桌上，必印一白。

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本校即使學校少有不滿入意的地方，也當爲他原諒。學校的先生，真好，極力對人稱贊，對人直捷，勸人子弟，同體同的意見。學生對於學校，和對於母親，當一樣的小但。

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推算日月交食，常用之法有二，一按律元根數，直接推算，二用航海通書，簡接推算，茲按律元推算十五年之月食，將其各限時分，列表於下，惟所用律元根數，不甚密合，故所得時分，較用通書推算，或有一二分之差焉，祈閱者諒之。

十五年月食表

西曆紀年		各限時分		月在天頂	
年	月日	初虧	食甚	復圓	食分
1928	6 3	下午7時4分	下午7時57分	下午8時50分	全食
1928	11 27	下午4時1分	下午4時58分	下午5時45分	全食
1929 地球上沒有月食					
1930	4 13	濟南不見			
1930	10 8	上午12時42分	上午2時51分	上午3時00分	3分
1931	4 3	上午3時5分	上午4時00分	上午4時55分	1分5
1931	9 27	上午2時41分	上午3時34分	上午4時28分	全食
1932	3 22	下午7時33分	下午8時22分	下午9時12分	9分9
1932	9 15	上午4時2分	上午4時51分	上午5時41分	9分9
1933 地球上沒有月食					
1934	1 31	上午0時12分	上午0時31分	上午1分2	東113° 北17°
1934	7 26	下午7時26分	下午8時8分	下午8時51分	6分6
1935	1 19	下午10時46分	下午11時36分	下午0時33分	全食
1935	7 16	濟南不見			
1936	1 9	上午11時2分	上午2時52分	上午2時52分	全食
1936 東89° 北22°					

學 科

慶年，亦就學於燕京，而欲歸，夫子而亦步亦趨，「者」也。在「後，輒謂訪，而一見，或告之曰：『師力學，不致。』」代「理，名，奇，相，務，師，之，神，故，途，也。」「除，識，不，致。」再「訓，勉，有，加，復，諄，曰：『齊，東，謂，甫，生，識，引，才，焉，為，當，賢，世，伯，張，子，晉，先，生，即，以，治，學，方，時，生，方，事，於，既，一，百，官，之，富，』」晉，平，陽，矣，王，氏，之，秋，負，東，來，出，道，見，宗，之，美，多「所，謂，習，皆，淺，嘗，受，」不，得，其，問，而，入，不，見，宗，於，先，美，抑「尚，未，已，於，言，者，」長，解，不，克，從，名，師，遊，雖，於，先，美，謂「學，祭，酒，」者，亦，唯，生，克，當，之，矣。」

「真」而能「石」破天驚之發明也。此觀之則行嚴所「真」而能「石」破天驚之發明也。此觀之則行嚴所「真」而能「石」破天驚之發明也。此觀之則行嚴所「真」而能「石」破天驚之發明也。此觀之則行嚴所

非「勝」之「更」足釋「胡」無謂之爭。他若「論」行「五」論「有」常勝與

且夫「晉」世「伯」天「賦」優「異」能「文」學「好」學「不」倦「所」著「數」耶。復「能」形「體」雖「然」則「餘」之「聲」灑「落」佳「句」亦「有」數「耶」。幸「得」而「門」且「聞」張「仲」如「先」生「再」稱「道」於「是」見「之」切「也」何

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科學

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西曆紀年		各限時分		月在天頂	
年	月日	初虧	食甚	復圓	食分
1928	6 3	下午7時4分	下午7時57分	下午8時50分	全食 東177° 南22°
1928	11 27	下午4時1分	下午4時58分	下午5時45分	全食 西139° 北21°
1929 全地球上沒有月食					
1930	4 13	下午1時42分	下午2時51分	下午3時00分	東71° 北6°
1931	4 8	下午3時5分	下午4時00分	下午4時55分	東58° 南5°
1931	9 27	下午2時41分	下午3時34分	下午4時28分	全食 東62° 北1°
1932	3 22	下午7時33分	下午8時22分	下午9時12分	東174° 南1°
1932	9 13	下午4時2分	下午4時51分	下午5時41分	東44° 南4°
1933 全地球上沒有月食					
1934	1 31	下午0時12分	下午0時31分	下午0時51分	東113° 北17°
1934	7 26	下午7時26分	下午8時8分	下午8時51分	東177° 南19°
1935	1 19	下午10時46分	下午11時36分	下午0時38分	全食 東125° 北20°
1935	7 16	下午	下午	下午	南 不見
1936	1 9	下午1時12分	下午2時52分	下午2時52分	全食 東89° 北22°

科學

特 著

發年，亦就學無京，蓋欲踪跡夫子而「亦亦趨」者也。在來，庚，輒詢訪，年，而，未，見，或，生，之，曰：「師方客京，幾。」代，理，名，家，尚，復，諱，諱，曰：「足，神，汝，前，送，也。」既，識，之，不，敢，言。再，訓，勉，有，加，復，諱，諱，曰：「東，東，謂，甫，生，弘，識，才，為，富。」賢，世，伯，張，子，晉，先，叩，以，治，學，之，方，時，先，生，方，事，於，既，一，百，官，之，富，「究，乎，酒，矣，王，氏，之，秋，負，東，來，道，出，垣，謂，鄉，先，事，所，多，謂，率，皆，淺，膚，受，不，得，其，門，而，不，見，宗，廟，之，美，抑，未，能，已，於，言，者，亦，唯，生，克，當，之，矣。」

謂「墨學祭酒」者，亦唯生克當之矣。

「賈而能為」石，破，天，驚，之，發，「明」者，也。此，觀，之，則，行，嚴，所，非，端，之，派，別，亦，係，推，翻，舊，學，為，學，樹，新，機，凡，此，皆，學，與，

且夫晉世伯，天賦，優，能，文，學，好，學，不，倦，明，著，經，注，及，復，形，門，繼，仲，如，先，生，二，再，稱，道，於，是，求，見，之，心，切，也。何，幸！

且夫晉世伯，天賦，優，能，文，學，好，學，不，倦，明，著，經，注，及，復，形，門，繼，仲，如，先，生，二，再，稱，道，於，是，求，見，之，心，切，也。何，幸！



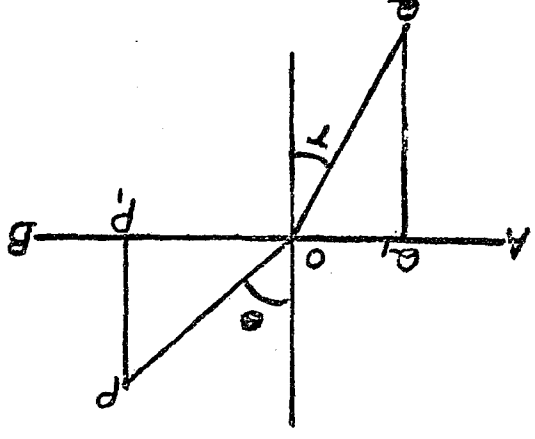
科學

1936	7	5	17	1	47	2分8	東99°	南23°
1937	11	18	3	50	4	11	4	32
							西129°	北19°
1938	5	14						齊南不見
1938	11	8	5	22	6	15	7	9
							東19°	北16°
1939	5	3	10	11	3	11	55	全食
							東131°	南16°
1939	10	28						齊南不見
1940								全地球上沒有月食
1941	3	13	7	17	7	49	8	22
							西177°	北3°
1194	9	6	1	24	1	38	1	52
							東93°	南7°
1942	3	3						齊南不見
1942	8	26						齊南不見

求光經各物之速率法

光由此物入彼物，其折角正弦與射角正弦之比，等於光經此物之速率，與光經彼物之速率之

比，設AB為水面，光P射至O點，入水被折至Q點，如圖所示，作PP₁，



氣中之射角為 θ ，速率為 V_1 ，在水中之折角為 θ_1 ，速率為 V_2 ，則有

$$\frac{\sin \theta}{\sin \theta_1} = \frac{V_1}{V_2} \text{ 試證之。}$$

科學

令 $PP_1 = a$ $QQ_1 = b$ $P_1Q_1 = d$ 進三角理有

$$PO = \frac{a}{\cos \theta} \quad OQ = \frac{b}{\cos \theta_1} \quad OP_1 = a \tan \theta \quad OQ_1 = b \tan \theta_1$$

則 $a \tan \theta + b \tan \theta_1 = d$ $b \tan \theta_1 = d - a \tan \theta$ 微分之

$$b \sec^2 \theta \frac{d\theta}{dr} = -d \sec^2 \theta_1 \frac{d\theta_1}{dr} \quad \text{即} \quad \frac{d\theta}{dr} = -\frac{b \sec^2 \theta_1}{a \sec^2 \theta} \quad \text{亦即}$$

$$\frac{d\theta}{dt} = -\frac{a \cos^2 \theta_1}{b \cos^2 \theta} \quad \text{光由 P 至 Q 之時間命為 } t$$

$$\text{則 } t = \frac{a}{v_1 \cos \theta} + \frac{b}{v_2 \cos \theta_1} \quad \text{求微係數}$$

$$\frac{dt}{d\theta} = \frac{-a \times v_1 \times -\sin \theta}{v_2 \sin \theta_1 \times \frac{d \cos^2 \theta_1}{d \cos^2 \theta}} + \frac{-b \times v_2 \times -\sin \theta_1 \times \frac{d \cos^2 \theta}{d \cos^2 \theta_1}}{v_2 \sin \theta_1 \times \frac{d \cos^2 \theta}{d \cos^2 \theta_1}}$$

$$= \frac{a v_1 \sin \theta}{v_2 \cos^2 \theta} + \frac{a v_1 \sin \theta}{v_2 \cos^2 \theta} + \frac{v_2 \sin \theta_1 \times \frac{d \cos^2 \theta}{d \cos^2 \theta_1}}{v_2 \cos^2 \theta}$$

$$= \frac{a \cos^2 \theta}{\sin \theta} \left(\frac{\sin \theta_1}{\sin \theta} - \frac{v_1}{v_2} \right) \text{ 設一次微係等於 } 0$$

$$\text{則} \quad \frac{a \cos^2 \theta}{\sin \theta} \left(\frac{\sin \theta_1}{\sin \theta} - \frac{v_1}{v_2} \right) = 0$$

$$\frac{\sin \theta_1}{\sin \theta} - \frac{v_1}{v_2} = 0 \quad \text{即} \quad \frac{\sin \theta_1}{\sin \theta} = \frac{v_1}{v_2}$$

亦即 $\sin \theta : \sin \theta_1 :: v_1 : v_2$

即 $\sin \theta : \sin \theta_1 :: v_1 : v_2$

又即 $\frac{\sin \theta}{\sin \theta_1} = \frac{v_1}{v_2}$ 合題

此 $\frac{\sin \theta}{\sin \theta_1}$ 為屈折係數

自空氣入水之屈折係數為 1.336 即 $\frac{v_1}{v_2} = 1.336$

光經空氣之速率 $v_1 = 186300$ 英里代入式內則得 $\frac{186300}{v_2} = 1.336$

1.336 $v_2 = 186300$ 英里 即 $v_2 = 139446.1$ 英里

即光經水之速率，每秒為十三萬九千四百四十六英里也。

魔看時的枯癯。

時辭平蒼蒼的，倒叫入疑是佳木，松龍，枯向榮呢？勝在將近，「嗎？那附近，怪石嶙峋，不，住，山，也在，視，線，內，了，這，看，在，河，岸，上，看，時，的，瀾，瀾，有，天，淵，之，別，是，是，」可，遠，而，不，可，和，極，目，北，望，幾，一，練，玉，帶，似，的，黃，河，次，光，接，天，接，地，轉，風，味，！

藝

覺得很自豪的。

得一點兒，也不露，莊嚴中，更加，一，層，稀，麗，了，此，時，的，我，暗，中，呀……歷，可，指，重，那，雨，道，中，的，樹，木，陰，森，的，把，遮，蔽，東，西，樓，觀，村，呀，男，女，生，的，宿，舍，大，禮，堂，明，呀，禮，堂，化，學，物，理，樓，在，校，時，看，佛，山，很，清，楚，所，以，登，山，後，第，一，要，看，的，自，是，吾，樓，「趁，然，入，世，了。」

文

我周身細胞，沒一個不覺得舒服暢快，真好，像「羽化而登仙，泰山而小天下，呼呼風，呼呼風，照，照，光，絲，絲，物，着，我，的，皮，膚，此，時，所，說，的，「入，豆，馬，寸，了，無，怪，怪，孔，二，先，生，登，東，山，而，小，登，」

見。中。却。這。未。想。

佳。景。此。時。定。必。倒。映。湖。心。作。了。其。中。的。一。張。片。我。眼。看。不。見。心。却。這。未。想。山。下。的。遊。人。愈。集。愈。多。了。在。那。裏。無。意。識。的。互。相。擁。擠。着。類。聲。着。中。時。以。為。再。高。不。過。的。紙。蔭。時。時。着。着。總。比。我。還。低。

嗎？中心知是亂想。……」當愈自己知自己的兒女了。

是。在。田。畝。中。散。着。的。樹。材。與。孤。塚。這。是。人。為。的。破。壞。之。一。例。我。覺。得。好。像。有。喚。兒。實。的。呼。聲。在。響。又。覺。得。在。響。雷。的。「。聲。哀。哀。的。世。界。大。地。頓。如。一。片。荒。墳。在。眼。中。高。高。湧。起。幾。個。墓。各。有。一。個。女。人。蹲。着。一。條。歪。着。頭。手。托。着。腮。在。那。兒。斜。坐。着。我。雖。不。見。她。們。的。面。龐。上。的。淚。痕。不。見。她。們。哭。泣。的。聲。音。但。總。猜。着。她。們。是。為。那。死。的。人。在。這。兒。哭。的。節。節。如。一。個。人。知。是。亂。想。……」當愈自己知自己的兒女了。

「花生蜜糖」的呼實聲。「升官發財」的乞丐呼喚

呵！

遊人紛紛，因，受，了，好，奇，心，的，驅，使，便，飯，後，獨，在，到，了，山，麓，後，瞻，仰，不，無，任，性，與，然，遊，與，遊，既，佳，佳，竟，鼓，勇，攀，緣，在，校，時，內，的，幾，個，梯，早，已，得，厭，煩，透，了，誰，知，此，時，好，遊，遊，一，遊，的，山，階，倒，覺，一，上，跌，的，很，有，趣，味，真，是，神，而，心，形，旁，

藝

再去遊，的思想，阻止了我，終於不，實現，這，回，正，當，荷，明，佳，節，打，了，個，照，而，儼，然，是，吾，校，的，一，幅，名，勝，畫，圖，來，說，後，早，有，欲，遊，之，心，無，乃，來，功，課，忙，迫，繼，了，我，二，來，在，校，既，能，觀，賞，何，必，那，幾，位，高，僧，與，那，紅，柏，寺，綠，紅，白，相，間，緊，緊，與，我，們，一，望，千，佛，山，是，南，名，勝，之，一，也，是，吾，校，較，近，之，地，出，一，望，

文

佛一瞥

鄭文修

願。賞。給。他。們。錢。呢！。時。心。中。這。未。想。的。深。的。神。院。進。了。佛。殿。中。的。佛。像。個。個。放。着。牠。們。岸。岸。道。貌。的。面。孔。似。乎。表。現。着。歡。迎。遊。人。的。神。情。「。瑞。應。曠。金。殿。比。學。化。室。裏。真。氣。爐。子。的。火。焰。還。大。掉。上。真。戴。着。紅。綠。綠。的。紙。製。物。可。惜。個。個。像。廟。內。我。是。門。外。漢。不。能。道。道。其。名。但。總。知。今。天。牠。們。須。是。特。別。享。受「。香。煙」。吧。對。面。亭。子。內。穿。着。非。靡。服。裝。的。男。女。在。那。兒。舉。杯。遊。覽。着。山。腰。上。慈。對。參。天。綠。蔭。蔽。日。的。松。柏。比。平。時。在。校。內。看。得。更。清。楚。了。

上。登。著。燈。塔。是。遊。山。之。目。的。因。此。擺。脫。了。流。連。復。拾。級。而。領。游。觀。則。見。阡。陌。中。的。行。人。蠕。蠕。也。似。的。蠕。動。着。真。真。合。了。古。人。

懂生命是無味的

「嘗入恍惚時，懂得生命是有樂趣的，在入清明時，

聲；我嘆息——高聲，高聲，

聲；吹出風塵的深意——於是佳美的音樂變為哀

自，自然界的悲調表明他們生命短促莫鳴，日繁華的

美的音樂；我到時聽得秋風吹去夏日的繁華的

「黎明恍惚，離於林樹時，風聲，蟲聲，我聽得是

還幾句是：

「綠」

思想，欲與綠仁蕊的造物呵，你將何以安慰煩悶的

攻擊，實是不能去的。於是我不覺有樂趣，常常呢咀

除去意識，打開攻擊的包圍，擊的包圍，是煩悶至極，因為

「思想，欲與綠仁蕊，一齊起來攻擊，使我煩悶至極，我要

表明悲哀的思想，想是眼中胡亂亂的，是：

起作國家的健兒，願傾積極精神，但國內紛亂，政治不良，國

的時候，職業問題，侵入心坎，總朋友勸告，勸導，自己，要

五：漸漸，而自然，的兒——學生，願離學校，生，活

是，悲觀，幸，願，幾個，新，朋友，的，影響，不，致，極。

「命令的跟隨來了！」

聲，這，種，厲，鬼，

因為，悲，憤，這，個，惡，鬼，

愛與樂的究竟也無了，

.....

此外還有幾句是：

慈的地母的懷抱中，時，沒有，恍惚，與，情，明，樂，在那，裏，

恍惚，情形，難，水，處，情，景，難，水，離，到，人，水，讓，於，解，

水，離，開，情，景，

我，願，水，遠，處，於，恍惚，情形，

文

我的生命在回憶中充滿了意義呵！

相思呵！這纏綿在心裏呢？

相思呵！這纏綿在心裏呢？

苦

我願永遠同良友伴遊深曠呵！

我總能在生活裏感到快樂呢！

一個良友，

是在生命上助渡苦海的依靠呵！

總有一天，想念良友會寫了——

「秋天，氣清爽——

湖山仍舊，

故人可處，

萬種相思，

藝

在他們未離校之前，離別中，我們的信札往來，每過幾

「秋來相思苦呵！」

呵，朋友，

光緒心頭，

文

比世無味，我生厭世主義，事事皆往悲裏，這裏有幾句話，

問題；社會的罪惡佔據了思想的路程，輕忽了社會的成績，甚

四：悲觀的少年——課之餘，深夜人靜時，常常思入生

念一點，書，俗事，當然不理；校，朋友，多加勉勵，幾及書，

究了，許多，社會，科學，眼光，始，少，寬，了，一些，此，時期，內，只，知，進，

失了，常態，同時，又，感到，學識的，淺，鮮，乃，從，專心，讀書，微，微，研

三：苦心學業中的學生——朋友們離別之後，生活不免

能加幫助的成績，即不然，我也覺得你們的力量小呵！

羅士(W. H. Adolph)為本校之主任。其對於此種教育之研究。...

齊大醫預科聯歡會成立紀

醫學之發達。醫士現雖古稱之。而精神充足。體格健壯。面色尤...

羅維廉醫士壽辰之盛

羅維廉醫士。為入世。有長壽之風。故同輩之皆愛慕。...

之本。但課外遊覽團體。亦為教育上之要諦。...

英語。預說。略謂。今晚得與貴會。而見諸生團體之精神。...

於課程。起程。之中。猶得有團體歡聚之機會。...

文預學員周烈等二十餘人。所編之東風。月。早已出版。...

東風月刊延期出版

耳。師生同樂。極一時之盛也。...

師生回樂之運動會

本校於四月二十四日。在戶外運動場。舉行田徑賽運動會。...

校聞

齊大醫學部 第三卷 第二期

兩位教授將休假

客歲秋季。李文理教授。田冠五先生。之半年休假。...

無線電話裝置完妥

本校。將耳機掛好。開上海。電台。明發之。...

一 大學籃球比賽

本月。每星期。有二十餘員。之。...



以後教有義方，功成女校，惜其逝世，雖無衣無食之貧民。憶昔業文會，設帳燕京，愛主至誠，已立文立人之目的。

校友會轉于明長老

不朽

愛之切，有如此者，長老一生所辦之靈性善果，如天地同參。猶為難民之痛苦，不離親友之阻撓，竟力疾圖存，賑濟其軍王。校友之得，以建此多因，長老之贊助，當其病時，見大風雪，老之力，多對於母，校尤為熱心，被舉為董事，曾有二次，即

會並教育事業，莫不踴躍更先。新近烟台真光女校之設，亦長事，卒以不得誌，願返入於商界，而對於教育及其他慈善



像遺老長于

學，長老被丁君健良聘為格致科教習，因不脫拜孔子，頗悉護。佈道濟施之志，願未嘗間斷也。庚午年，帝制新開，設京師大在教，學會校任教授之職，得薪金雖少，而於學，生時所許，先生隨手筆記，備嘗辛苦，一八一年，畢大學，聘蔡氏為妻。

息消會友

場美演乃，至十時，始盡而散。受此筆以紀，以留鴻爪。動聽，說白談，處處多能令人勝，奇非素，有幾，何能隨。其所，老，似七八，但風采，精神，不讓，青年，而。行。劇，新，劇，角，色，俱，活，現，之，神，尤，屬，特，出，而，軍，君。足，各，現，其，長，師，生，共，聚，團，一，場，可，謂，極，一，時，之，盛，末，有，新。為，部，人，所，望，等，演，說，畢，繼，有，中，樂，一，時，笛，鼓，並，起，奏，俱，張。必，受，影，而，得，借，此，一，身，心，於，吾，人，之，康，健，實，大有，裨，益，即。於，團，體，神，之，養成，亦，極，有，助，諸，生，本，斯，意，而，實，行之，是。之，舉，尤，在，西，洋，各，學，所，屢，見，蓋，於，多，用，腦，力，之，後，精，神，上。於，山，水，西，遊，之，間，中，真，趣，實，有，極，大，之，價值，也。辦，野，飲，(picnic) 日，有，赴，西，山，遊，之，舉，去，書，本，教，理，頭，之，生，雅，放，意，肆，志，實，不，能，謂，完，全，之，教育，也。北京協和醫科，每星期六，或星期日。

校友會消息

兩個校友逝世

于明長老於十四年夏曆十二月二十四日逝世。
羅子明先生於十五年夏曆二月初六日逝世。

校友題名補遺

羅永福先生，山東高苑縣人，於一九二五年同白光崇等一號同。畢業，現任西安府崇道學人，於一九二五年同白光崇等一號同。告，魯，大，學，校，友，錄，欄，內，將，其，遺，漏，合，並，聲，明。

于長老遺像

于長老名志，字于明，生於一八五六年，卒於一九二六年。原籍山東曹州，因家貧，自幼隨父遷居烟台，十四歲入美。入郭顯德牧師所開之義學，七歲受洗，進教，升秋，考，文，牧，師，在，登，州，所，設，之，文，會，館，大，會，推，彼，時，學，校，初，設，之，課，本。

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傑作，必極力採

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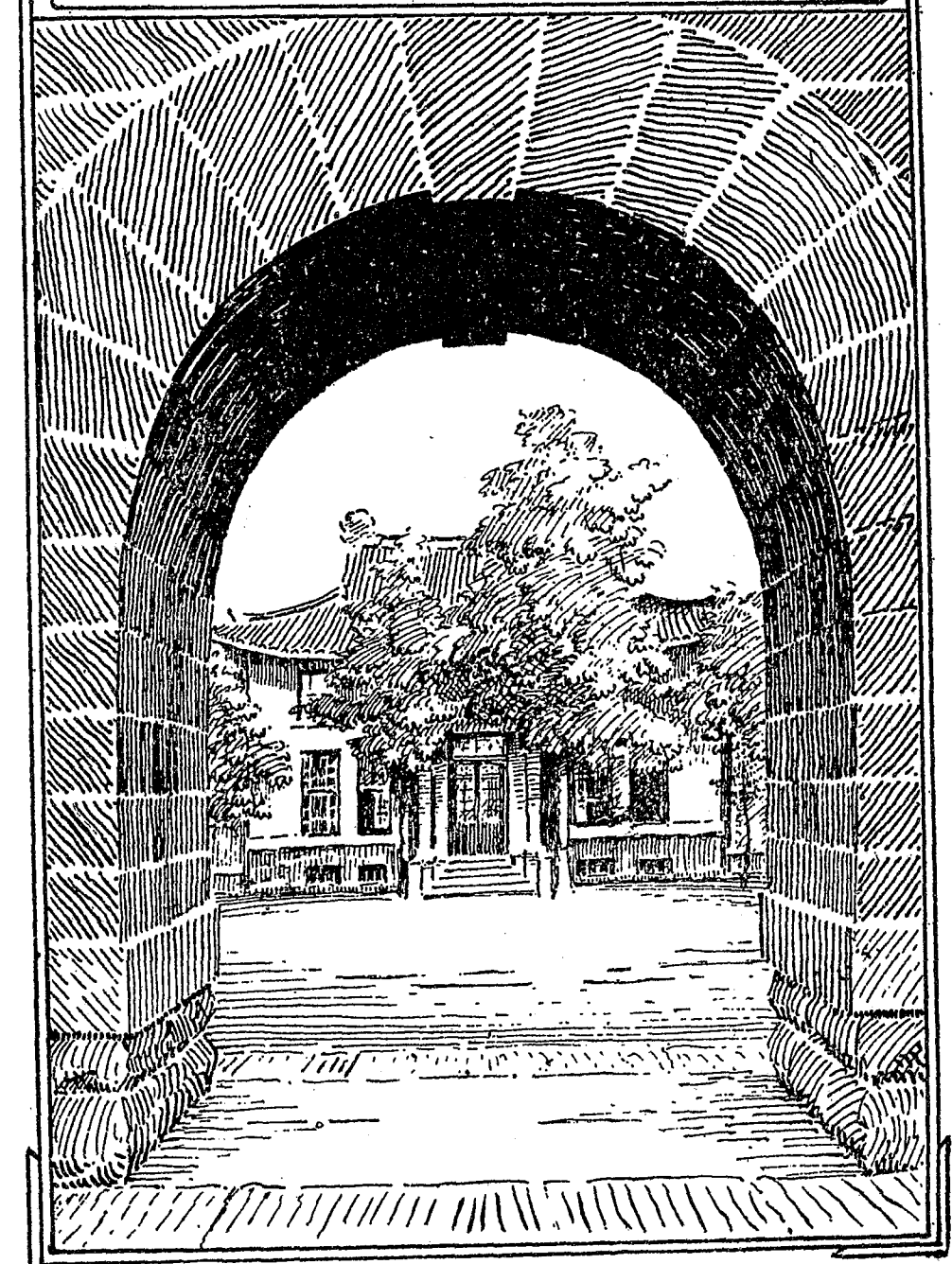
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June, 1926.

No. 2.

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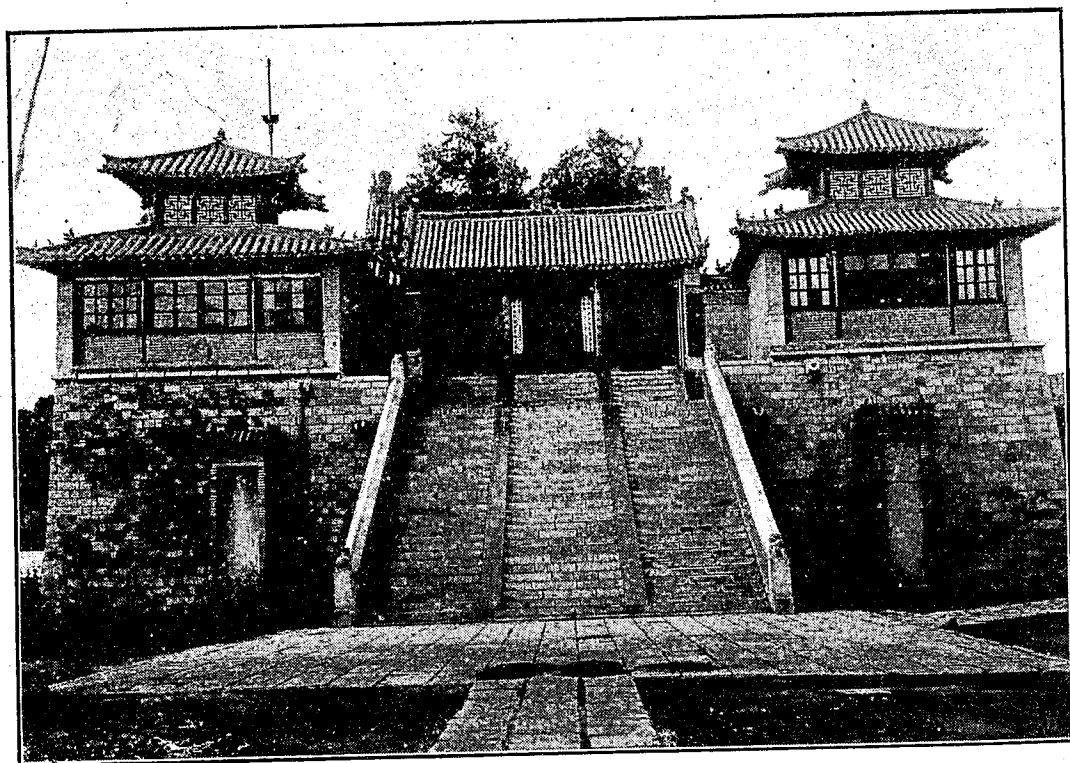
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WITH THE EDITORS

The Need For Clear Perspective.

ONE of the chief difficulties that we have to face, when confronted with pressing problems, lies in the fact that the very urgency of the situation is apt to obscure our sense of perspective. There, in the foreground of the picture, is the chasm that needs to be bridged, the obstacle that requires surmounting, the peril that must somehow be averted; and for the time being it becomes almost impossible to place this situation in its proper setting, and to see it in relation to all that has gone before.

This is probably the reason why no history of contemporary events, such as have aroused passion and controversy, can ever be regarded as satisfactory. One needs to wait until Time, the great healer, has cleared away all prejudice and suspicion, and has produced an atmosphere in which calm and balanced judgment is again possible.

The history of the past year in China, with its long succession of anti-foreign disturbances, political uprisings and civil war, is one of those instances in which it is impossible for any of us to see clearly so long as we remain too close to the picture. The whole foreground is monopolised by the political smoke-screen, and it is impossible for us

to penetrate through the fog. It is only as we step back, and attempt to survey the scene from a remoter angle, that we can hope to recover our sense of perspective, and to realise that our old familiar landmarks, though obscured, are by no means obliterated.

It is essential these days that, at all costs, we should retain this sense of perspective, for otherwise there is serious danger of a paralysis of all constructive thinking. If the political situation represented the whole story in China—as so often it appears to do—there would be abundant cause for pessimism, and for a general feeling of hopelessness and despair. International relations and commerce, education and social advance, all alike suffer when political unrest abounds and militarism stalks naked through the land, and were there no counterbalancing features in Chinese life, we might well despond as to the possibility of any substantial progress being made during the next few years. But no sooner do we withdraw a few paces from the absorbing events of the past few months, and survey the history of China through the last decade, than we find abundant evidence of such counterbalancing features, none of which have been destroyed or mortally wounded by recent political happenings.

In the first place, the past decade has witnessed a noticeable advance in communications. The postal and telegraphic services, the telephone and the public press, have all increased their usefulness at an extraordinary rate, and although the railways have suffered from every conceivable handicap, their popularity is now a matter of daily demonstration. Motor roads, and similar methods for facilitating travel, have steadily progressed, and the recently published report of the British Commercial Attaché states that some 12,000 miles of new roads have been built in China during the past few years. All of these improved communications, whilst, on the one hand, serving the purpose of militarists, and increasing the possibility of civil strife, are on the other hand an essential item in the spread of those enlightened and democratic ideas by which alone an orderly and constitutional government will be made possible.

In the second place, popular education has advanced during this same period with a rapidity never before achieved in the history of China. A country which has tripled its schools and quadrupled its students in little more than ten years is not a country of which the most confirmed pessimist can assert that constructive effort is dead. We have only to acquaint ourselves with the well conceived plans and solid achievements of the educational leaders, and the devotion of the great majority of teachers, to realise that though, for the time being, political conditions may hamper or even prohibit progress, such a

stoppage can only be regarded as a temporary halt, preliminary to fresh advance. It is true that national sentiment often interferes with serious study, and politics occupy a place that had far better be given to constructive thought; but in this connection it is well to remind ourselves of the recently published testimony of Professor Twiss, than whom nobody has given more time, nor more unprejudiced thought, to the investigation of Chinese education, and who says:

"As a result of thus meeting thousands of Chinese youth and hundreds of their teachers face to face, there has grown up within me an abiding faith in the future of China, and a deep conviction that in spite of their superficial turbulence and occasional undisciplined and lawless acts, the students of China are morally sound."*

In the third place, the last ten years have demonstrated a significant advance in the formation of public opinion on all questions of national import. This public opinion has hitherto been mainly expressed on matters of international relationship, but as popular education extends, and modern ideas become more rapidly disseminated, there is little doubt but that it will prove to be in China, as in all other countries, an increasingly potent weapon for the exposure and ultimate overthrow of every form of exploitation and corruption.

There is however a fourth ground for confidence and assurance, in comparison with which all that has hitherto been mentioned sinks into comparative insignificance; and that is our abiding belief in the ultimate triumph of spiritual forces. It is because these forces are already operative in China, and are already producing a new conception of duty, of responsibility and of service, in those who have fully accepted them, that it is impossible to imagine that the forces of destruction and of callous selfishness will win the day. The Church of Christ in China has already won many notable victories, but greater are yet to come, and it is just in so far as we remain true to those eternal principles, and make a real contribution to the establishment of a Christian community founded upon the teaching of Jesus Christ, that the obstacles to progress will be overcome. This is no day for uncertainty, for hopelessness, for retreat, any more than it is a day for complacency and self-satisfaction. It is the day for courageous faith and creative thought and prayer; for the weapons of our warfare are mighty through God to the pulling down of strongholds. For now abideth faith, hope, love, these three; and the greatest of these is love.

HAROLD BALME

*"Science and Education in China", by G. R. Twiss. Page 5.

Registration

J. D. MACRAE

SINCE the Ministry of Education promulgated its new regulations on Nov. 16th, 1925, the question of registration has once more become a very live one for Christian schools. After a period of suspicion and ill-concealed hostility, during which Christian schools were looked upon as "foreign" it is a distinct gain to have them recognised as "private" 私立 schools and definitely placed in that class.

Certain questions arise:

(1). Should the government authorities attempt to lay down regulations to control religious instruction? After a prolonged struggle the principle of religious freedom was definitely written into the constitution of the Chinese Republic. Why, therefore, undertake to do what is inconsistent with the constitution? It is further pointed out that whether a student attend a school under Christian auspices or not is a matter for his own choice. Having once entered such a school no compulsion is involved in his being asked to conform to the practices of the school. Yet it must be remembered that in many areas the government provision for Middle School and college education is utterly inadequate. The youth athirst for learning must either enter the Christian School or go far from home at much greater cost; he is not, in reality, a free agent. Hence it happens that while the school or college clings tenaciously to the free right to place religious services or religious studies on a required basis, the circumstances practically deprive the student of a similar freedom of choice.

(2). How will registration on the part of colleges and universities affect the standing of Middle School students? While a registered university may receive as matriculants students coming from a non-registered Middle School, will such students, on graduation from the university, receive recognition from the Ministry of Education? Will they suffer from the same limitations as obtain in the case of our present students? This question is further complicated by the fact that, in the opinion of many, while voluntary choice for the university student may prove to be a distinct benefit, the same privilege cannot wisely be extended to the student of the Middle School, especially in the Junior Years. At the present stage it can only be said that in such a matter much will depend upon the attitude of the Ministry of Education. It is quite possible that graduation from a registered university would entitle the student to government recognition.

(3). Objections are raised from the point of view of political instability. The Ministry of Education of today promulgates these regulations; what guarantee have we that the rapidly changing succes-

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REGISTRATION

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sion of future governments will support them? Yet it must not be forgotten that the present regulations, temperate as they are in attitude, were issued in the face of strong pressure from influential quarters in the direction of much less favourable proposals. It is true to say, also, that in all the procession of ministries and changes of government the principle of religious freedom has always been allowed to stand. Not even the events of recent months are sufficient to shake faith in the fairness and common-sense of the people of China. In such matters this constitutes a solid foundation on which to build.

The Regulations as translated by the China Christian Educational Association, Shanghai, are as follows:

(1). Any institution of whatever grade established by funds contributed from foreigners, if it carries on its work according to the regulations governing various grades of institutions as promulgated by the Ministry of Education, will be allowed to make application for recognition at the office of the proper educational authorities of the government, according to the regulations as promulgated by the Ministry of Education concerning the application for recognition on the part of all educational institutions.

(2). Such an institution shall prefix to its name the term "Szi-li" (privately established).

(3). The president or principal of such an institution should be a Chinese. If such president or principal has hitherto been a foreigner then there must be a Chinese Vice-President, who shall represent the institution in applying for recognition.

(4). If the institution has a board of managers more than half of the board must be Chinese.

(5). The institution shall not have as its purpose the propagation of Religion.

(6). The curriculum of such an institution should conform to the standard set by the Ministry of Education. It shall not include religious courses among the required subjects.

Of these regulations the majority could be put into effect without great difficulty by our colleges. It is generally understood that Article 4 refers to the de facto board of control in China. In the case of Cheeloo such a stipulation could easily be met without any radical change of membership in our present Field Board of Managers. All that we should require would be an increasing number of qualified Chinese Educators on the board. But this has long been the hope and policy of the university. We already have two alumni representatives, two Mission representatives and a number of coopted members all of whom are Chinese. Moreover, the Bye-laws of our Field Board make ample provision for such a Chinese majority as is desired.

For a number of years the university has supported the principle of voluntary attendance on religious services as something to be desired in itself, apart altogether from the question of registration. Further,

only a limited number of courses in religious subjects have been "required"; all others have been "elective". Should Cheeloo apply for registration it could only do so in respect to two schools: The School of Medicine and the School of Arts and Science. Hence it is improbable that any obstacle would arise from the circumstance that we have a School of Theology in which, in the nature of the case, religious subjects must be required.

At a meeting of the various faculties of the university held recently, for the express purpose of discussing this important question, the greatest interest was shown in the interpretation of Article 5. Is it contrary to the expressed purpose for which the university exists? Perhaps it may be well to quote here that purpose as stated in the Bye-laws of the Board of Governors. It reads:

"The purpose of Shantung Christian University shall be the advancement of the Kingdom of God through higher education of a distinctly Christian character, having in view the development of a capable and consecrated leadership for the Christian Church and the community in China."

Any proposal in the interests of registration, which could fairly be looked upon as an evasion or equivocation at this point cannot possibly be given favourable consideration by the Christian colleges. Our education must be distinctly religious and avowedly Christian. It is believed by many, however, that Article 5 is a negative form of the statement that the purpose of such institutions is to further education, Christian influence and teaching and the training of Christian leaders are known to be essential to the life of our Christian institutions. That these will not be hindered is implied in Article 6, which, from one point of view, may be looked upon as the Ministry's interpretation of its own Article 5. Indeed, provision is made for the carrying on of religious courses, though on a voluntary basis. It is worthy of note that at a time when there has been so much agitation in some circles against religion in any form whatsoever the Ministry of Education should thus definitely leave the way open for the voluntary practice of religious instruction, to as large an extent as the institution may think fit.

The invitation to register is, therefore, one which cannot be ignored. The present is a time when such a university as Cheeloo, in common with other schools and colleges, would do well to consider whether it ought not to be established directly under Chinese law and not on the basis of special privileges granted to foreign institutions. The opinion of many of our leaders in Christian education, especially among Chinese, seems to favour registration as a right course. We must face the issue and our decision ought not to be too long delayed.

Meantime the movement in the direction of registration has done this service to Christian education, that it has concentrated attention once more upon the importance of religious instruction whether voluntary or required. Without doubt there has been distinct improvement within the past five years, yet there is general dissatisfaction with results in religious education. This itself is wholesome.

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Testing the Results of our Religious Education

B. A. GARSIDE

NO other department of study in the Christian schools of China is today creating as much thought and discussion as is the field of religious education. Christian educators agree that here lies the most important element in the training our schools seek to give and the most valuable contribution the Christian schools can make to the educational system of the Chinese Republic. But when questions of methods and objectives and the efficiency of our religious education arise for discussion, at once disagreements threaten.

There is probably no other subject in our schools which presents such difficulties in the way of measuring objectively the results obtained, evaluating the efficiency of teaching methods, or estimating the worth and permanency of what the student has gained. Questions constantly arise, demanding answers that are not easy to discover. Are we requiring enough Bible study, or are we perhaps demanding too much? Are we using methods which help our students absorb the spirit and catch the inspiration of the Christian Gospel, or do we tend to have them memorize abstract and unassimilated facts which affect little, if at all, their thinking and living? How much progress in Biblical knowledge does the average student make while he is in our middle schools? How much does he grow in Christian ideals and ethics? What relationship, if any, is there between a student's knowledge of the Bible and his ideals of conduct? How is the student affected by Christian or non-Christian parentage, or by the length of his own Christian experience? How far are our Christian students superior in Biblical knowledge and ethical judgment to their non-Christian classmates? How close is the relationship between the student's real character and his knowledge of the Bible and of Christian ethical ideals?

Obviously no one test could be devised which would give satisfactory answers to all such questions. Many of them can perhaps be fully answered only by combining an intimate knowledge of the student with a great variety of careful measurements. Yet, both in Western countries and in China, progress has been made in the developing of religious and ethical tests which, when wisely used and carefully interpreted, can prove of great benefit to workers in the field of religious education through giving them new light on such problems as these, and at the same time providing objective measures of their work and bases of comparison with other institutions.

A most important contribution in this field is the Religious and Ethical Common Knowledge Test which has this year been developed and used by Mr. M. Gardner Tewksbury in connection with his work

among the middle school students of North China. Because of his intimate knowledge of Chinese student life and the nature of the work he has been doing among them for a number of years, Mr. Tewksbury is ideally qualified for undertaking this task of devising some more adequate method of evaluating the results of our work in religious education. The present article will attempt to deal in a very preliminary manner with this test and the results that have thus far been obtained through its use. There are certain to be various revisions in the original form of the test, and quite probably many of our present conclusions based on a study of early results may be later modified; yet enough has already been accomplished to serve as a reliable basis for later work, and much information of permanent value has already been secured.

The Construction of the Test

The Religious and Ethical Common Knowledge Test is in Chinese, and is divided into three parts, as follows:—

- Part 1. Test of Biblical knowledge; 50 questions, the first 25 based on the New Testament, the last 25 based on the Old Testament.
- Part 2. Test of ethical judgment; 29 problem-situations.
- Part 3. Test of ideas regarding fundamental ethical and religious topics; 5 questions.

The plan used throughout the test is that of providing a multiple choice of answers for each question, or of solutions for each problem, from which the student is to select what he considers the correct answer or the most nearly ideal solution.

In Part 1, the test of Biblical knowledge, each question consists of an incomplete sentence, followed by four proposed answers from among which the student is to choose the correct one, indicating it by marking an X in the parenthesis preceding it. The following specimen will serve as an example:—

The Sermon on the Mount was preached

- () before Christ's temptation in the wilderness.
- () at the beginning of Christ's public ministry.
- () during the Passion Week.
- () after Christ's resurrection.

Part 2, the test of ethical judgment, follows this same general form. Each question consists of a concrete situation involving an ethical problem, followed by four possible solutions. These ethical problems are so presented that the student is asked to pass judgment on

the opinions or actions of others in the situations described, rather than required to state what he himself would do under these circumstances. It was felt that this approach would lessen the tendency to choose conventional ethical standards regardless of personal conviction, and would perhaps allow the student to make his selections more freely and without fear of disclosing directly his private opinions. Following is an example of this type of problem:—

Four students, Chang, Wang, Li, and Chao, were discussing the reasons why they were attending middle school.

- () Chang said that he was in middle school because his parents wished it.
- () Wang said that he was in middle school in order that he might the better prepare to be a good citizen.
- () Li said that he was in middle school because the more education one has the more salary one can obtain.
- () Chao said that he was in middle school in order that he might prepare for college and for study in America or Europe.

Part 3 consists of five questions; one on patriotism, three on the attributes and works of God and of Jesus, and one on what it means to be a Christian. Under each question are given twenty-five answers representing a wide variety of viewpoints and conceptions. Students are asked to select under each question the five answers which they consider best, indicating their order of preference by numbering these answers from 1 to 5. Below is an example:—

The purpose of the Christian Church is

- () to provide needy people with a living.
- () to build and operate schools, hospitals and chapels.
- () to help people grow more like Christ.
- () to perpetuate denominational groups.
- () to carry on missionary work.
- () to promote social reforms.
- () to baptize, marry, and bury people.
- () to minister to the sick and aged and infirm.
- () to hand down unchanged from generation to generation the creeds and doctrines of the early church.
- () to bring all men to a knowledge of Jesus Christ.
- () to lead public opinion on the vital questions of the world today.
- () to increase its membership.
- () to inspire men to lead better lives through worshiping with others.
- () to encourage Christians to be more faithful.

- () to disseminate the knowledge of the Bible.
- () to train ministers and religious teachers.
- () to lead Christians into better ways of worship and prayer.
- () to separate Christ's followers from worldly men.
- () to work for international peace and good will.
- () to care for and educate the children of its members.
- () to unite all those everywhere who are striving to bring about the Kingdom of God on earth.
- () to provide preachers who will exhort people to be good.
- () to provide a proper social and religious environment for the community.
- () to protect and supply help to all its members.
- () to show individuals the way to eternal life.
- ()

Space was provided for students to write in other answers that they might consider better than those given.

During the construction of his test, Mr. Tewksbury made free use of published test plans and materials, particularly tests recently developed in America.* Of the 50 questions in the Biblical knowledge test, 48 are Chinese translations of questions used in the Boston University Revision of the Giles Sunday School Examination A.** Two questions used in the Boston University Revision proved unsuitable for translation into Chinese, so two others were devised to complete the required number. In working out the 29 problem-situations which comprise the ethical judgment test, considerable assistance was obtained from the Boston University Revision just referred to, but inasmuch as the method of presenting the problems was considerably changed, and it was necessary to take into consideration the widely different social, mental, and ethical background of Chinese students as compared with American young people, this part of the test is considerably different from any of the material in English which was consulted in its preparation. Of the last part of the test, one question was constructed from original material and the remaining four were adaptations from the material found in the two sources named in footnote 1 below.

*Two sources should be particularly mentioned:—"The Indiana Survey of Religious Education", by Walter S. Athearn and others, Vol. 2, Chs. XV to XVII; and "A Test of Religious Ideas Involving the Ranking of Selected Answers", Clara F. and Laura M. Chassell, in *Religious Education* Vol. XVII (1922) pp. 55-59 (reprinted in *China Sunday School Journal*, 1925, No. 8, pp. 707-711.)

**Indiana Survey of Religious Education, Vol. 2, Ch. XV.

In the preparation of the test, a large number of educators and religious leaders, both Chinese and foreign were consulted from time to time. Efforts were made to get the opinions of as many varied types of workers as possible. This assistance was sought chiefly in connection with the selection and evaluation of material for the ethical judgment test. Unfortunately limitations of time made it impossible to get any adequate critical reviews of the final draft of the test before it had to be turned over to the printers. On the basis of the experience gained in administering the test, and the helpful criticisms which are being received from numerous leaders in religious education, it is planned to undertake a thorough revision of the test in the near future.

Administering the Test.

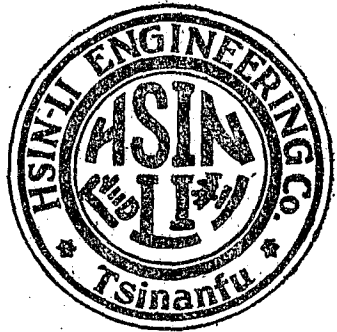
At the time of this writing, the test has been used in five boys' middle schools and three girls' middle schools scattered throughout the province of Shantung. In all, about eight hundred students have been tested.

It was found that the time required by students to complete the test varied widely, depending upon the subject's intelligence, quickness of response, and ability to read Chinese. In general the more advanced classes worked much more rapidly than did the early years of the junior middle school. In one school where a careful check of each student's time was kept it was found that, exclusive of the ten minutes or so given to the explanations and filling in of required information, an average of about forty-five minutes was needed to complete the test. A few finished in as short a time as thirty minutes; some of the slowest required as much as seventy minutes.

Thus the test in its present form has proven somewhat too long for completion in one regular class period of an hour or less. To meet this situation, two methods have been tried:— (a) Allowing a double period, so that all will have ample time to complete the test. (b) Limiting the time to a regular period and having all papers collected at the end of this time, whether finished or not. The former method is of course the more desirable, for it is important to have all tests completed, but it is often difficult for administrators to grant as much time for the test as this method demands. Where the test has been given in a strictly limited time, it has been so administered that the slower students distribute their time proportionally through the three divisions of the test.

In schools where facilities permitted, the students of all classes taking the test were brought together in one large lecture hall or assembly room, and here all were tested at one time. The examiner

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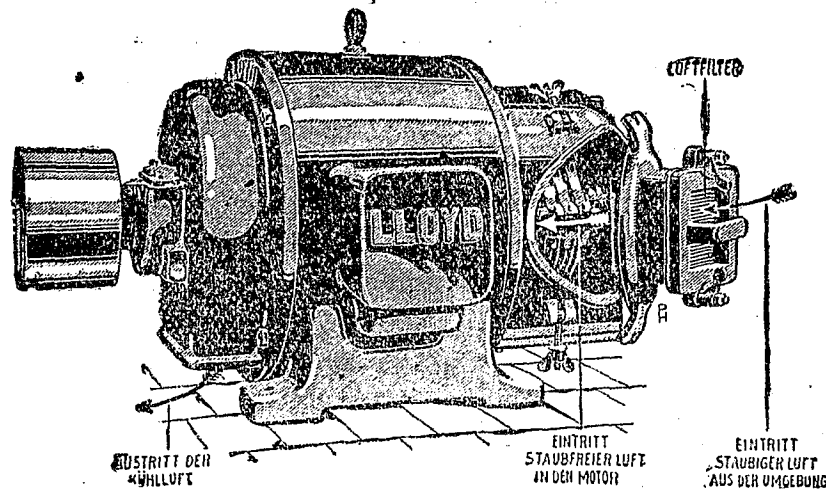
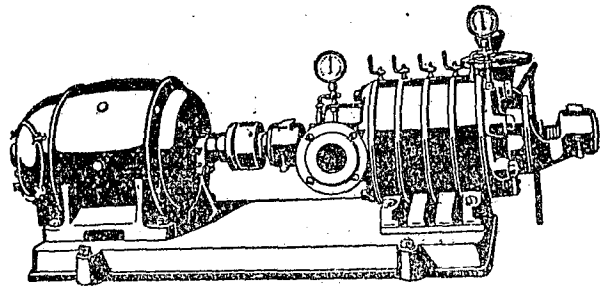


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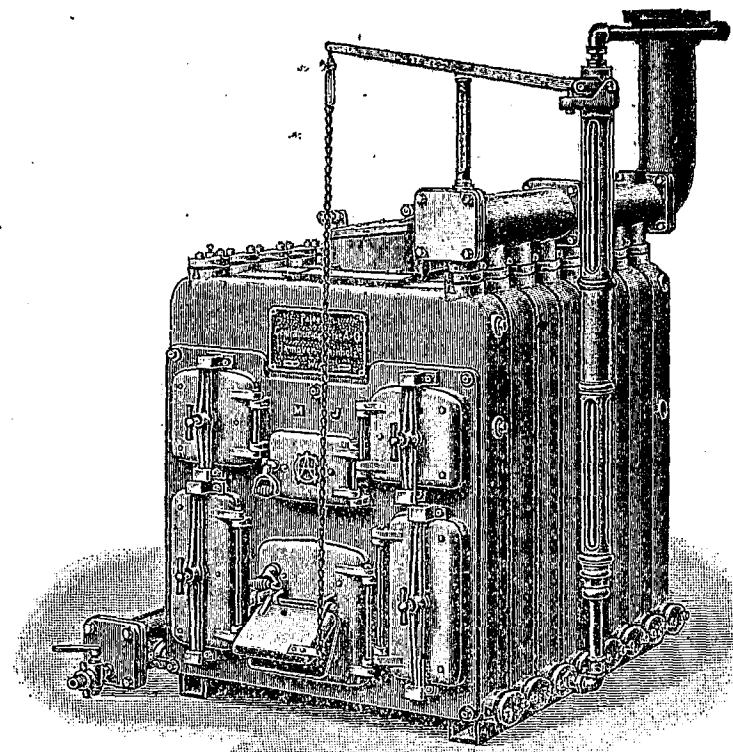
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in charge, speaking in Chinese, made all general explanations and gave necessary instructions, while a suitable number of competent assistants throughout the room saw to it that students obeyed instructions and did their work in the proper manner.

Scoring the Test.

Because of the nature of the test it was judged wisest to disregard as far as possible the factor of speed, and to emphasize only the subject's knowledge and judgment. When, therefore, limitations of time prevented slower students from completing the test, it was necessary to interpolate scores on the questions not reached, so as to give a reasonably accurate basis for comparing their work with that of others.

In the first part of the test, consisting of 50 questions based on the Bible, there was no difficulty in constructing a scoring key of correct answers. The score on this part of the test was computed by the usual plan of adding up the number of questions answered correctly and subtracting from this sum one-third of the questions answered incorrectly.* Where students left blank the questions to which they did not know the answer, no correction for such questions was made, and the score stood simply as the number answered correctly.

The development of a plan for scoring the second part of the test, made up of problem-situations involving ethical judgment, was far less easy. In the field of ethical experience and ideals of conduct it is not possible to set up absolute standards of right and wrong which will command universal acceptance. Even general acceptance of an ideal does not prove it right; for progress often involves discovery of the falseness of some ideal long accepted without challenge. The composite opinion of any carefully selected list of Christian leaders is likewise faulty, for there may be wide differences between individuals and racial groups, and between successive generations, so that a composite judgment sometimes produces merely an unsatisfactory compromise between conflicting viewpoints.

*Students were instructed to attempt an answer to each question, which of course involved guessing in the case of questions with which they were not familiar. It is easy to show mathematically that, on the average, of each four guessed answers one will be correct and three wrong. The subtraction of one-third of the wrong answers will thus counterbalance the increase in the student's score resulting from correct guesses on questions whose answers he does not really know.

For certain purposes it would be sufficient to tabulate the results obtained in an ethical judgment test, with no attempt to set up standards. Yet for other purposes it is essential that some system of scoring be used. So, while recognizing the defects inherent in reliance upon the composite opinion of Christian leaders, this method of securing standards for scoring the test in ethical judgment was at last adopted as the most satisfactory basis of scoring available.

Copies of the test were given to some twenty Christian leaders, chosen from varied fields of work, and each was asked to carefully evaluate each of the proposed solutions to the different ethical problems presented. In this work all followed a rating scale which ranged from 5 for what was considered an ideal solution, down to 0 for an entirely unsatisfactory and unethical response. A comparison of the opinions thus obtained showed decidedly close agreement as to most solutions offered, so that the final composite standards contained few marked conflicts with the opinions of any of those contributing judgments.

Using the set of standards thus compiled, the ethical problems in the test were scored by giving to the solution chosen under each problem the value assigned it in the standards, and then finding the sum of these values for each individual examined.

The responses secured in the last part of the test, presenting a multiple choice of ideas on fundamental ethical and religious topics, have for the present been simply tabulated, rather than scored. If considered desirable, there can later be worked out a set of standards for scoring on much the same system as was used in evaluating the responses in the ethical judgment test. This is not, however, essential to the purpose of this final portion of the test, which seeks to discover what religious ideas our middle school students actually have, rather than to establish norms of religious thought.

In order to facilitate interpretation and comparison of results, there was constructed for each part of the test a conversion table for changing the widely dissimilar crude scores into the more refined and significant "T" scores. As a point of reference for computing T scores, the length of time spent in Christian schools was considered more significant than the customary basis of chronological age, or the other possible bases of school classification or length of Christian experience. Therefore the average length of time spent in Christian schools by all students taking the test was first computed, and as this was found to be about six years, that point was taken as the basis on which T scores were computed.

For those not familiar with this unit of measurement,* the T score may be briefly defined as a scientifically scaled measurement so constructed as to make possible comparisons between all results obtained on a test, or on parts of a test, or between the results of different tests. Any given T score has a definite and constant significance wherever found, and the amount of difference between successive scores is uniform throughout the scale; so all such scores are easily comparable, and the amount of difference between any two scores can be accurately defined. Moreover, the ranking of each student in comparison with all others who have taken the test can be definitely known by observing the score he receives. The average T score is 50. The range and significance of this type of score may be more easily grasped by referring to the following table:—

On the average, out of one hundred cases scored

2	will receive T scores above 70
14	will receive T scores between 60 and 70
34	will receive T scores between 50 and 60
34	will receive T scores between 40 and 50
14	will receive T scores between 30 and 40
2	will receive T scores below 30.

All results discussed in the following pages are described in terms of T scores.

Interpreting the Results.

One of the most important, and at the same time the most laborious, pieces of work in connection with a test of this nature is the study of the results obtained and the attempt to interpret their meaning. Only as this is done can a test prove of value in pointing the way to improvement in our methods of religious education, or to the discovery and fulfillment of each individual's needs. Interpretation of results includes two important fields:— (a) A generalized study of the results obtained among a large number of students; comparison of different schools, classes and types of institutions; discovery of the relationship between the different portions of the test; and investigation of the strength and weakness of religious instruction in so far as the test reveals it. (b) A specific study of the results in the case of individual students or of small groups, with a view to discovering what needs are not being met, and supplying improvements and remedies. The attention of those preparing a test must first confine itself to the former type of interpretation, and it is this that occupies most of the discussion in the following pages. It is, however, the second type of interpretation

*For a thorough explanation of the construction and significance of T scores, the reader is referred to "How to Measure in Education", W. A. McCall, Chap. 10; or, in Chinese, 「測驗概要」, 廖世承, 陳鶴琴編第十九章.

which is in the end the more important, and the one which should chiefly engage the thought of school administrators and teachers of religious education.

A. *Securing a Cross-Check on the Results of the Test.* From the first use of the test it was considered most desirable to obtain some entirely independent method of measuring the life and character of the students tested, in order to provide a basis for checking the reliability of the results obtained on the test. To secure such a check, in certain of the schools where the test was given, there was used a system of having teachers evaluate the characters of the students who took the test. From five to eight of the teachers who were in closest contact with the students were asked to give their opinion (working independently of each other) of the character of each boy judged, in each of the following eight traits:— trustworthiness; initiative; cooperativeness; capacity for leadership; purity of thought, speech, and habit; spirit of service; native ability; and general Christian character. Scores from 1 to 5 were given in each trait, following the normal frequency distribution system of ranking. There was then found for each student the aggregate of the grades given him by all the teachers in all the eight traits judged, and this aggregate constituted the student's crude score in character rating.

It was found that with few exceptions the teachers agreed quite closely in their judgment of the characters of the boys rated. In one school an interesting comparison was obtained by getting similar ratings of the students by the members of a small normal training class of senior boys. Each member of the class turned in a very excellent rating sheet, which corresponded closely to the opinions of the teachers who gave their judgment on the same group of students.

The character ratings thus obtained were used to make numerous comparisons with the results of the religious and ethical test, as will be explained in later paragraphs.

B. *Finding the Amount of Progress in Biblical Knowledge and Maturity of Ethical Judgment as Students Progress in their Middle School Course.* Order distributions were made of the scores of about five hundred students in five boys' middle schools, and these were made the basis for constructing Chart 1,* which indicates the progress year by year during the three years of senior middle school and the two upper years of junior middle school. (The test was given to very few students below the second year of junior middle school.) Results in New Testament, Old Testament, and ethical judgment are plotted separately, and a comparison is made between Christian and non-Christian students.

* Charts used in this article have been prepared by Mr. Tewksbury.

CHART 1. Progress in Biblical Knowledge and Ethical Judgment According to Class in Middle School.

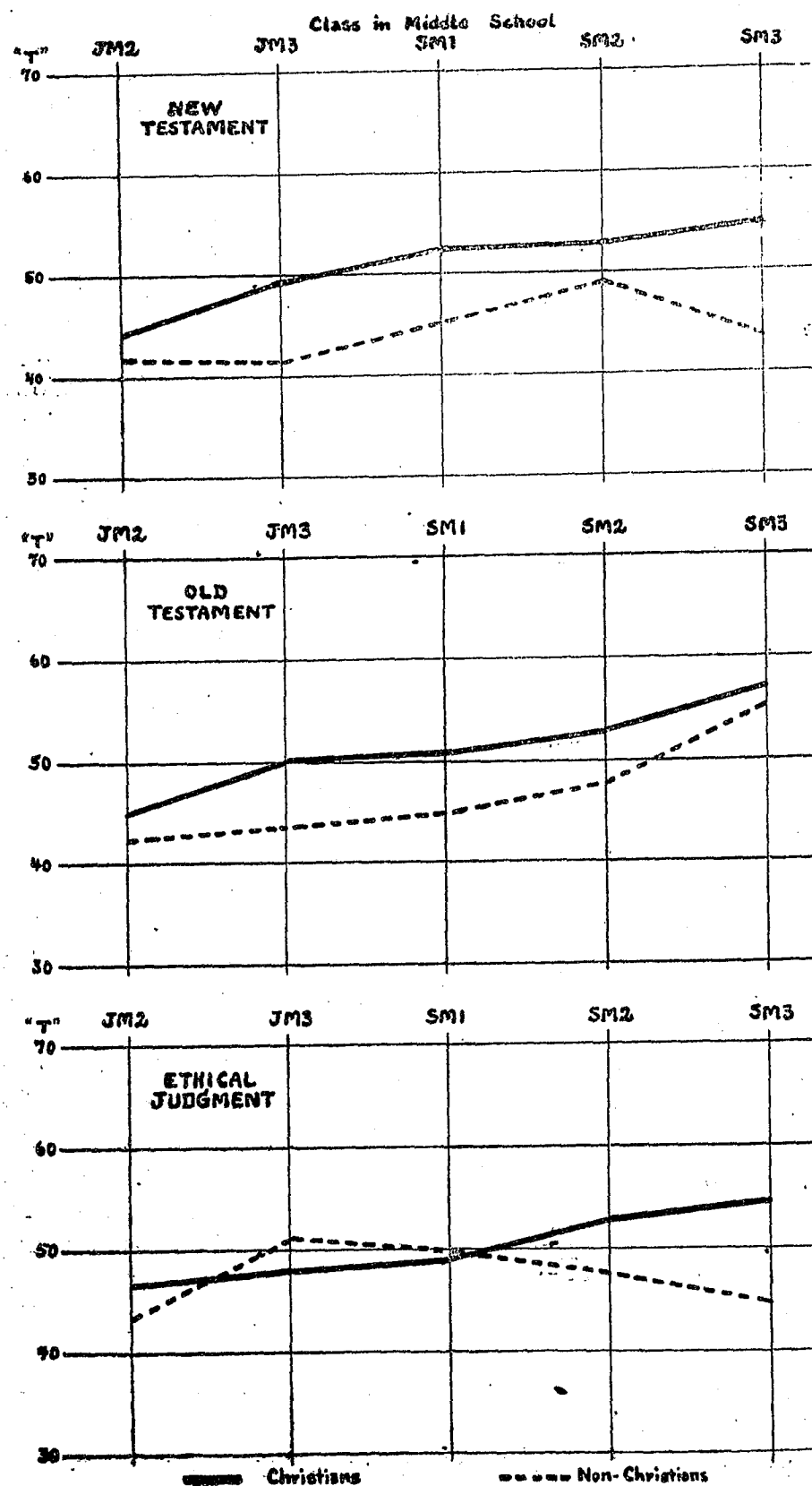


Chart 1 may be made the basis of much interesting study. In this and in the other charts and statistics presented, each reader is invited to form his own conclusions as to the significance of the facts revealed. Keeping in mind that the results we are presenting are at best preliminary and subject to revision, we would suggest the following observations:—1. There is evidence of definite progress from year to year in both Biblical knowledge and ethical judgment. 2. This progress is not as marked as might be hoped for, nor is it altogether uniform. 3. The highest average attained is considerably below the ideal. 4. The Christian students seem to progress more uniformly than the non-Christians. This may be explained, in part at least, by the fact that the number of Christian students scored considerably exceeds the number of non-Christians. 5. The Christian students are at almost every point definitely above the non-Christian students. 6. Among the non-Christian students there is a very marked decline in ethical judgment throughout the senior middle school. One explanation of this may be that from year to year throughout the middle school the ranks of the non-Christian students are being depleted through profession of Christianity on the part of many of their most earnest members.

C. Finding the Effect Which Continued Study in Christian Schools has on the Student's Religious and Ethical Knowledge. Charts 2, 3, and 4 show the progress of students at varying lengths of time of study in Christian schools. Five boys' middle schools are represented individually in Charts 2 and 3, and a composite of the results in all five schools is given in Chart 4. In these charts the average T scores for groups of students who have been in Christian schools for varying lengths of time are plotted at two-year intervals. Results in New Testament, Old Testament, and ethical judgment are shown by different lines.

The following observations may be made from a study of these charts:—1. Although there are individual variations, there is a decided similarity between the curves of all the schools. 2. There is a fairly close relationship between progress in New Testament knowledge and Old Testament knowledge. 3. There is much less similarity between growth in Biblical knowledge and progress in ethical judgment. 4. There seems to be much more rapid growth in Biblical knowledge during the first eight years spent in Christian schools than during the succeeding years. In general the middle school students who have studied in Christian schools for only a few years must have received much or all of their earlier preparation in non-Christian schools; those who have been in Christian schools for

CHART 2. Progress in Three Schools in Biblical Knowledge and Ethical Judgment According to the Number of Years Spent in Christian Schools.

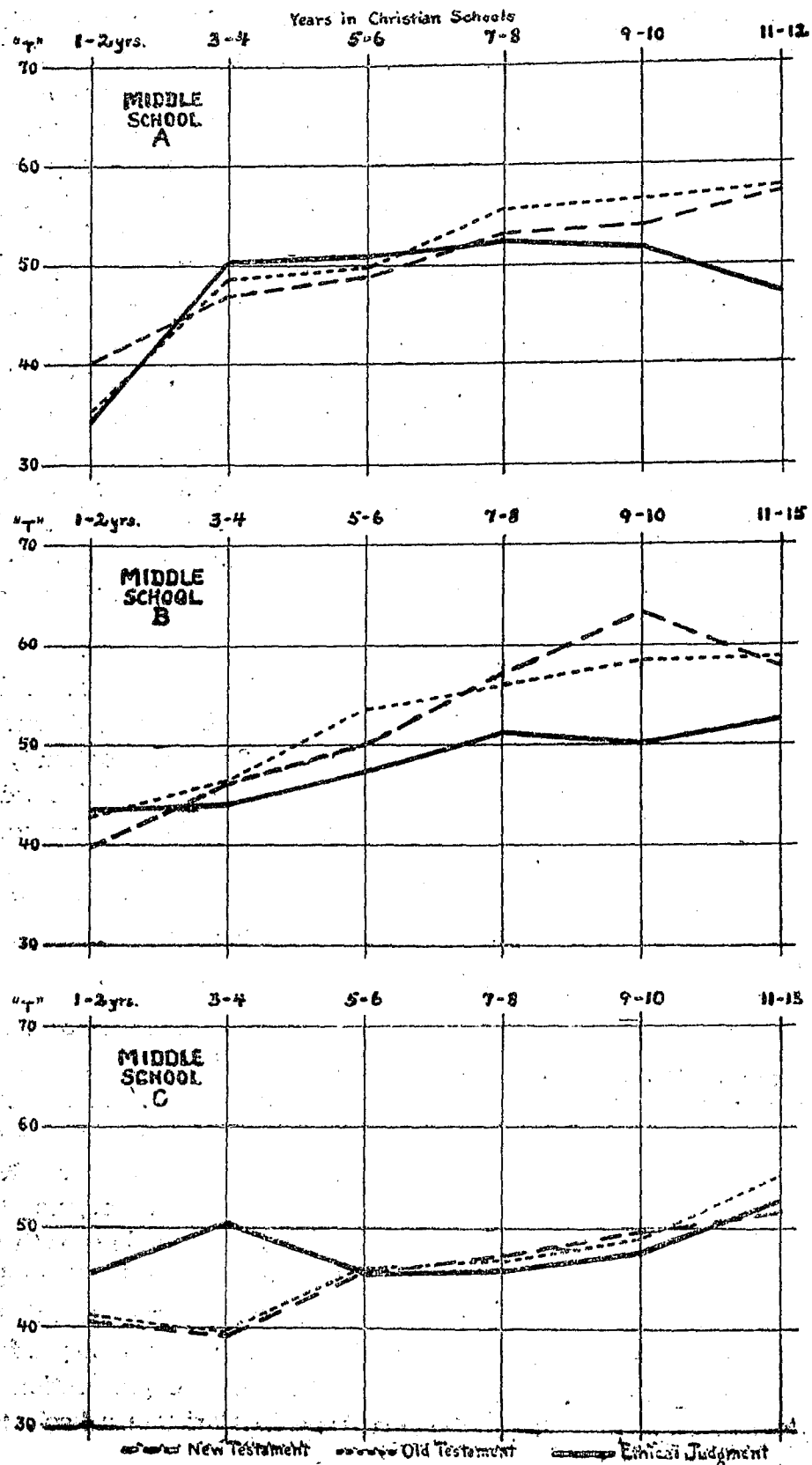


CHART 3. Progress in Two Schools in Biblical Knowledge and Ethical Judgment According to the Number of Years Spent in Christian School.

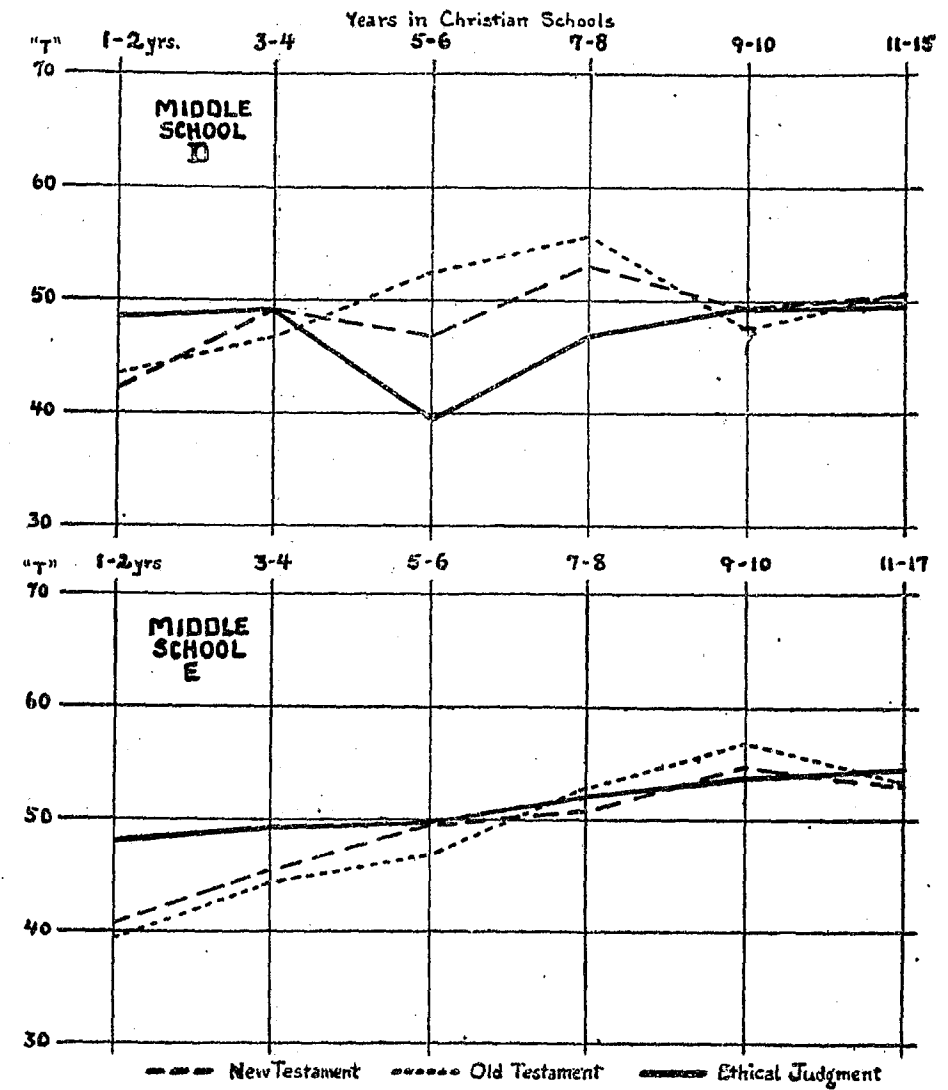
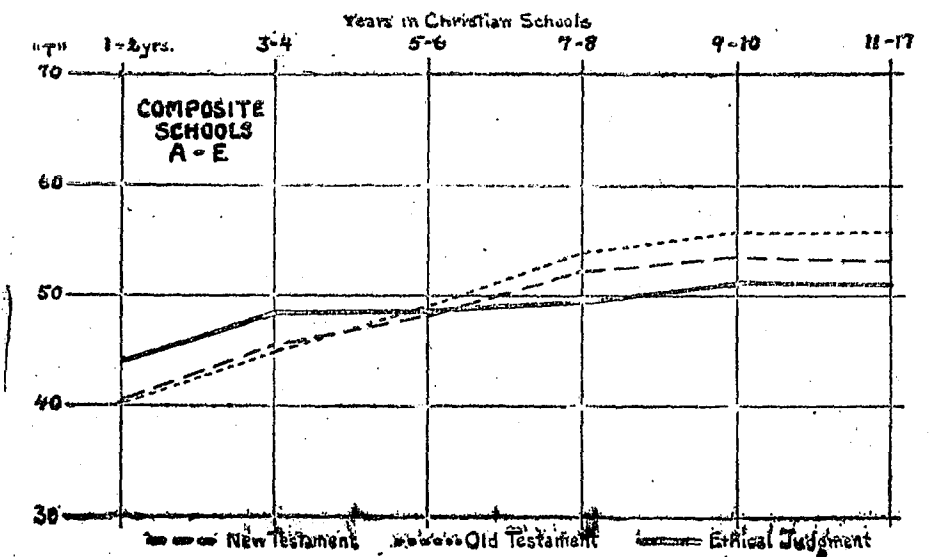


CHART 4. Composite of Progress in Five Schools in Biblical Knowledge and Ethical Judgment According to the Number of Years Spent in Christian Schools

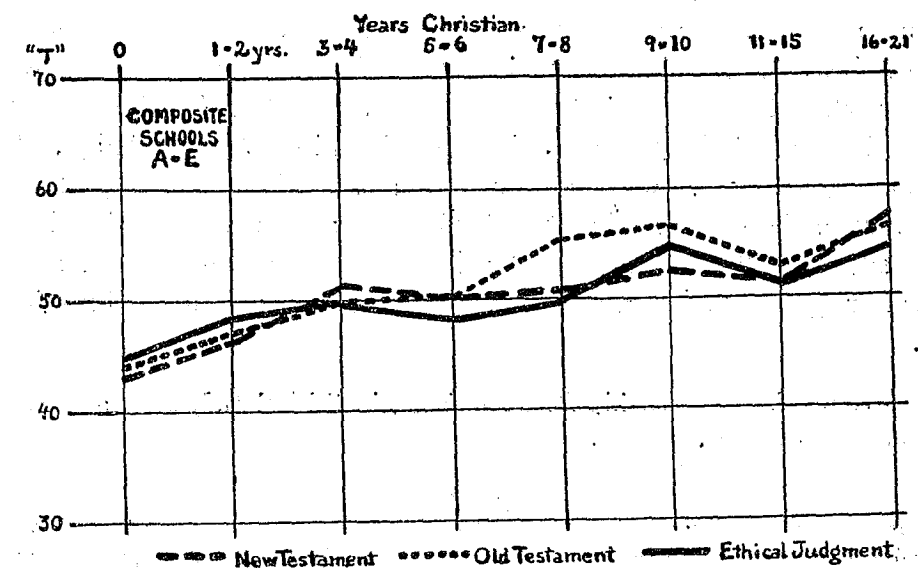


eight years or more have had all or practically all of their training in Christian schools and have had more or less Bible study from the beginning of their school life. It would be most interesting to discover why these latter students seem to have come almost to a standstill in the progress of their Biblical knowledge throughout much of their middle school course. If we take the test questions as a fair indication, they are still far from a mastery of Biblical information. Is it that for them the subject has grown stale and uninteresting through repetition of material often covered before, or is it because of other factors which school administrators and teachers of religious education are endeavoring to remedy? 5. The most marked progress in ethical judgment seems to occur during the first four years spent in Christian schools; from that point on the curves of the several schools fluctuate most erratically, with a composite curve which is almost level at a mediocre standard of ethical judgment. The test papers reveal many instances of where large numbers of students decidedly disagree with commonly accepted ethical standards, as for instance in one case where over half of a fairly large class of Christian students just on the point of graduating from middle school stated it as their conviction that cheating in examination was too trifling a matter to be worth discussing. Of course many of our middle school students are passing through the "age of doubt," in which youth tends to revolt for awhile from conventional standards of all sorts and asserts its independence by maintaining opinions contrary to those commonly accepted. Possibly this natural tendency has been accentuated by the diverse radical currents of thought flooding the student classes of China today. Then too, since our standards for ethical judgment were compiled from mature opinions, (see page 17) they might be criticised as too conservative and non-progressive.

D. *Finding What Influence Length of Christian Experience Has on Religious Knowledge and Ethical Judgment.* Chart 5 indicates progression according to the number of years students have been professing Christians, the chart being a composite of results in five boys' middle schools. Non-Christian students are included under zero years of Christian experience, while Christian students are grouped into two-year intervals.

A study of the chart suggests the following conclusions:—1. Those just beginning their Christian experience are decidedly above their non-Christian schoolmates in both Biblical knowledge and ethical judgment, and there is evidence of definite progress as the length of Christian experience grows. 2. Biblical knowledge and ethical judgment maintain a somewhat closer relationship than in the preceding

CHART 5. Progress in Biblical Knowledge and Ethical Judgment According to Number of Years of Christian Experience.



charts. Thus the chart offers substantial evidence that there is positive growth both in religious knowledge and in ethical judgment as our students continue in their Christian experience. Yet at the same time it seems that this growth is not so steady or so rapid as we might desire.

E. *How Close is the Relationship Between the Student's Biblical Knowledge and the Excellence of His Ethical Judgment?* While the development of ethical judgment is only one of the effects which a study of the Bible should have on the student in the Christian school, it seems reasonable to expect that there should be a fairly close relationship between growth in Biblical knowledge and improvement in ethical judgment. In seeking to find out whether this is actually the case, there was worked out from the scores of about four hundred students tested in four different schools the amount of correlation existing between the scores in ethical judgment on the one hand, and the New Testament and the Old Testament on the other. Both numerical and graphic methods were used.*

Computation showed that the coefficient of correlation between scores in ethical judgment and those in New Testament amounted to .424, with a probable error of .030. Between ethical judgment and Old Testament the correlation was .335, with a probable error of .032. Stating this in terms of the regression, or corresponding change in one type of measure as the other increases or decreases, it was found that

* For a discussion of the computation and meaning of correlation statistics, see Rugg's "Statistical Methods Applied to Education", pages 245-76; or, in Chinese [測驗概要] 第十六章.

for each unit of progress or retrogression of scores in ethical judgment, it is most probable that there will be an accompanying change of 40% as much in New Testament scores, or 33% as much in Old Testament scores. Put in the simplest and least technical terms, these results may be taken to indicate that there is marked relationship between the scores in ethical judgment and those in Biblical knowledge, this relationship being definitely closer in the case of the New Testament than that of the Old Testament. Students above the average in Biblical knowledge will thus in general tend to be also above the average in ethical judgment, although we cannot conclude that this is invariably true.

CHART 6. Relationship Between Scores in Ethical Judgment and Scores in Biblical Knowledge.

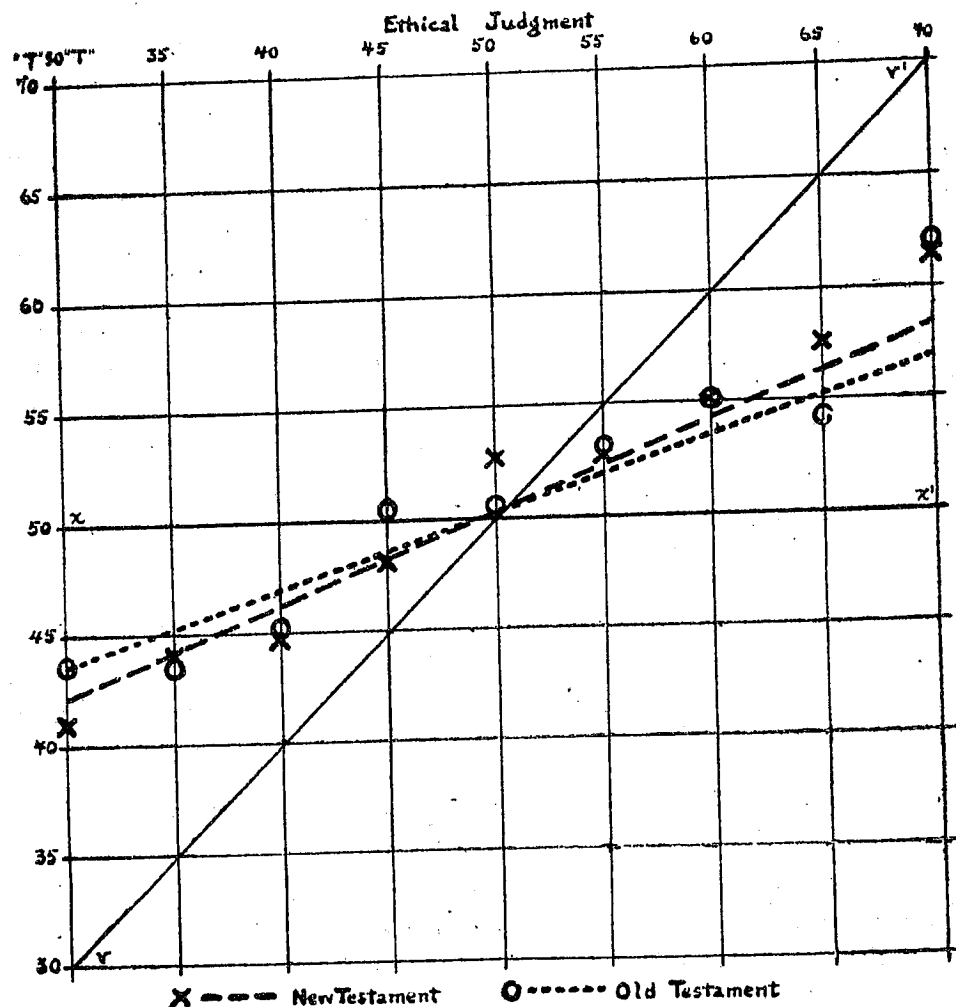


Chart 6 shows these same results in graphic form. The line xx' indicates the plane on which there would be no relationship between the two measures compared. The diagonal vv' designates the plane on

which relationship between the two types of measures would be perfect, so that any change in one measure would be accompanied by an equal and similar change in the other member of the pair. The correlation between the ethical judgment scores and the New Testament scores, and between the ethical judgment scores and the Old Testament scores, is as plotted on the chart. The irregular line of crosses progressing upward across the chart shows the median T scores in New Testament at successive intervals in ethical judgment; and the circles similarly show the median T scores in Old Testament.

Reliance on these results would give us grounds for concluding that to an appreciable degree the student's knowledge of the Bible and the maturity of his ethical judgment are mutually related, so that as he grows in the one he should make some corresponding progress in the other. This relationship, however, is far from being as close as we might desire it to be, and there is ample room for improvement. It is possible, of course, that other factors not considered in these comparisons, such, for example, as the student's general literary ability, may affect the amount of apparent relationship, by making it seem either larger or smaller than it actually is.

F. *How Close is the Relation Between the Student's Character as Revealed by His Daily Life, and His Biblical Knowledge and Ethical Judgment?* It is of course universally recognized that there is a vast difference between our knowledge of the right and our daily actions and attitudes. Any moral and religious test must attempt primarily to determine the amount and content of the subject's knowledge, and cannot always hope to predict the extent to which this knowledge will crystallize into concrete action. Hartshorne and May present this conception in the following way*:

"The presumption back of these two tests is not that one may not do the correct thing without knowing he ought to, nor that he will do it when he knows he ought to, but that knowledge of what is expected or of what is wisest is in the field of morals, just as in plumbing or cooking, an essential part of intelligent control of a situation, even when one chooses to do what is not expected or what is not wise. Our moral issues lie largely in this field of conflict, on the one hand, between what we transiently wish and what we know is good, and on the other, between what is generally regarded as good and what we ideally vision as better. In any case the tester must know the individual's equipment of standards before he can understand the moral significance of his behavior."

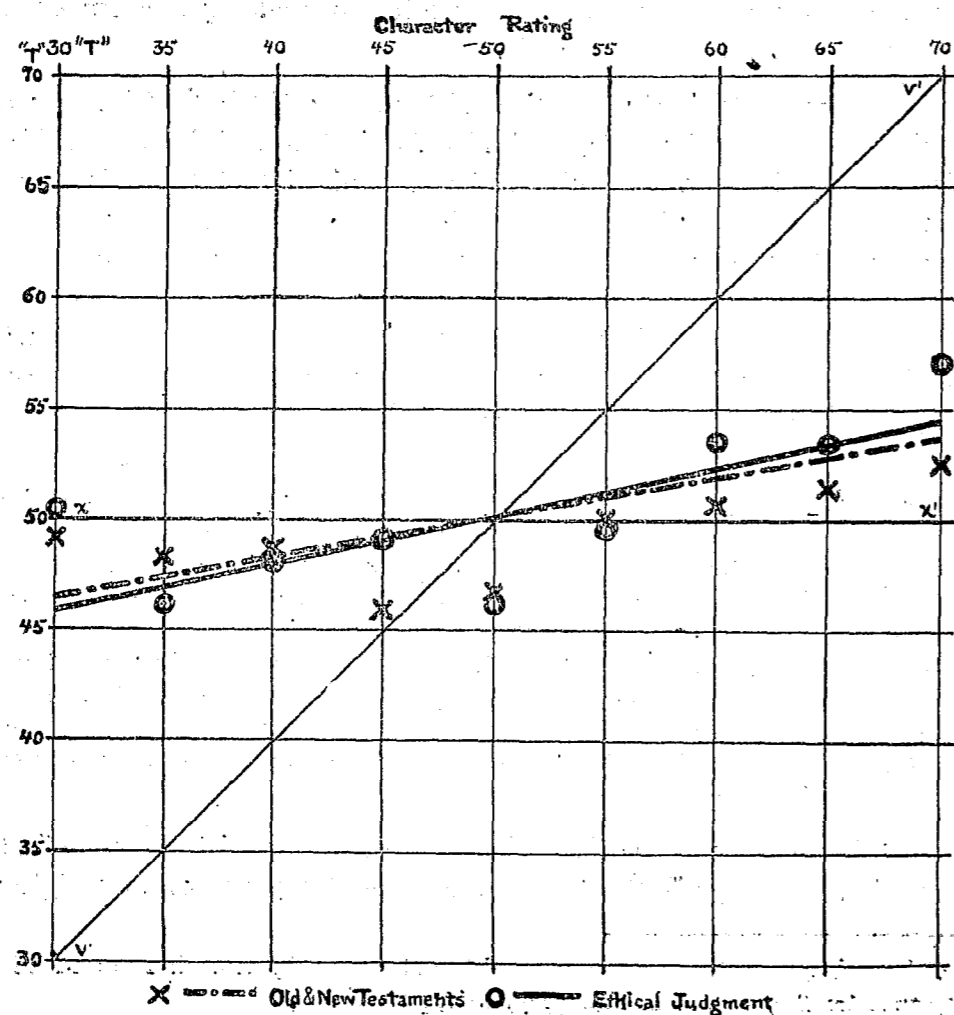
Yet it must be recognized that there should exist a very definite and positive relationship between the student's progress in religious

* "Testing the Knowledge of Right and Wrong", Hartshorne and May *Religious Education*, Vol. XXI February, 1926, page 70.

and ethical knowledge and the development of his character, else it is difficult to see just what is the value of religious education of any sort. The determination of the amount of this relationship presents a most interesting and important field of inquiry.

In this connection there was worked out in the case of about 160 students the amount of correlation between the student's character rating, obtained as previously described, and his score on the tests in Biblical knowledge and ethical judgment. This method of procedure, it was recognized, contained possible sources of error either through inaccuracies in the estimates of the students' characters or through imperfections in the test itself, yet the plan seemed the most hopeful which could be devised, and its use proved productive of very interesting results.

CHART 7. Relationship Between Character Ratings and Scores in Biblical Knowledge and Ethical Judgment.



The coefficient of correlation between character ratings and Biblical scores was found to be .180, with a probable error of .055; and between character ratings and ethical judgment scores it was found to be .224, with a probable error of .053. In terms of the regression, or corresponding change in one measure as the other increases or decreases, it was found that for each unit of change in character rating it is most probable that there will be an accompanying deviation of 19% as much in Biblical knowledge, or 21% as much in ethical judgment. In non-technical terms it may be said that these results indicate that there is a positive relationship between the student's character rating and his scores in Biblical knowledge and ethical judgment, but that this relationship seems to be very slight. Students above the average in character will tend to be above the average in their test scores, but this tendency is at best most uncertain.

Chart 7 shows these same results in graphic form. The horizontal line xx' as in the preceding chart, indicates the plane of absence of relationship, and the diagonal vv' indicates the plane where relationship would be perfect. The correlation between character rating and the combined scores on the Old and New Testament, and between character rating and the scores in ethical judgment, is as plotted on the chart. The slightness of the relationship in both cases is easily apparent. The irregular line of crosses shows the median T scores in Biblical knowledge for successive intervals of T scores in character rating, and the line of circles similarly indicates the median T scores in ethical judgment.

The remarkably small amount of relationship between the students' characters, as estimated by those who should know them well, and their scores received in the religious and ethical test, presents a problem deserving of much thought and research. Is this absence of close relationship a natural and universal situation, is it due partially or wholly to the imperfections in the tests or the character ratings, or does it to some degree at least reveal a lack of efficiency in the methods and content of our religious education?

Summary

The extent to which the test has been used, results interpreted, and discoveries applied to existing problems, has not as yet been great enough to justify too many dogmatic conclusions. Moreover, it is not the main purpose of this discussion to attempt any elaborate evaluation of the strength and weakness of our religious education in the Christian middle schools of China. Our aim is rather to present as simply as possible the facts which have thus far come to light and to suggest

some of the questions they raise, hoping thus to provide a basis for discussion and investigation on the part of those who are now working in the field of religious education.

At a later time, when further use of Mr. Tewksbury's test has been made, additional study has been given to the results secured, and certain revisions have been made and tried out, a second article on this same subject will probably be published in this magazine.

Physics Laboratory Guide now in Book Form

The Laboratory Guide for Middle School Teachers of Physics prepared by Professor H. W. Harkness with the assistance of two Chinese associates, which has already appeared in bi-lingual form in several issues of the CHEELOO Magazine, has now been published in book form. The Laboratory Guide as it appears in its complete form, is considerably expanded by the addition of the following:— experiments and instructions for two new subjects not covered by the material published in CHEELOO; a section of supplementary notes on the experiments, arranged in bi-lingual style; and suggestions for using the Guide, printed in Chinese alone. The manual contains about 140 pages, and will be sold for 60 cents per copy. It may be obtained by writing to the Physics Department of Shantung Christian University, Tsinan, Shantung.



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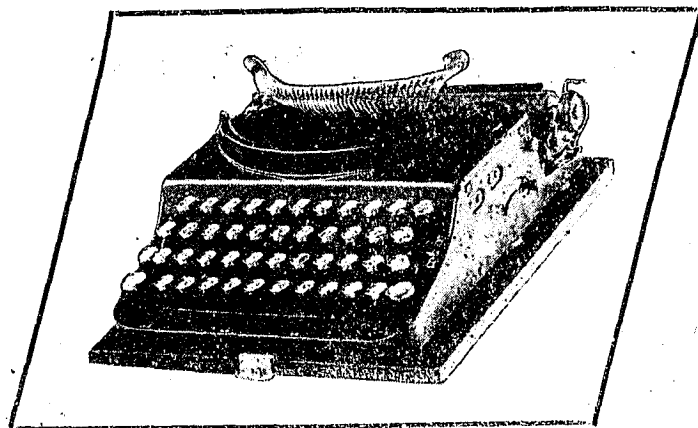
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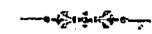
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